

November 2024 Office of Chemical Safety and Pollution Prevention

## Data Quality Evaluation and Data Extraction Information for Physical and Chemical Properties for 1,3-Butadiene

# Systematic Review Support Document for the Draft Risk Evaluation

CASRN: 106-99-0

H<sub>2</sub>C CH<sub>2</sub>

November 2024

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This supplemental file contains information regarding the data extraction and evaluation results for data sources that were considered for the *Draft Risk Evaluation for 1,3-Butadiene* that underwent systematic review. EPA used the TSCA systematic review process described in the *Draft Systematic Review Protocol Supporting TSCA Risk Evaluations for Chemical Substances* (also referred to as the '2021 Draft Systematic Review Protocol'). The systematic review steps are further described in the *Draft Risk Evaluation for 1,3-Butadiene - Systematic Review Protocol*. EPA conducted data extractions and data quality evaluations based on author-reported descriptions and results; additional analyses (*e.g.*, statistical analyses) potentially conducted by EPA are not contained in this supplemental file. Additionally, the overall quality determination (OQD) for each reference represents the data as a whole for each study, and not for individual metric domains within a study.

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|                                                                                                                                                                    | <ul> <li>Mueller, M., Klein, W. (1992). Comparative evaluation of methods predicting water solubility for organic compounds. Chemosphere 25(6):769-782.</li> <li>NLM, (2003). PubChem: Hazardous Substance Data Bank: 1,3-Butadiene, 106-99-0.</li> <li>Rumble, J. R., Lide, D. R., Bruno, T. J. (2018). Octanol-water partition coefficients. :5:148-5:187.</li> <li>U.S. EPA, (2019). Chemistry Daabboard Information for 1,3-Butadiene.</li> <li>EC, (2000). Priority Substances List Assessment Report: 1,3-Butadiene.</li> <li>ECB, (2002). European Union risk assessment report: 1,3-Butadiene.</li> <li>Mceller, M., Klein, W. (1992). Comparative evaluation of methods predicting water solubility for organic compounds. Chemosphere 25(6):769-782.</li> <li>NLM, (2003). PubChem: Hazardous Substance Data Bank: 1,3-Butadiene, 106-99-0.</li> <li>RSC. (2019). ChemSpider: 1,3-Butadiene.</li> <li>Rumble, J. R. (2018). Aqueous solubility and Henry's law constants of organic compounds. :5-148 - 5-177.</li> <li>U.S. EPA, (2002). Health assessment of 1,3-Butadiene. 106-99-0.</li> <li>California Office of Environmental Health Hazard Assessment :: OEHHA (2014). Appendix D: Individual acute, 8-hour, and chronic reference exposure level summaries.</li> <li>Coleman, R. S., Alegria, H. A. (2001). 1,3-Butadiene. : 1-4.</li> <li>ECB, (2002). European Union risk assessment report: 1,3-butadiene.</li> <li>Grub, J., Löser, E. (2011). Butadiene. : 311-396.</li> <li>Kerms, M., Henning, S., Rachin, M. (2002). Butadiene polymers. : 317-356.</li> <li>NIOSH, (2007). NIOSH pocket guide to chemical hazards.</li> <li>NOSH, (1992). Cocupational safety and health guideline for batadiene (1,3-butadiene.).</li> <li>RSC, (2019). Chemispider: 1,3-Butadiene.</li> <li>U.S. EPA, (2002). Butadiane. : 313-396.</li> <li>Kerms, M., Henning, S., Rachin, M. (2002). Butadiene for batadiene (1,3-butadiene.).</li> <li>RSC, (2019). Chemispider: 1,3-Butadiene.</li> <li>U.S. EPA, (2002). Health assessment report: 1,3-butadiene.</li> <li>U.S. EPA, (2002). Fauth assessment of 1,3-butadi</li></ul> |

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| Template:<br>HERO ID:        | 5155603                |                                              |                     |                                                                                                                                                                                                                                                                                                                                    |  |
|                              |                        |                                              | EXTRACTIO           | Ň                                                                                                                                                                                                                                                                                                                                  |  |
| Parameter                    |                        | Data                                         |                     |                                                                                                                                                                                                                                                                                                                                    |  |
|                              |                        |                                              |                     |                                                                                                                                                                                                                                                                                                                                    |  |
| CASRN and Test Material      |                        | 106-99-0; 1,3-Butadiene                      |                     |                                                                                                                                                                                                                                                                                                                                    |  |
| Confidentiality, Type, and C | Guideline              | No; Not specified; Not Reported              |                     |                                                                                                                                                                                                                                                                                                                                    |  |
| Solvent, Reactivity, Storage | e, and Stability       | Not Reported; Not Reported; Not Repo         | orted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |
| Radiolabel, Source, State, a | and Purity             | Not Reported; Not Reported; Not Repo         | orted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |
| Results Value                |                        | Colorless gas                                |                     |                                                                                                                                                                                                                                                                                                                                    |  |
| Results Details              |                        | Not Reported                                 |                     |                                                                                                                                                                                                                                                                                                                                    |  |
|                              |                        |                                              | FVALUATION          | N                                                                                                                                                                                                                                                                                                                                  |  |
| Domain                       |                        | Metric                                       | Rating              | Comments                                                                                                                                                                                                                                                                                                                           |  |
| Domain 1: Substance          |                        |                                              |                     |                                                                                                                                                                                                                                                                                                                                    |  |
|                              | Metric 1:              | Representativeness                           | High                | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |  |
|                              | Metric 2:              | Appropriateness                              | High                | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |  |
| Domain 2: Test Reliabil      | ity                    |                                              |                     |                                                                                                                                                                                                                                                                                                                                    |  |
| Domain 2. Test Kellauli      | Metric 3:              | Reliability/Unbiased<br>(Method Objectivity) | Medium              | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |  |
|                              | Metric 4:              | Reliability/Analytical Method                | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |  |
| Domain 3 <sup>,</sup> Other  |                        |                                              |                     |                                                                                                                                                                                                                                                                                                                                    |  |
|                              | Metric 5:              | Databases                                    | High                | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use                                                                                                                                               |  |
|                              | Metric 6:              | Models                                       | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |  |
| <b>Overall Qualit</b>        | ty Determi             | nation                                       | High                |                                                                                                                                                                                                                                                                                                                                    |  |

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| Study Citation:                      | DOE, (2016). T   | Cable 1: Chemicals of concern and asso           cr State | ciated chemical inf | ormation. PACs.                                                                                                                                                                                             |
|--------------------------------------|------------------|-----------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Templeter                            | Physical Form of | or state                                                  |                     |                                                                                                                                                                                                             |
|                                      | 2021012          |                                                           |                     |                                                                                                                                                                                                             |
| HERO ID:                             | 3981013          |                                                           |                     |                                                                                                                                                                                                             |
|                                      |                  |                                                           | EXTRACTIO           | N                                                                                                                                                                                                           |
| Parameter                            |                  | Data                                                      |                     |                                                                                                                                                                                                             |
|                                      |                  |                                                           |                     |                                                                                                                                                                                                             |
| CASRN and Test Material              |                  | 106-99-0; 1,3-Butadiene                                   |                     |                                                                                                                                                                                                             |
| Confidentiality, Type, and O         | Guideline        | none; not specified; not specified                        |                     |                                                                                                                                                                                                             |
| Solvent, Reactivity, Storage         | e, and Stability | NR; NR; NR; NR                                            |                     |                                                                                                                                                                                                             |
| Radiolabel, Source, State, a         | and Purity       | NR; NR; NR; NR Notes: NR                                  |                     |                                                                                                                                                                                                             |
| Results Value                        |                  | gas                                                       |                     |                                                                                                                                                                                                             |
| Results Details                      |                  | not specified                                             |                     |                                                                                                                                                                                                             |
|                                      |                  |                                                           |                     |                                                                                                                                                                                                             |
|                                      |                  |                                                           | EVALUATIO           | N                                                                                                                                                                                                           |
| Domain                               |                  | Metric                                                    | Rating              | Comments                                                                                                                                                                                                    |
| Domain 1: Substance                  |                  |                                                           |                     |                                                                                                                                                                                                             |
|                                      | Metric 1:        | Representativeness                                        | High                | Data are measured or estimated for the subject chemical substance.                                                                                                                                          |
|                                      | Metric 2:        | Appropriateness                                           | High                | Measured data are consistent with the subject chemical substance structural features.                                                                                                                       |
|                                      |                  |                                                           |                     |                                                                                                                                                                                                             |
| Domain 2: Test Reliabil              | ity              |                                                           |                     |                                                                                                                                                                                                             |
|                                      | Metric 3:        | (Method Objectivity)                                      | Medium              | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                               |
|                                      | Metric 4:        | Reliability/Analytical Method                             | Medium              | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                            |
| Domain 3: Other                      |                  |                                                           |                     |                                                                                                                                                                                                             |
|                                      | Metric 5:        | Databases                                                 | High                | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review; specific source not reported. |
|                                      | Metric 6:        | Models                                                    | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                        |
| <b>Overall Quality Determination</b> |                  |                                                           | High                |                                                                                                                                                                                                             |

\* Related References: primary reference not specified but include CRC (2009), HSDB (no date), Merck (2006), SAX (2012)

| Physical Form ( | or State                                                                                                                                 | ,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5160048         |                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                 |                                                                                                                                          | EXTRACTIO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                 | Data                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                 |                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| uidalina        | 106-99-0; 1,3-Butadiene                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| and Stability   | Not Penorted: Not Penorted: Not Penort                                                                                                   | ad: Not Papartad                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| nd Purity       | Not Reported: Not Reported: colorless g                                                                                                  | eu, Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ild aromatic odor: Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ia i anty       | Not Reported                                                                                                                             | 15 ut 25 C With u h                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                 | Not Reported                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                 |                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                 | Metric                                                                                                                                   | EVALUATIO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                 | Wiettie                                                                                                                                  | Rating                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Connicits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Metric 1:       | Representativeness                                                                                                                       | High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Metric 2:       | Appropriateness                                                                                                                          | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| tx              |                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Metric 3:       | Reliability/Unbiased                                                                                                                     | Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Metric 4:       | Reliability/Analytical Method                                                                                                            | Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | The analytical method is non-standard but is expected to be appropriate OR the analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                 |                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Metric 5:       | Databases                                                                                                                                | High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Metric 6:       | Models                                                                                                                                   | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                 | 5160048<br>iuideline<br>, and Stability<br>nd Purity<br>Metric 1:<br>Metric 2:<br>ty<br>Metric 3:<br>Metric 4:<br>Metric 5:<br>Metric 6: | 5160048         Data         106-99-0; 1,3-Butadiene         No; not specified; Not Reported         and Stability         Not Reported; Not Reported; Not Report         Not Reported; Not Reported; colorless gan Not Reported         Not Reported         Metric         Metric 1:         Metric 2:         Appropriateness         ty         Metric 3:         Reliability/Unbiased (Method Objectivity)         Metric 4:         Reliability/Analytical Method         Metric 5:       Databases         Metric 6:       Models | EXTRACTIO         Data         106-99-0; 1,3-Butadiene         No; not specified; Not Reported         and Stability         Not Reported; Not Reported; Not Reported; Not Reported; Not Reported; colorless gas at 25 C with a m         Not Reported         Metric 1:         Representativeness         High         Metric 3:       Reliability/Unbiased         Metric 4:       Reliability/Analytical Method         Metric 5:       Databases         High         Metric 6:       Models |

\* Related References: cited from Mackay, D., W.Y. Shiu and K.C. Ma. 1993.Illustrated handbook of physical-chemical properties and environmental fate of organic compounds. Vol. III. Lewis Publishers Inc., Chelsea, Michigan

PUBLIC RELEASE DRAFT November 2024 Physical Form or State

| Study Citation:                   | ECB. (2002). F   | uropean Union risk assessment report: 1    | .3-butadiene.        |                                                                                                                                                                                      |
|-----------------------------------|------------------|--------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>OECD</b> Harmonized            | Physical Form    | or State                                   | ,                    |                                                                                                                                                                                      |
| Template:                         |                  |                                            |                      |                                                                                                                                                                                      |
| HERO ID:                          | 5155560          |                                            |                      |                                                                                                                                                                                      |
|                                   |                  |                                            | EXTRACTIO            | N                                                                                                                                                                                    |
| Parameter                         |                  | Data                                       |                      |                                                                                                                                                                                      |
|                                   |                  |                                            |                      |                                                                                                                                                                                      |
| CASRN and Test Material           |                  | 106-99-0; 1,3-Butadiene                    |                      |                                                                                                                                                                                      |
| Confidentiality, Type, and        | Guideline        | No; not specified; Not Reported            |                      |                                                                                                                                                                                      |
| Solvent, Reactivity, Storage      | e, and Stability | Not Reported; Not Reported; Not Report     | ted; Not Reported    |                                                                                                                                                                                      |
| Radiolabel, Source, State, a      | and Purity       | Not Reported; Not Reported; colorless g    | gas with a mild aror | natic odor.; Not Reported                                                                                                                                                            |
| Results Value                     |                  | Not Reported                               |                      |                                                                                                                                                                                      |
| Results Details                   |                  | reported at n.t.p; The odour threshold lin | nit is between 1.0 a | nd 4.0 mg/m3.                                                                                                                                                                        |
|                                   |                  |                                            | EVALUATIO            | N                                                                                                                                                                                    |
| Domain                            |                  | Metric                                     | Rating               | Comments                                                                                                                                                                             |
| Domain 1: Substance               |                  |                                            |                      |                                                                                                                                                                                      |
|                                   | Metric 1:        | Representativeness                         | High                 | Data are measured or estimated for the subject chemical substance.                                                                                                                   |
|                                   | Metric 2:        | Appropriateness                            | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                                                 |
| Domain 2: Test Reliabil           | itv              |                                            |                      |                                                                                                                                                                                      |
| 2 1000 100000                     | Metric 3:        | Reliability/Unbiased                       | Medium               | There is no indication that the methodology for producing the information was biased                                                                                                 |
|                                   |                  | (Method Objectivity)                       |                      | towards a particular product or outcome                                                                                                                                              |
|                                   | Metric 4:        | Reliability/Analytical Method              | Medium               | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                     |
| Domain 3: Other                   |                  |                                            |                      |                                                                                                                                                                                      |
|                                   | Metric 5:        | Databases                                  | High                 | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use |
|                                   | Metric 6:        | Models                                     | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                                                 |
| Overall Quality Determination Hig |                  |                                            | High                 |                                                                                                                                                                                      |

\* Related References: missing reference

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Haz-Map (n.d.)<br>Physical Form o | . Hazardous agents: 1,3-Butadiene.<br>or State |                   |                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 7681901                           |                                                |                   |                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |                                                | EXTRACTIO         | N                                                                                                                                                                                                                                      |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                   | Data                                           |                   |                                                                                                                                                                                                                                        |
| CASRN and Test Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   | 106-99-0; 1,3-Butadiene                        |                   |                                                                                                                                                                                                                                        |
| Confidentiality, Type, and Confidentiality, and Confidentiality | Guideline                         | none; not specified; not specified             |                   |                                                                                                                                                                                                                                        |
| Solvent, Reactivity, Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | e, and Stability                  | NR; NR; NR; NR                                 |                   |                                                                                                                                                                                                                                        |
| Radiolabel, Source, State, a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | and Purity                        | NR; NR; gas; NR                                |                   |                                                                                                                                                                                                                                        |
| Results Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ·                                 | Colorless gas with a mild aromatic or g        | asoline-like odor |                                                                                                                                                                                                                                        |
| Results Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   | liquid below 24°F as a compressed gas          |                   |                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |                                                | EVALUATIO         | Ň                                                                                                                                                                                                                                      |
| Domain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   | Metric                                         | Rating            | Comments                                                                                                                                                                                                                               |
| Domain 1: Substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                   |                                                |                   |                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 1:                         | Representativeness                             | High              | Data are reported for the subject chemical substance.                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 2:                         | Appropriateness                                | High              | Data are consistent with the subject chemical substance structural features.                                                                                                                                                           |
| Domain 2: Test Reliabil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ity                               |                                                |                   |                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 3:                         | Reliability/Unbiased<br>(Method Objectivity)   | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 4:                         | Reliability/Analytical Method                  | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                   |
| Domain 3: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |                                                |                   |                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 5:                         | Databases                                      | Medium            | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. Secondary source citing secondary source. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 6:                         | Models                                         | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                   |
| Overall Qualit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ty Determi                        | nation                                         | High              |                                                                                                                                                                                                                                        |

\* Related References: Citation: HSDB - HERO ID 6628926 (not in distiller PChem at time of extraction)

| Study Citation:<br>OECD Harmonized | Kerns, M., Hen<br>Physical Form | ning, S., Rachita, M. (2002). Butadiene p<br>or State | oolymers. :317-3:  | 56.                                                                                                                                                                                                                                                 |
|------------------------------------|---------------------------------|-------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | 0/035/7                         |                                                       |                    |                                                                                                                                                                                                                                                     |
| IIERO ID:                          | 9493542                         |                                                       |                    | <b>x</b> 7                                                                                                                                                                                                                                          |
| Donomotor                          |                                 | Data                                                  | EXTRACTIO          | N                                                                                                                                                                                                                                                   |
| Parameter                          |                                 | Data                                                  |                    |                                                                                                                                                                                                                                                     |
|                                    |                                 |                                                       |                    |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            | C: 4-1:                         | 106-99-0; 1,3-Butadiene                               |                    |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C       |                                 | no; not specified; Not Reported                       | 4- d. N-4 D        |                                                                                                                                                                                                                                                     |
| Bodiolobal Source Stote            | e, and Stability                | Not Reported; Not Reported; Not Repor                 | ted; Not Reported  | with a mildly gromatic adam Nat Danastad                                                                                                                                                                                                            |
| Radioladel, Source, State, a       | and Purity                      | Not Reported, Not Reported, highly read               | cuve, coloness gas | while a minory aromatic odor; Not Reported                                                                                                                                                                                                          |
| Results Datails                    |                                 | Not Reported                                          |                    |                                                                                                                                                                                                                                                     |
| Results Details                    |                                 | Not Reported                                          |                    |                                                                                                                                                                                                                                                     |
|                                    |                                 |                                                       | EVALUATIO          | N                                                                                                                                                                                                                                                   |
| Domain                             |                                 | Metric                                                | Rating             | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                                 |                                                       |                    |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                       | Representativeness                                    | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                       | Appropriateness                                       | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Domain 2. Test Reliabil            | ity                             |                                                       |                    |                                                                                                                                                                                                                                                     |
| 2 strain 2. Test Rendon            | Metric 3:                       | Reliability/Unbiased                                  | Medium             | There is no indication that the methodology for producing the information was biased                                                                                                                                                                |
|                                    |                                 | (Method Objectivity)                                  |                    | towards a particular product or outcome.                                                                                                                                                                                                            |
|                                    | Metric 4:                       | Reliability/Analytical Method                         | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                                 |                                                       |                    |                                                                                                                                                                                                                                                     |
| Domain 5. Other                    | Metric 5:                       | Databases                                             | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                       | Models                                                | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Qualit                     | ty Determi                      | nation                                                | High               |                                                                                                                                                                                                                                                     |

\* Related References: cited from M. Windholz, ed., The Merck Index, 10th ed., Merck & Co., Inc., Rahway, NJ, 1983, p. 1480.

| Study Citation:              | National Toxicol<br>B6C3F1 mice (in | Vational Toxicology Program (NTP), (1993). NTP technical report on the toxicology and carcinogenesis studies of 1,3-butadiene (CAS no. 106-99-0) in 36C3F1 mice (inhalation studies). |                     |                                                                                                                                                                                                                                             |  |  |
|------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>OECD Harmonized</b>       | Physical Form or                    | State                                                                                                                                                                                 |                     |                                                                                                                                                                                                                                             |  |  |
| Template:                    |                                     |                                                                                                                                                                                       |                     |                                                                                                                                                                                                                                             |  |  |
| HERO ID:                     | 5160111                             |                                                                                                                                                                                       |                     |                                                                                                                                                                                                                                             |  |  |
|                              |                                     |                                                                                                                                                                                       | EXTRACTIO           | N                                                                                                                                                                                                                                           |  |  |
| Parameter                    |                                     | Data                                                                                                                                                                                  |                     |                                                                                                                                                                                                                                             |  |  |
|                              |                                     |                                                                                                                                                                                       |                     |                                                                                                                                                                                                                                             |  |  |
| CASRN and Test Material      |                                     | 106-99-0; 1,3-butadiene                                                                                                                                                               |                     |                                                                                                                                                                                                                                             |  |  |
| Confidentiality, Type, and C | Guideline                           | no; not specified; Not Reported                                                                                                                                                       |                     |                                                                                                                                                                                                                                             |  |  |
| Solvent, Reactivity, Storage | e, and Stability                    | Not Reported; Not Reported; Not Report                                                                                                                                                | ted; Not Reported   |                                                                                                                                                                                                                                             |  |  |
| Radiolabel, Source, State, a | and Purity                          | Not Reported; Not Reported; colorless,                                                                                                                                                | noncorrosive gas; N | fot Reported                                                                                                                                                                                                                                |  |  |
| Results Value                |                                     | Not Reported                                                                                                                                                                          |                     |                                                                                                                                                                                                                                             |  |  |
| Results Details              |                                     | Kirshenbaum, 1978                                                                                                                                                                     |                     |                                                                                                                                                                                                                                             |  |  |
|                              |                                     |                                                                                                                                                                                       | EVALUATIO           | N                                                                                                                                                                                                                                           |  |  |
| Domain                       |                                     | Metric                                                                                                                                                                                | Rating              | Comments                                                                                                                                                                                                                                    |  |  |
| Domain 1: Substance          |                                     |                                                                                                                                                                                       |                     |                                                                                                                                                                                                                                             |  |  |
|                              | Metric 1:                           | Representativeness                                                                                                                                                                    | High                | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                          |  |  |
|                              | Metric 2:                           | Appropriateness                                                                                                                                                                       | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                        |  |  |
| Domain 2: Test Reliabil      | ity                                 |                                                                                                                                                                                       |                     |                                                                                                                                                                                                                                             |  |  |
|                              | Metric 3:                           | Reliability/Unbiased                                                                                                                                                                  | Medium              | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                               |  |  |
|                              | Metric 4:                           | Reliability/Analytical Method                                                                                                                                                         | Medium              | The analytical method is non-standard but is expected to be appropriate OR the analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |  |  |
| Domain 3: Other              |                                     |                                                                                                                                                                                       |                     |                                                                                                                                                                                                                                             |  |  |
|                              | Metric 5:                           | Databases                                                                                                                                                                             | High                | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.        |  |  |
|                              | Metric 6:                           | Models                                                                                                                                                                                | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                        |  |  |
| Overall Qualit               | ty Determin                         | nation                                                                                                                                                                                | High                |                                                                                                                                                                                                                                             |  |  |

\* Related References: Citing from Kirshenbaum, I. (1978). Butadiene. In Kirk-Othmer Encyclopedia of Chemical Technology, Vol. 4, 3rd ed., pp. 313-337. John Wiley and Sons, New York.

| Study Citation:                 | National Toxico  | logy Program (NTP), (2016). Report on   | carcinogens, fifte   | eenth edition: 1,3-butadiene.                                                                                                                                                                                                                       |  |  |
|---------------------------------|------------------|-----------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Template:                       | Thysical Polini  | 5 State                                 |                      |                                                                                                                                                                                                                                                     |  |  |
| HERO ID:                        | 5160138          |                                         |                      |                                                                                                                                                                                                                                                     |  |  |
|                                 | EXTRACTION       |                                         |                      |                                                                                                                                                                                                                                                     |  |  |
| Parameter                       |                  | Data                                    |                      |                                                                                                                                                                                                                                                     |  |  |
|                                 |                  |                                         |                      |                                                                                                                                                                                                                                                     |  |  |
| CASRN and Test Material         |                  | 106-99-0; 1,3-Butadiene                 |                      |                                                                                                                                                                                                                                                     |  |  |
| Confidentiality, Type, and C    | Guideline        | no; not specified; Not Reported         |                      |                                                                                                                                                                                                                                                     |  |  |
| Solvent, Reactivity, Storage    | e, and Stability | Not Reported; Not Reported; Not Repor   | ted; Not Reported    |                                                                                                                                                                                                                                                     |  |  |
| Radiolabel, Source, State, a    | ind Purity       | Not Reported; Not Reported; coloriess g | gas with a mild aron | hatic or gasoline odor at room temperature; Not Reported                                                                                                                                                                                            |  |  |
| Results Value                   |                  | Not Reported                            |                      |                                                                                                                                                                                                                                                     |  |  |
| Results Details                 |                  | Not Reported                            |                      |                                                                                                                                                                                                                                                     |  |  |
|                                 | EVALUATION       |                                         |                      |                                                                                                                                                                                                                                                     |  |  |
| Domain                          |                  | Metric                                  | Rating               | Comments                                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance             |                  |                                         |                      |                                                                                                                                                                                                                                                     |  |  |
|                                 | Metric 1:        | Representativeness                      | High                 | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |
|                                 | Metric 2:        | Appropriateness                         | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Domain 2: Test Reliabil         | itv              |                                         |                      |                                                                                                                                                                                                                                                     |  |  |
|                                 | Metric 3:        | Reliability/Unbiased                    | Medium               | There is no indication that the methodology for producing the information was biased                                                                                                                                                                |  |  |
|                                 |                  | (Method Objectivity)                    |                      | towards a particular product or outcome.                                                                                                                                                                                                            |  |  |
|                                 | Metric 4:        | Reliability/Analytical Method           | Medium               | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |
| Domain 3: Other                 |                  |                                         |                      |                                                                                                                                                                                                                                                     |  |  |
|                                 | Metric 5:        | Databases                               | High                 | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |
|                                 | Metric 6:        | Models                                  | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Overall Quality Determination H |                  |                                         |                      |                                                                                                                                                                                                                                                     |  |  |

| Study Citation:              | NCBI, (2020).<br>Physical Form | PubChem Compound Summary for CID (     | 7845 1,3 Butadie   | ne.                                                                                                                                                                                                                                         |
|------------------------------|--------------------------------|----------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template.                    | r nysicai ronni                | of State                               |                    |                                                                                                                                                                                                                                             |
| HFRO ID:                     | 10171483                       |                                        |                    |                                                                                                                                                                                                                                             |
| IIERO ID.                    | 10171405                       |                                        |                    |                                                                                                                                                                                                                                             |
| _                            |                                |                                        | EXTRACTIO          | N                                                                                                                                                                                                                                           |
| Parameter                    |                                | Data                                   |                    |                                                                                                                                                                                                                                             |
|                              |                                |                                        |                    |                                                                                                                                                                                                                                             |
| CASRN and Test Material      |                                | 106-99-0; Not Reported                 |                    |                                                                                                                                                                                                                                             |
| Confidentiality, Type, and   | Guideline                      | no; not specified; Not Reported        |                    |                                                                                                                                                                                                                                             |
| Solvent, Reactivity, Storage | e, and Stability               | Not Reported; Not Reported; Not Report | ed; Not Reported   |                                                                                                                                                                                                                                             |
| Radiolabel, Source, State, a | and Purity                     | Not Reported; Not Reported; Not Report | ed; Not Reported I | Notes: Mild aromatic odor                                                                                                                                                                                                                   |
| Results Value                |                                | Not Reported                           |                    |                                                                                                                                                                                                                                             |
| Results Details              |                                | Not Reported                           |                    |                                                                                                                                                                                                                                             |
|                              |                                |                                        | EVALUATIO          | N                                                                                                                                                                                                                                           |
| Domain                       |                                | Metric                                 | Rating             | Comments                                                                                                                                                                                                                                    |
| Domain 1: Substance          |                                |                                        |                    |                                                                                                                                                                                                                                             |
|                              | Metric 1:                      | Representativeness                     | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                          |
|                              | Metric 2:                      | Appropriateness                        | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                        |
| Domain 2: Test Reliabil      | litv                           |                                        |                    |                                                                                                                                                                                                                                             |
|                              | Metric 3:                      | Reliability/Unbiased                   | Medium             | There is no indication that the methodology for producing the information was biased                                                                                                                                                        |
|                              |                                | (Method Objectivity)                   |                    | towards a particular product or outcome.                                                                                                                                                                                                    |
|                              | Metric 4:                      | Reliability/Analytical Method          | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |
|                              |                                |                                        |                    | · ·                                                                                                                                                                                                                                         |
| Domain 3: Other              |                                |                                        |                    |                                                                                                                                                                                                                                             |
|                              | Metric 5:                      | Databases                              | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.        |
|                              | Metric 6.                      | Models                                 | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                        |

\* Related References: cited from O'Neil, M.J. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Cambridge, UK: Royal Society of Chemistry, 2013., p. 267 (HERO ID: 5926379)

| Study Citation:              | NIOSH, (2007)    | . NIOSH pocket guide to chemical haza   | rds.           |                                                                                                                                                                                              |
|------------------------------|------------------|-----------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Physical Form of | or State                                |                |                                                                                                                                                                                              |
| HERO ID:                     | 192177           |                                         |                |                                                                                                                                                                                              |
|                              |                  |                                         | EVTDACTIO      | N                                                                                                                                                                                            |
| Parameter                    |                  | Data                                    | EATRACIIO      |                                                                                                                                                                                              |
|                              |                  | Dutu                                    |                |                                                                                                                                                                                              |
| CASRN and Test Material      |                  | 106-99-0; 1.3-Butadiene                 |                |                                                                                                                                                                                              |
| Confidentiality, Type, and C | Guideline        | None; Experimental; Not reported        |                |                                                                                                                                                                                              |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                          |                |                                                                                                                                                                                              |
| Radiolabel, Source, State, a | and Purity       | NR; NR; Gas; NR Notes: NR               |                |                                                                                                                                                                                              |
| Results Value                |                  | Colorless gas; mild aromatic or gasolin | e-like odor    |                                                                                                                                                                                              |
| Results Details              |                  | liquid at <24°F; shipped as a liquefied | compressed gas |                                                                                                                                                                                              |
|                              |                  |                                         |                |                                                                                                                                                                                              |
|                              |                  |                                         | EVALUATIO      | N                                                                                                                                                                                            |
| Domain                       |                  | Metric                                  | Rating         | Comments                                                                                                                                                                                     |
| Domain 1: Substance          |                  |                                         |                |                                                                                                                                                                                              |
|                              | Metric 1:        | Representativeness                      | High           | Data are measured or estimated for the subject chemical substance.                                                                                                                           |
|                              | Metric 2:        | Appropriateness                         | N/A            | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| Domain 2: Test Reliabili     | ity              |                                         |                |                                                                                                                                                                                              |
| Domain 2. Test Kendom        | Metric 3         | Reliability/Unbiased                    | N/A            | Pating of this factor is not applicable to this kind of information                                                                                                                          |
|                              | Mettre 5.        | (Method Objectivity)                    | 14/14          | Rating of this factor is not appreade to this kind of information.                                                                                                                           |
|                              | Metric 4:        | Reliability/Analytical Method           | N/A            | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
|                              |                  |                                         |                |                                                                                                                                                                                              |
| Domain 3: Other              | M / 1 5          |                                         |                |                                                                                                                                                                                              |
|                              | Metric 5:        | Databases                               | Medium         | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                              | Metric 6:        | Models                                  | N/A            | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| Overall Qualit               | y Determi        | nation                                  | High           |                                                                                                                                                                                              |

| Study Citation:<br>OECD Harmonized   | NIOSH, (1992).<br>Physical Form of | Occupational safety and health guidelin<br>r State | ne for butadiene (   | 1,3-butadiene).                                                                                                                                                                                                                                     |  |  |
|--------------------------------------|------------------------------------|----------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                             | 8408503                            |                                                    |                      |                                                                                                                                                                                                                                                     |  |  |
|                                      |                                    |                                                    | EXTRACTIO            | N                                                                                                                                                                                                                                                   |  |  |
| Parameter                            |                                    | Data                                               |                      |                                                                                                                                                                                                                                                     |  |  |
|                                      |                                    |                                                    |                      |                                                                                                                                                                                                                                                     |  |  |
| CASRN and Test Material              |                                    | 106-99-0; Not Reported                             |                      |                                                                                                                                                                                                                                                     |  |  |
| Confidentiality, Type, and C         | Guideline                          | no; not specified; Not Reported                    |                      |                                                                                                                                                                                                                                                     |  |  |
| Solvent, Reactivity, Storage         | e, and Stability                   | Not Reported; Not Reported; shipped up             | nder its own vapor p | ressure as a liquified gas; Not Reported                                                                                                                                                                                                            |  |  |
| Radiolabel, Source, State, a         | and Purity                         | Not Reported; Not Reported; colorless,             | flammable gas with   | a mild aromatic odor. The odor threshold is reported to be 1.1 parts per million parts                                                                                                                                                              |  |  |
| Dogulta Value                        |                                    | of air; Not Reported                               |                      |                                                                                                                                                                                                                                                     |  |  |
| Results Datails                      |                                    | Not Reported                                       |                      |                                                                                                                                                                                                                                                     |  |  |
| Results Details                      |                                    | Not Reported                                       |                      |                                                                                                                                                                                                                                                     |  |  |
|                                      | EVALUATION                         |                                                    |                      |                                                                                                                                                                                                                                                     |  |  |
| Domain                               |                                    | Metric                                             | Rating               | Comments                                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance                  |                                    |                                                    |                      |                                                                                                                                                                                                                                                     |  |  |
|                                      | Metric 1:                          | Representativeness                                 | High                 | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |
|                                      | Metric 2:                          | Appropriateness                                    | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Domain 2: Test Reliabili             | itv                                |                                                    |                      |                                                                                                                                                                                                                                                     |  |  |
|                                      | Metric 3:                          | Reliability/Unbiased                               | Medium               | There is no indication that the methodology for producing the information was biased                                                                                                                                                                |  |  |
|                                      |                                    | (Method Objectivity)                               |                      | towards a particular product or outcome.                                                                                                                                                                                                            |  |  |
|                                      | Metric 4:                          | Reliability/Analytical Method                      | Medium               | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |
| Domain 2: Other                      |                                    |                                                    |                      |                                                                                                                                                                                                                                                     |  |  |
| Domain 5. Outer                      | Metric 5:                          | Databases                                          | High                 | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |
|                                      | Metric 6:                          | Models                                             | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| <b>Overall Quality Determination</b> |                                    |                                                    |                      |                                                                                                                                                                                                                                                     |  |  |

PUBLIC RELEASE DRAFT November 2024 Physical Form or State

|                              | a                          |                                              |                          |                                                                                                                                                                                                                                             |  |  |  |  |
|------------------------------|----------------------------|----------------------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| Study Citation:              | Sun, H. N., Wris           | sters, J. P. (2002). Butadiene.              |                          |                                                                                                                                                                                                                                             |  |  |  |  |
| OECD Harmonized              | Physical Form o            | Physical Form of State                       |                          |                                                                                                                                                                                                                                             |  |  |  |  |
| Template:                    | 52 (2012)                  |                                              |                          |                                                                                                                                                                                                                                             |  |  |  |  |
| HERO ID:                     | 5349218                    |                                              |                          |                                                                                                                                                                                                                                             |  |  |  |  |
|                              | EXTRACTION                 |                                              |                          |                                                                                                                                                                                                                                             |  |  |  |  |
| Parameter                    |                            | Data                                         |                          |                                                                                                                                                                                                                                             |  |  |  |  |
| CASPN and Test Material      |                            | 106 00 0; 1.2 Putadiana                      |                          |                                                                                                                                                                                                                                             |  |  |  |  |
| Canfidentiality Type and (   | Zuidalina                  | no: not specified: Not Reported              |                          |                                                                                                                                                                                                                                             |  |  |  |  |
| Solvent Beastivity Storage   | Juluellie<br>and Stability | Not Papertad: Not Papertad: Not Paper        | tad: Not Papartad        |                                                                                                                                                                                                                                             |  |  |  |  |
| Padialabal Source State      | and Durity                 | Not Reported: Not Reported: not Report       | iva colorloss flammable  | ges at room temperature and atmospheric pressure with a mildly aromatic adar.                                                                                                                                                               |  |  |  |  |
| Kaulolabel, Source, State, a | ulu Fulity                 | Not Reported                                 | ive, coloness, nanimable | gas at room temperature and atmospheric pressure with a minuty aromatic odor,                                                                                                                                                               |  |  |  |  |
| Results Value                |                            | Not Reported                                 |                          |                                                                                                                                                                                                                                             |  |  |  |  |
| Results Details              |                            | Not Reported                                 |                          |                                                                                                                                                                                                                                             |  |  |  |  |
|                              |                            | -                                            |                          |                                                                                                                                                                                                                                             |  |  |  |  |
|                              |                            |                                              | EVALUATION               |                                                                                                                                                                                                                                             |  |  |  |  |
| Domain                       |                            | Metric                                       | Rating                   | Comments                                                                                                                                                                                                                                    |  |  |  |  |
| Domain 1: Substance          |                            |                                              |                          |                                                                                                                                                                                                                                             |  |  |  |  |
|                              | Metric 1:                  | Representativeness                           | High                     | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                          |  |  |  |  |
|                              | Metric 2:                  | Appropriateness                              | N/A                      | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                        |  |  |  |  |
|                              | •                          |                                              |                          |                                                                                                                                                                                                                                             |  |  |  |  |
| Domain 2: Test Reliabil      | ity                        |                                              |                          |                                                                                                                                                                                                                                             |  |  |  |  |
|                              | Metric 3:                  | Reliability/Unbiased<br>(Method Objectivity) | Medium                   | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                               |  |  |  |  |
|                              | Metric 4:                  | Reliability/Analytical Method                | Medium                   | The analytical method is non-standard but is expected to be appropriate OR the analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |  |  |  |  |
| Domain 3: Other              |                            |                                              |                          |                                                                                                                                                                                                                                             |  |  |  |  |
| Domain 5. Outer              | Metric 5:                  | Databases                                    | Medium                   | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources.                                                |  |  |  |  |
|                              | Metric 6:                  | Models                                       | N/A                      | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                        |  |  |  |  |
| Overall Qualit               | ty Determi                 | nation                                       | Medium                   |                                                                                                                                                                                                                                             |  |  |  |  |

| Study Citation:<br>OECD Harmonized | U.S. EPA, (198<br>Physical Form of | 5). Mutagenicity and carcinogenicity ass  | essment of 1,3-bu | itadiene. Review draft.                                                                                                                                                                                                                    |  |  |  |
|------------------------------------|------------------------------------|-------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Template:                          | <b>j</b>                           |                                           |                   |                                                                                                                                                                                                                                            |  |  |  |
| HERO ID:                           | 10293377                           |                                           |                   |                                                                                                                                                                                                                                            |  |  |  |
|                                    | EXTRACTION                         |                                           |                   |                                                                                                                                                                                                                                            |  |  |  |
| Parameter                          |                                    | Data                                      |                   |                                                                                                                                                                                                                                            |  |  |  |
|                                    |                                    |                                           |                   |                                                                                                                                                                                                                                            |  |  |  |
| CASRN and Test Material            |                                    | 106-99-0; Not Reported                    |                   |                                                                                                                                                                                                                                            |  |  |  |
| Confidentiality, Type, and C       | Guideline                          | no; not specified; Not Reported           |                   |                                                                                                                                                                                                                                            |  |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                   | Not Reported; Not Reported; Not Repor     | ted; Not Reported |                                                                                                                                                                                                                                            |  |  |  |
| Radiolabel, Source, State, a       | and Purity                         | Not Reported; Not Reported; Not Repor     | ted; Not Reported |                                                                                                                                                                                                                                            |  |  |  |
| Results Value                      |                                    | colorless gas with a slight aromatic odor | at room temperatu | re and pressure                                                                                                                                                                                                                            |  |  |  |
| Results Details                    |                                    | Not Reported                              |                   |                                                                                                                                                                                                                                            |  |  |  |
|                                    |                                    |                                           | EVALUATIO         | N                                                                                                                                                                                                                                          |  |  |  |
| Domain                             |                                    | Metric                                    | Rating            | Comments                                                                                                                                                                                                                                   |  |  |  |
| Domain 1: Substance                |                                    |                                           | C                 |                                                                                                                                                                                                                                            |  |  |  |
|                                    | Metric 1:                          | Representativeness                        | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                         |  |  |  |
|                                    | Metric 2:                          | Appropriateness                           | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                       |  |  |  |
| Domain 2: Test Reliabil            | ity                                |                                           |                   |                                                                                                                                                                                                                                            |  |  |  |
| Domain 2. Test Rendom              | Metric 3:                          | Reliability/Unbiased                      | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                                                                       |  |  |  |
|                                    |                                    | (Method Objectivity)                      | 1.10010111        | towards a particular product or outcome.                                                                                                                                                                                                   |  |  |  |
|                                    | Metric 4:                          | Reliability/Analytical Method             | Medium            | he analytical method is non-standard but is expected to be appropriate OR the analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |  |  |  |
| Domain 3: Other                    |                                    |                                           |                   |                                                                                                                                                                                                                                            |  |  |  |
| Domain 5. Other                    | Metric 5:                          | Databases                                 | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.       |  |  |  |
|                                    | Metric 6:                          | Models                                    | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                       |  |  |  |
| Overall Qualit                     | ty Determi                         | nation                                    | High              |                                                                                                                                                                                                                                            |  |  |  |

| Study Citation:<br>OECD Harmonized | U.S. EPA, (198<br>Physical Form of | 5). Mutagenicity and carcinogenicity as | sessment of 1,3-bi | itadiene: Final report.                                                                |  |  |
|------------------------------------|------------------------------------|-----------------------------------------|--------------------|----------------------------------------------------------------------------------------|--|--|
| Template:                          | 5                                  |                                         |                    |                                                                                        |  |  |
| HERO ID:                           | 1565                               |                                         |                    |                                                                                        |  |  |
|                                    |                                    |                                         | EXTRACTIO          | N                                                                                      |  |  |
| Parameter                          |                                    | Data                                    |                    |                                                                                        |  |  |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-butadiene                 |                    |                                                                                        |  |  |
| Confidentiality, Type, and         | Guideline                          | None; experimental; Not Reported        |                    |                                                                                        |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                   | NR; NR; NR; NR                          |                    |                                                                                        |  |  |
| Radiolabel, Source, State,         | and Purity                         | None; NR; NR; NR                        |                    |                                                                                        |  |  |
| Results Value                      |                                    | colorless gas                           |                    |                                                                                        |  |  |
| Results Details                    |                                    | Not Reported                            |                    |                                                                                        |  |  |
|                                    |                                    |                                         | EVALUATIO          | Ň                                                                                      |  |  |
| Domain                             |                                    | Metric                                  | Rating             | Comments                                                                               |  |  |
| Domain 1: Substance                |                                    |                                         |                    |                                                                                        |  |  |
|                                    | Metric 1:                          | Representativeness                      | High               | Data are measured or estimated for the subject chemical substance.                     |  |  |
|                                    | Metric 2:                          | Appropriateness                         | High               | Measured data are consistent with the subject chemical's physical/chemical properties. |  |  |
| Domain 2: Test Reliabil            | litv                               |                                         |                    |                                                                                        |  |  |
|                                    | Metric 3:                          | Reliability/Unbiased                    | N/A                | Rating of this factor is not applicable to this kind of information.                   |  |  |
|                                    |                                    | (Method Objectivity)                    |                    |                                                                                        |  |  |
|                                    | Metric 4:                          | Reliability/Analytical Method           | High               | Data are obtained by accepted methods.                                                 |  |  |
| Domain 3: Other                    | Domain 3: Other                    |                                         |                    |                                                                                        |  |  |
|                                    | Metric 5:                          | Databases                               | N/A                | Rating of this factor is not applicable to this kind of information.                   |  |  |
|                                    | Metric 6:                          | Models                                  | N/A                | Rating of this factor is not applicable to this kind of information.                   |  |  |
| <b>Overall Quali</b>               | ty Determi                         | nation                                  | High               |                                                                                        |  |  |

| Study Citation:              | U.S. EPA, (200   | 02). Health assessment of 1,3-butadiene. |            |                                                                                                              |
|------------------------------|------------------|------------------------------------------|------------|--------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Physical Form    | or State                                 |            |                                                                                                              |
| Template:                    |                  |                                          |            |                                                                                                              |
| HERO ID:                     | 52153            |                                          |            |                                                                                                              |
|                              |                  |                                          | EXTRACTION |                                                                                                              |
| Parameter                    |                  | Data                                     |            |                                                                                                              |
|                              |                  |                                          |            |                                                                                                              |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene                  |            |                                                                                                              |
| Confidentiality, Type, and   | Guideline        | none; not specified; NA                  |            |                                                                                                              |
| Solvent, Reactivity, Storage | e, and Stability | NA; NA; NA; NA                           |            |                                                                                                              |
| Radiolabel, Source, State, a | and Purity       | NA; NA; gas; NA                          |            |                                                                                                              |
| Results Value                | ·                | colorless gas with mildly aromatic odor  |            |                                                                                                              |
| Results Details              |                  | Not Reported                             |            |                                                                                                              |
|                              |                  |                                          |            |                                                                                                              |
|                              |                  |                                          | EVALUATION |                                                                                                              |
| Domain                       |                  | Metric                                   | Rating     | Comments                                                                                                     |
| Domain 1: Substance          |                  |                                          | -          |                                                                                                              |
|                              | Metric 1:        | Representativeness                       | High       | Data are measured or estimated for the subject chemical substance.                                           |
|                              | Metric 2:        | Appropriateness                          | High       | Measured data are consistent with the subject chemical substance structural features or                      |
|                              |                  |                                          |            | other physical/chemical properties or behaviors.                                                             |
| Damain 2. Taat Daliahil      | :4               |                                          |            |                                                                                                              |
| Domain 2: Test Kelladii      | ny<br>Maria      |                                          | NT/ A      |                                                                                                              |
|                              | Metric 3:        | Reliability/Unbiased                     | N/A        | Rating of this factor is not applicable to this kind of information.                                         |
|                              | Matria 4.        | (Method Objectivity)                     | NI/A       | Define of this fraction is not small able to this high of information                                        |
|                              | Metric 4:        | Reliability/Analytical Method            | IN/A       | Rating of this factor is not applicable to this kind of information.                                         |
| Domain 3: Other              |                  |                                          |            |                                                                                                              |
| Domain J. Outer              | Metric 5         | Databases                                | Medium     | The data are from a source that is known but is missing elements required for High                           |
|                              | Wette 5.         | Databases                                | Weddulli   | designation such as peer-review, public availability, or the inclusion of references to<br>original sources. |
|                              | Metric 6:        | Models                                   | N/A        | Rating of this factor is not applicable to this kind of information.                                         |
|                              |                  |                                          |            |                                                                                                              |
| <b>Overall Qualit</b>        | ty Determi       | ination                                  | Medium     |                                                                                                              |

\* Related References: Secondary source referencing: Sax, NI; Lewis, RJ, Sr. (1987) Hawley's condensed chemical dictionary, 11th ed. New York, NY: Van Nostrand Reinhold, p. 177.

| OECD Harmonized             | Physical Form of | Publichem: Hazardous Substance Data Ba<br>or State | ink: 1,3-Butadien | e, 106-99-0.                                                                           |
|-----------------------------|------------------|----------------------------------------------------|-------------------|----------------------------------------------------------------------------------------|
| HERO ID:                    | 5926134          |                                                    |                   |                                                                                        |
|                             |                  |                                                    | EXTRACTIO         | N                                                                                      |
| Parameter                   |                  | Data                                               |                   |                                                                                        |
| CASRN and Test Material     |                  | 106-99-0: 1 3-Butadiene                            |                   |                                                                                        |
| Confidentiality, Type, and  | Guideline        | None; Experimental; Not Reported                   |                   |                                                                                        |
| Solvent, Reactivity, Storag | e, and Stability | NR; NR; NR                                         |                   |                                                                                        |
| Radiolabel, Source, State,  | and Purity       | NR; NR; NR; NR                                     |                   |                                                                                        |
| Results Value               |                  | gas                                                |                   |                                                                                        |
| Results Details             |                  | Not Reported                                       |                   |                                                                                        |
|                             |                  |                                                    | EVALUATIO         | N                                                                                      |
| Domain                      |                  | Metric                                             | Rating            | Comments                                                                               |
| Domain 1: Substance         |                  |                                                    |                   |                                                                                        |
|                             | Metric 1:        | Representativeness                                 | High              | Data are measured or estimated for the subject chemical substance.                     |
|                             | Metric 2:        | Appropriateness                                    | High              | Measured data are consistent with the subject chemical's physical/chemical properties. |
| Domain 2: Test Reliabil     | itv              |                                                    |                   |                                                                                        |
|                             | Metric 3:        | Reliability/Unbiased                               | N/A               | Rating of this factor is not applicable to this kind of information.                   |
|                             |                  | (Method Objectivity)                               |                   |                                                                                        |
|                             | Metric 4:        | Reliability/Analytical Method                      | N/A               | Rating of this factor is not applicable to this kind of information.                   |
| Domain 3: Other             |                  |                                                    |                   |                                                                                        |
|                             | Metric 5:        | Databases                                          | High              | Data is from a publicly available and peer-reviewed database.                          |
|                             | Metric 6:        | Models                                             | N/A               | Rating of this factor is not applicable to this kind of information.                   |

\* Related References: NIOSH Pocket Guide to Chemical Hazards. Department of Health and Human Services, Centers for Disease Control & Prevention. National Institute for Occupational Safety & Health. DHHS (NIOSH) 2010 (2010).

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1,3-Butadiene

| Study Citation:              | O'Neil, M. J. (2 | 2013). 1,3-Butadiene. 106-99-0. :267. |           |                                                                                                 |
|------------------------------|------------------|---------------------------------------|-----------|-------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Physical Form of | or State                              |           |                                                                                                 |
| Template:                    |                  |                                       |           |                                                                                                 |
| HERO ID:                     | 5926379          |                                       |           |                                                                                                 |
|                              |                  |                                       | EXTRACTIO | N                                                                                               |
| Parameter                    |                  | Data                                  |           |                                                                                                 |
|                              |                  |                                       |           |                                                                                                 |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene               |           |                                                                                                 |
| Confidentiality, Type, and   | Guideline        | None; Experimental; Not Reported      |           |                                                                                                 |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                        |           |                                                                                                 |
| Radiolabel, Source, State, a | and Purity       | NR; NR; NR; NR                        |           |                                                                                                 |
| Results Value                |                  | colorless gas                         |           |                                                                                                 |
| Results Details              |                  | Not Reported                          |           |                                                                                                 |
|                              |                  |                                       |           |                                                                                                 |
|                              |                  |                                       | EVALUATIO | N                                                                                               |
| Domain                       |                  | Metric                                | Rating    | Comments                                                                                        |
| Domain 1: Substance          |                  |                                       |           |                                                                                                 |
|                              | Metric 1:        | Representativeness                    | High      | Data are measured or estimated for the subject chemical substance.                              |
|                              | Metric 2:        | Appropriateness                       | High      | Measured data are consistent with the subject chemical's physical/chemical properties.          |
| Domain 2: Test Peliabil      | its,             |                                       |           |                                                                                                 |
| Domain 2. Test Kendun        | Metric 3:        | Paliability/Unbiased                  | N/A       | Bating of this factor is not applicable to this kind of information                             |
|                              | Metric 5.        | (Method Objectivity)                  | IN/A      | Rating of this factor is not applicable to this kind of information.                            |
|                              | Metric 4:        | Reliability/Analytical Method         | N/A       | Rating of this factor is not applicable to this kind of information.                            |
|                              |                  |                                       |           | ~ A.                                                                                            |
| Domain 3: Other              |                  |                                       |           |                                                                                                 |
|                              | Metric 5:        | Databases                             | High      | Data is from a recognized data collection where data are peer-reviewed by experts in the field. |
|                              | Metric 6:        | Models                                | N/A       | Rating of this factor is not applicable to this kind of information.                            |
| <b>Overall Qualit</b>        | ty Determi       | nation                                | High      |                                                                                                 |

PUBLIC RELEASE DRAFT November 2024 Physical Form or State

HERO ID: 5926255 Table: 1 of 1

| Study Citation:             | RSC, (2019). C   | hemSpider: 1,3-Butadiene.                    |           |                                                                                                  |
|-----------------------------|------------------|----------------------------------------------|-----------|--------------------------------------------------------------------------------------------------|
| Template:                   | r nysicai ronn c | J State                                      |           |                                                                                                  |
| HERO ID:                    | 5926255          |                                              |           |                                                                                                  |
|                             |                  |                                              | EXTRACTIO | N                                                                                                |
| Parameter                   |                  | Data                                         |           |                                                                                                  |
| CASRN and Test Material     |                  | 106-99-0 <sup>,</sup> 1 3-Butadiene          |           |                                                                                                  |
| Confidentiality, Type, and  | Guideline        | None; Experimental; Not Reported             |           |                                                                                                  |
| Solvent, Reactivity, Storag | e, and Stability | NR; NR; NR; NR                               |           |                                                                                                  |
| Radiolabel, Source, State,  | and Purity       | NR; NR; NR; NR                               |           |                                                                                                  |
| Results Value               | -                | gas or pressurized liquid                    |           |                                                                                                  |
| Results Details             |                  | Not Reported                                 |           |                                                                                                  |
|                             |                  |                                              | EVALUATIO | N                                                                                                |
| Domain                      |                  | Metric                                       | Rating    | Comments                                                                                         |
| Domain 1: Substance         |                  |                                              |           |                                                                                                  |
|                             | Metric 1:        | Representativeness                           | High      | Data are measured or estimated for the subject chemical substance.                               |
|                             | Metric 2:        | Appropriateness                              | High      | Measured data are consistent with the subject chemical's physical/chemical properties.           |
| Domain 2: Test Reliabil     | ity              |                                              |           |                                                                                                  |
|                             | Metric 3:        | Reliability/Unbiased<br>(Method Objectivity) | N/A       | Rating of this factor is not applicable to this kind of information.                             |
|                             | Metric 4:        | Reliability/Analytical Method                | N/A       | Rating of this factor is not applicable to this kind of information.                             |
| Domain 3: Other             |                  |                                              |           |                                                                                                  |
|                             | Metric 5:        | Databases                                    | Medium    | Data is from a publicly available secondary source with references to non-peer reviewed sources. |
|                             | Metric 6:        | Models                                       | N/A       | Rating of this factor is not applicable to this kind of information.                             |

\* Related References: Oxford University Chemical Safety Data

| Study Citation:              | Rumble, J. K., (f                  | Ed.) (2018). 1,3-Butadiene. :3-8. |           |                                                                                          |  |
|------------------------------|------------------------------------|-----------------------------------|-----------|------------------------------------------------------------------------------------------|--|
| Tompleto:                    | Filysical Form 0                   | 1 State                           |           |                                                                                          |  |
|                              | 5340186                            |                                   |           |                                                                                          |  |
|                              | 5549100                            |                                   |           |                                                                                          |  |
|                              |                                    |                                   | EXTRACTIO | N                                                                                        |  |
| Parameter                    |                                    | Data                              |           |                                                                                          |  |
|                              |                                    |                                   |           |                                                                                          |  |
| CASRN and Test Material      |                                    | 106-99-0; 1,3-Butadiene           |           |                                                                                          |  |
| Confidentiality, Type, and   | Guideline                          | None; Experimental; Not Reported  |           |                                                                                          |  |
| Solvent, Reactivity, Storage | e, and Stability                   | NR; NR; NR; NR                    |           |                                                                                          |  |
| Radiolabel, Source, State, a | and Purity                         | NR; NR; NR; NR                    |           |                                                                                          |  |
| Results Value                |                                    | colorless gas                     |           |                                                                                          |  |
| Results Details              |                                    | Not Reported                      |           |                                                                                          |  |
|                              |                                    |                                   |           |                                                                                          |  |
|                              |                                    |                                   | EVALUATIO | N                                                                                        |  |
| Domain                       |                                    | Metric                            | Rating    | Comments                                                                                 |  |
| Domain 1: Substance          |                                    |                                   |           |                                                                                          |  |
|                              | Metric 1:                          | Representativeness                | High      | Data are measured or estimated for the subject chemical substance.                       |  |
|                              | Metric 2:                          | Appropriateness                   | High      | Measured data are consistent with the subject chemical's physical/chemical properties.   |  |
|                              |                                    |                                   |           |                                                                                          |  |
| Domain 2: Test Reliabil      | ity                                |                                   |           |                                                                                          |  |
|                              | Metric 3:                          | Reliability/Unbiased              | N/A       | Rating of this factor is not applicable to this kind of information.                     |  |
|                              | 36.1.4                             | (Method Objectivity)              | 27/1      |                                                                                          |  |
|                              | Metric 4:                          | Reliability/Analytical Method     | N/A       | Rating of this factor is not applicable to this kind of information.                     |  |
| Domain 3: Other              |                                    |                                   |           |                                                                                          |  |
| Domain 5. Other              | Metric 5.                          | Databases                         | High      | Data is from a recognized data collection where data are near reviewed by experts in the |  |
|                              | Wieute 5.                          | Databases                         | Ingn      | field                                                                                    |  |
|                              | Metric 6:                          | Models                            | N/A       | Rating of this factor is not applicable to this kind of information.                     |  |
| Overall Qualit               | Overall Quality Determination High |                                   |           |                                                                                          |  |
|                              | y Determin                         | 1441011                           | - mgn     |                                                                                          |  |

| Study Citation:<br>OECD Harmonized | NLM, (2003). P<br>Physical Form o  | PubChem: Hazardous Substance Data Ba      | ank: 1,3-Butadien | e, 106-99-0.                                                         |  |  |
|------------------------------------|------------------------------------|-------------------------------------------|-------------------|----------------------------------------------------------------------|--|--|
| Template:                          | ,                                  |                                           |                   |                                                                      |  |  |
| HERO ID:                           | 5926134                            |                                           |                   |                                                                      |  |  |
|                                    |                                    |                                           | EXTRACTIO         | N                                                                    |  |  |
| Parameter                          |                                    | Data                                      |                   |                                                                      |  |  |
|                                    |                                    |                                           |                   |                                                                      |  |  |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene                   |                   |                                                                      |  |  |
| Confidentiality, Type, and C       | Guideline                          | None; Experimental; Not reported          |                   |                                                                      |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                   | NR; NR; NR; NR                            |                   |                                                                      |  |  |
| Radiolabel, Source, State, a       | nd Purity                          | NR; NR; NR; NR                            |                   |                                                                      |  |  |
| Results Details                    |                                    | colorless, mildly aromatic or gasoline-li | ke odor           |                                                                      |  |  |
|                                    |                                    |                                           | EVALUATIO         | N                                                                    |  |  |
| Domain                             |                                    | Metric                                    | Rating            | Comments                                                             |  |  |
| Domain 1: Substance                |                                    |                                           |                   |                                                                      |  |  |
|                                    | Metric 1:                          | Representativeness                        | High              | Data are measured or estimated for the subject chemical substance.   |  |  |
|                                    | Metric 2:                          | Appropriateness                           | N/A               | Rating of this factor is not applicable to this kind of information. |  |  |
| Domain 2: Test Reliabili           | ity                                |                                           |                   |                                                                      |  |  |
|                                    | Metric 3:                          | Reliability/Unbiased                      | N/A               | Rating of this factor is not applicable to this kind of information. |  |  |
|                                    |                                    | (Method Objectivity)                      |                   |                                                                      |  |  |
|                                    | Metric 4:                          | Reliability/Analytical Method             | N/A               | Rating of this factor is not applicable to this kind of information. |  |  |
| Domain 3: Other                    |                                    |                                           |                   |                                                                      |  |  |
|                                    | Metric 5:                          | Databases                                 | High              | Data is from a publicly available and peer-reviewed database.        |  |  |
|                                    | Metric 6:                          | Models                                    | N/Ă               | Rating of this factor is not applicable to this kind of information. |  |  |
| Overall Qualit                     | Overall Quality Determination High |                                           |                   |                                                                      |  |  |

\* Related References: NIOSH Pocket Guide to Chemical Hazards. Department of Health and Human Services, Centers for Disease Control & Prevention. National Institute for Occupational Safety & Health. DHHS (NIOSH) 2010 (2010).

PUBLIC RELEASE DRAFT November 2024 Physical Form or State

HERO ID: 5926255 Table: 1 of 1

| Study Citation:              | RSC, (2019). Cl  | nemSpider: 1,3-Butadiene.                             |           |                                                                                                           |
|------------------------------|------------------|-------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Physical Form o  | r State                                               |           |                                                                                                           |
| Template:                    | 5                |                                                       |           |                                                                                                           |
| HERO ID:                     | 5926255          |                                                       |           |                                                                                                           |
|                              |                  |                                                       | EXTRACTIO | N                                                                                                         |
| Parameter                    |                  | Data                                                  |           |                                                                                                           |
| CASRN and Test Material      |                  | 106-99-0: 1.3-Butadiene                               |           |                                                                                                           |
| Confidentiality, Type, and ( | Guideline        | None: Experimental: Not reported                      |           |                                                                                                           |
| Solvent, Reactivity, Storage | e, and Stability | NR: NR: NR                                            |           |                                                                                                           |
| Radiolabel, Source, State, a | and Purity       | NR; NR; NR; NR                                        |           |                                                                                                           |
| Results Details              | 2                | colorless, odor TLV 1.6 ppm                           |           |                                                                                                           |
|                              |                  |                                                       |           |                                                                                                           |
|                              |                  |                                                       | EVALUATIO | <br>N                                                                                                     |
| Domain                       |                  | Metric                                                | Rating    | Comments                                                                                                  |
| Domain 1: Substance          |                  |                                                       |           |                                                                                                           |
|                              | Metric 1:        | Representativeness                                    | High      | Data are measured or estimated for the subject chemical substance.                                        |
|                              | Metric 2:        | Appropriateness                                       | N/A       | Rating of this factor is not applicable to this kind of information.                                      |
| Domain 2: Test Reliabil      | ity              |                                                       |           |                                                                                                           |
|                              | Metric 3:        | Reliability/Unbiased                                  | N/A       | Rating of this factor is not applicable to this kind of information.                                      |
|                              | Metric 4         | (Method Objectivity)<br>Reliability/Analytical Method | N/A       | Rating of this factor is not applicable to this kind of information                                       |
|                              |                  | rementer, mary dear mound                             | 1.0.11    | And of the factor is not upploade to this kind of information.                                            |
| Domain 3: Other              |                  |                                                       |           |                                                                                                           |
|                              | Metric 5:        | Databases                                             | Medium    | Data is from a publicly available secondary source with references to non-peer reviewed original sources. |
|                              | Metric 6:        | Models                                                | N/A       | Rating of this factor is not applicable to this kind of information.                                      |
| <b>Overall Qualit</b>        | ty Determi       | nation                                                | High      |                                                                                                           |

\* Related References: Oxford University Chemical Safety Data

| Study Citation:              | California Office                   | California Office of Environmental Health Hazard Assessment (OEHHA) (2011). Appendix B: Chemical-specific summaries of the information used to |            |                                                                                                                                                                  |  |  |
|------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| OFCD Harmonized              | derive unit risk a<br>Melting Point | nd cancer potency values.                                                                                                                      |            |                                                                                                                                                                  |  |  |
| Template:                    | Weiting Folin                       |                                                                                                                                                |            |                                                                                                                                                                  |  |  |
| HERO ID:                     | 5155632                             |                                                                                                                                                |            |                                                                                                                                                                  |  |  |
|                              |                                     |                                                                                                                                                | EXTRACTIO  | <br>N                                                                                                                                                            |  |  |
| Parameter                    |                                     | Data                                                                                                                                           |            |                                                                                                                                                                  |  |  |
|                              |                                     |                                                                                                                                                |            |                                                                                                                                                                  |  |  |
| Melting Point                |                                     | -108.9 °C                                                                                                                                      |            |                                                                                                                                                                  |  |  |
| CASRN and Test Material      |                                     | 106-99-0; 1,3-BUTADIENE                                                                                                                        |            |                                                                                                                                                                  |  |  |
| Confidentiality, Type, and C | Guideline                           | none; not specified; Not reported                                                                                                              |            |                                                                                                                                                                  |  |  |
| Solvent, Reactivity, Storage | e, and Stability                    | NR; NR; NR; NR                                                                                                                                 |            |                                                                                                                                                                  |  |  |
| Radiolabel, Source, State, a | nd Purity                           | NR; NR; NR; NR Notes: NR                                                                                                                       |            |                                                                                                                                                                  |  |  |
| Results Details Methods      |                                     | NR                                                                                                                                             |            |                                                                                                                                                                  |  |  |
| Standard Deviation Results   |                                     | NR                                                                                                                                             |            |                                                                                                                                                                  |  |  |
| Results Details              |                                     | Not Reported                                                                                                                                   |            |                                                                                                                                                                  |  |  |
|                              |                                     |                                                                                                                                                | FVAL HATIO | N                                                                                                                                                                |  |  |
| Domain                       |                                     | Metric                                                                                                                                         | Rating     | Comments                                                                                                                                                         |  |  |
| Domain 1: Substance          |                                     |                                                                                                                                                | Tuning     |                                                                                                                                                                  |  |  |
|                              | Metric 1:                           | Representativeness                                                                                                                             | High       | Data are measured or estimated for the subject chemical substance.                                                                                               |  |  |
|                              | Metric 2:                           | Appropriateness                                                                                                                                | High       | Measured data are consistent with the subject chemical substance structural features.                                                                            |  |  |
| Domain 2: Test Reliabili     | ts,                                 |                                                                                                                                                |            |                                                                                                                                                                  |  |  |
| Domain 2. Test Kelldolli     | Metric 3:                           | Reliability/Unbiased                                                                                                                           | Medium     | There is no indication that the methodology for producing the information was biased                                                                             |  |  |
|                              | meure 5.                            | (Method Objectivity)                                                                                                                           | meanum     | towards a particular product or outcome.                                                                                                                         |  |  |
|                              | Metric 4:                           | Reliability/Analytical Method                                                                                                                  | Medium     | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |  |  |
| Domain 2: Other              |                                     |                                                                                                                                                |            |                                                                                                                                                                  |  |  |
| Domain 5: Other              | Matria 5:                           | Databasas                                                                                                                                      | Madium     | The date are from a course that is known but is missing elements required for Uleh                                                                               |  |  |
|                              | Metric 5:                           | Databases                                                                                                                                      | Medium     | designation such as peer-review, public availability, or the inclusion of references to<br>original sources.                                                     |  |  |
|                              | Metric 6:                           | Models                                                                                                                                         | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                             |  |  |
| <b>Overall Qualit</b>        | y Determin                          | nation                                                                                                                                         | High       |                                                                                                                                                                  |  |  |

\* Related References: Citing HSDB, 1998.

| Study Citation:              | California Office                  | alifornia Office of Environmental Health Hazard Assessment :: OEHHA (2014). Appendix D: Individual acute, 8-hour, and chronic reference exposure |                    |                                                                                            |  |  |  |  |
|------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------|--|--|--|--|
| OECD Harmonized              | level summaries<br>Melting Point   |                                                                                                                                                  |                    |                                                                                            |  |  |  |  |
| Template:                    | 5155(00)                           |                                                                                                                                                  |                    |                                                                                            |  |  |  |  |
| HERO ID:                     | 5155603                            |                                                                                                                                                  |                    |                                                                                            |  |  |  |  |
|                              | EXTRACTION                         |                                                                                                                                                  |                    |                                                                                            |  |  |  |  |
| Parameter                    |                                    | Data                                                                                                                                             |                    |                                                                                            |  |  |  |  |
|                              |                                    |                                                                                                                                                  |                    |                                                                                            |  |  |  |  |
| Melting Point                |                                    | -108.9 °C                                                                                                                                        |                    |                                                                                            |  |  |  |  |
| CASRN and Test Material      |                                    | 106-99-0; 1,3-Butadiene                                                                                                                          |                    |                                                                                            |  |  |  |  |
| Confidentiality, Type, and C | Guideline                          | No; Not specified; Not Reported                                                                                                                  |                    |                                                                                            |  |  |  |  |
| Solvent, Reactivity, Storage | e, and Stability                   | Not Reported; Not Reported; Not Report                                                                                                           | rted; Not Reported |                                                                                            |  |  |  |  |
| Radiolabel, Source, State, a | nd Purity                          | Not Reported; Not Reported; Not Report                                                                                                           | rted; Not Reported |                                                                                            |  |  |  |  |
| Results Details Methods      |                                    | Not Reported                                                                                                                                     |                    |                                                                                            |  |  |  |  |
| Standard Deviation Results   |                                    | Not Reported                                                                                                                                     |                    |                                                                                            |  |  |  |  |
| Results Details              |                                    | Not Reported                                                                                                                                     |                    |                                                                                            |  |  |  |  |
|                              |                                    |                                                                                                                                                  |                    |                                                                                            |  |  |  |  |
| Domain                       |                                    | Metric                                                                                                                                           | EVALUATION         | Comments                                                                                   |  |  |  |  |
| Domain 1: Substance          |                                    | ivicule                                                                                                                                          | Rating             | Comments                                                                                   |  |  |  |  |
| Domain 1. Substance          | Metric 1                           | Representativeness                                                                                                                               | High               | Data are measured or estimated for the subject chemical substance                          |  |  |  |  |
|                              | Metric 2:                          | Appropriateness                                                                                                                                  | High               | Measured data are consistent with the subject chemical substance structural features       |  |  |  |  |
|                              | 1.100110 21                        |                                                                                                                                                  | 111811             | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., |  |  |  |  |
|                              |                                    |                                                                                                                                                  |                    | if the physical state is described as a liquid, the substance should have a melting point  |  |  |  |  |
|                              |                                    |                                                                                                                                                  |                    | below 25°C and a boiling point above 25°C) or behaviors.                                   |  |  |  |  |
| Domain 2: Test Reliabil      | ity                                |                                                                                                                                                  |                    |                                                                                            |  |  |  |  |
| Domain 2, Test Kelldoll      | Metric 3.                          | Reliability/Unbiased                                                                                                                             | Medium             | There is no indication that the methodology for producing the information was biased       |  |  |  |  |
|                              | Metric 5.                          | (Method Objectivity)                                                                                                                             | Wiedium            | towards a particular product or outcome.                                                   |  |  |  |  |
|                              | Metric 4:                          | Reliability/Analytical Method                                                                                                                    | Medium             | The analytical method is unknown but is likely to be appropriate based on the data's       |  |  |  |  |
|                              |                                    |                                                                                                                                                  |                    | inclusion in a peer-reviewed/recognized database or other secondary source.                |  |  |  |  |
|                              |                                    |                                                                                                                                                  |                    |                                                                                            |  |  |  |  |
| Domain 3: Other              | M                                  | Detabases                                                                                                                                        | TT: -1             |                                                                                            |  |  |  |  |
|                              | Metric 5:                          | Databases                                                                                                                                        | High               | I ne information or data is from a recognized data collection/repository where data are    |  |  |  |  |
|                              |                                    |                                                                                                                                                  |                    | use OR includes references to the original sources.                                        |  |  |  |  |
|                              | Metric 6:                          | Models                                                                                                                                           | N/A                | Rating of this factor is not applicable to this kind of information.                       |  |  |  |  |
|                              |                                    |                                                                                                                                                  |                    |                                                                                            |  |  |  |  |
| <b>Overall Qualit</b>        | Overall Quality Determination High |                                                                                                                                                  |                    |                                                                                            |  |  |  |  |

\* Related References: No source cited; extracted gray lit

| Study Citation:<br>OECD Harmonized | DOE, (2016). Tab<br>Melting Point | ble 1: Chemicals of concern and asso | ciated chemical inf | ormation. PACs.                                                                                                                                                                                             |
|------------------------------------|-----------------------------------|--------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 3981013                           |                                      |                     |                                                                                                                                                                                                             |
|                                    | 0,01010                           |                                      | FXTRACTIO           |                                                                                                                                                                                                             |
| Parameter                          |                                   | Data                                 | EATRACTIO           |                                                                                                                                                                                                             |
|                                    |                                   |                                      |                     |                                                                                                                                                                                                             |
| Melting Point                      |                                   | -108.91 - °C                         |                     |                                                                                                                                                                                                             |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene              |                     |                                                                                                                                                                                                             |
| Confidentiality, Type, and C       | Guideline                         | none; not specified; none            |                     |                                                                                                                                                                                                             |
| Solvent, Reactivity, Storage       | e, and Stability                  | NR; NR; NR; NR                       |                     |                                                                                                                                                                                                             |
| Radiolabel, Source, State, a       | and Purity                        | NR; NR; NR; NR Notes: NR             |                     |                                                                                                                                                                                                             |
| Results Details Methods            |                                   | not reported                         |                     |                                                                                                                                                                                                             |
| Standard Deviation Results         |                                   | not reported                         |                     |                                                                                                                                                                                                             |
| Results Details                    |                                   | not reported                         |                     |                                                                                                                                                                                                             |
|                                    |                                   |                                      | EVALUATIO           | N                                                                                                                                                                                                           |
| Domain                             |                                   | Metric                               | Rating              | Comments                                                                                                                                                                                                    |
| Domain 1: Substance                |                                   | Methe                                | Rung                | connents                                                                                                                                                                                                    |
| Domain 1. Substance                | Metric 1:                         | Representativeness                   | High                | Data are measured or estimated for the subject chemical substance                                                                                                                                           |
|                                    | Metric 2:                         | Appropriateness                      | High                | Measured data are consistent with the subject chemical substance structural features.                                                                                                                       |
| Demain 2. Test Delishil            | ·                                 |                                      |                     |                                                                                                                                                                                                             |
| Domain 2: Test Reliabili           | ILY<br>Matria 2.                  | Daliability/Imbiasad                 | Madium              | There is no indication that the most solution for most size the information much include                                                                                                                    |
|                                    | Metric 5:                         | (Method Objectivity)                 | Medium              | towards a particular product or outcome.                                                                                                                                                                    |
|                                    | Metric 4:                         | Reliability/Analytical Method        | Medium              | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                            |
| Domain 2: Other                    |                                   |                                      |                     |                                                                                                                                                                                                             |
| Domain 5: Other                    | Metric 5:                         | Databases                            | High                | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review; specific source not reported. |
|                                    | Metric 6:                         | Models                               | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                        |
| <b>Overall Qualit</b>              | ty Determin                       | ation                                | High                | _                                                                                                                                                                                                           |

\* Related References: primary reference not specified but include CRC (2009), HSDB (no date), Merck (2006), SAX (2012)

PUBLIC RELEASE DRAFT November 2024 Melting Point

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | EC, (2000). Prio<br>Melting Point | rity Substances List Assessment Repo | rt: 1,3-Butadiene.  |                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------|-----------------------------------|--------------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 5160048                           |                                      |                     |                                                                                                                                                                                                                                                                                                                                             |
|                                    |                                   |                                      | EXTRACTIO           | N                                                                                                                                                                                                                                                                                                                                           |
| Parameter                          |                                   | Data                                 |                     |                                                                                                                                                                                                                                                                                                                                             |
|                                    |                                   |                                      |                     |                                                                                                                                                                                                                                                                                                                                             |
| Melting Point                      |                                   | -108.9 - °C                          |                     |                                                                                                                                                                                                                                                                                                                                             |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene              |                     |                                                                                                                                                                                                                                                                                                                                             |
| Confidentiality, Type, and C       | Guideline                         | No; not specified; Not Reported      |                     |                                                                                                                                                                                                                                                                                                                                             |
| Solvent, Reactivity, Storage       | e, and Stability                  | Not Reported; Not Reported; Not Repo | orted; Not Reported |                                                                                                                                                                                                                                                                                                                                             |
| Radiolabel, Source, State, a       | und Purity                        | Not Reported; Not Reported; Not Repo | orted; Not Reported |                                                                                                                                                                                                                                                                                                                                             |
| Results Details Methods            |                                   | Not Reported                         |                     |                                                                                                                                                                                                                                                                                                                                             |
| Standard Deviation Results         |                                   | Not Reported                         |                     |                                                                                                                                                                                                                                                                                                                                             |
| Results Details                    |                                   | Not Reported                         |                     |                                                                                                                                                                                                                                                                                                                                             |
|                                    |                                   |                                      |                     |                                                                                                                                                                                                                                                                                                                                             |
|                                    |                                   |                                      | EVALUATIO           | N                                                                                                                                                                                                                                                                                                                                           |
| Domain                             |                                   | Metric                               | Rating              | Comments                                                                                                                                                                                                                                                                                                                                    |
| Domain 1: Substance                |                                   |                                      |                     |                                                                                                                                                                                                                                                                                                                                             |
|                                    | Metric 1:                         | Representativeness                   | High                | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                          |
|                                    | Metric 2:                         | Appropriateness                      | High                | Measured data are consistent with the subject chemical substance structural features<br>(e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a melting point<br>below 25°C and a boiling point above 25°C) or behaviors. |
| Damain 2. Taat Daliahil            | ·                                 |                                      |                     |                                                                                                                                                                                                                                                                                                                                             |
| Domain 2: Test Keliabil            | Ily<br>Metric 2:                  | Peliability/Unbiased                 | Madium              | There is no indication that the methodology for producing the information was birds                                                                                                                                                                                                                                                         |
|                                    | Metric 5.                         | (Method Objectivity)                 | Wiedrum             | towards a particular product or outcome.                                                                                                                                                                                                                                                                                                    |
|                                    | Metric 4:                         | Reliability/Analytical Method        | Medium              | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                         |
| Damain 2. Other                    |                                   |                                      |                     |                                                                                                                                                                                                                                                                                                                                             |
| Domain 3: Other                    | Metric 5:                         | Databases                            | High                | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                        |
|                                    | Metric 6:                         | Models                               | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                        |
| <b>Overall Qualit</b>              | ty Determir                       | nation                               | High                |                                                                                                                                                                                                                                                                                                                                             |

\* Related References: cited from Weast, R.C. (ed.). 1984. Handbook of Chemistry and Physics. 65th ed. CRC Press, Boca Raton, Florida

| Study Citation:<br>OECD Harmonized | Elsevier, (2019)<br>Melting Point | . Reaxys: physical-chemical property da | ta for 1,3-butadie                  | ene. CAS Registry Number: 106-99-0                                                      |  |  |  |
|------------------------------------|-----------------------------------|-----------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------|--|--|--|
| HERO ID:                           | 5926412                           |                                         |                                     |                                                                                         |  |  |  |
|                                    |                                   |                                         | EXTRACTIO                           | N                                                                                       |  |  |  |
| Parameter                          |                                   | Data                                    |                                     |                                                                                         |  |  |  |
|                                    |                                   |                                         |                                     |                                                                                         |  |  |  |
| Melting Point                      |                                   | -108.97108.7 °C                         |                                     |                                                                                         |  |  |  |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene                 |                                     |                                                                                         |  |  |  |
| Confidentiality, Type, and         | Guideline                         | None; Experimental; Not Reported        |                                     |                                                                                         |  |  |  |
| Solvent, Reactivity, Storag        | e, and Stability                  | NR; NR; NR; NR                          |                                     |                                                                                         |  |  |  |
| Radiolabel, Source, State,         | and Purity                        | NR; NR; NR; NR                          |                                     |                                                                                         |  |  |  |
| Results Details Methods            |                                   | Measured conditions were not reported;  | 5 values were repo                  | orted in Reaxys; 5 of these values were reported in the range of -108.97 to -108.7°C; 0 |  |  |  |
|                                    |                                   | data points were outside the range.     | data points were outside the range. |                                                                                         |  |  |  |
| Standard Deviation Results         | 8                                 | Not Reported                            |                                     |                                                                                         |  |  |  |
| Results Details                    |                                   | Not Reported                            |                                     |                                                                                         |  |  |  |
|                                    |                                   |                                         | EVALUATIO                           | N                                                                                       |  |  |  |
| Domain                             |                                   | Metric                                  | Rating                              | Comments                                                                                |  |  |  |
| Domain 1: Substance                |                                   |                                         |                                     |                                                                                         |  |  |  |
|                                    | Metric 1:                         | Representativeness                      | High                                | Data are measured or estimated for the subject chemical substance.                      |  |  |  |
|                                    | Metric 2:                         | Appropriateness                         | High                                | Measured data are consistent with the subject chemical's physical/chemical properties.  |  |  |  |
|                                    |                                   | · · ·                                   | ~                                   | v .•                                                                                    |  |  |  |
| Domain 2: Test Reliabil            | lity                              |                                         |                                     |                                                                                         |  |  |  |
|                                    | Metric 3:                         | Reliability/Unbiased                    | Medium                              | There is no indication that the methodology for producing the information was biased    |  |  |  |
|                                    |                                   | (Method Objectivity)                    |                                     | towards a particular product or outcome.                                                |  |  |  |
|                                    | Metric 4:                         | Reliability/Analytical Method           | Medium                              | Analytical method is unknown but is likely to be appropriate based on the data's inclu- |  |  |  |
|                                    |                                   |                                         |                                     | sion in a peer-reviewed/recognized database or other secondary source.                  |  |  |  |
|                                    |                                   |                                         |                                     |                                                                                         |  |  |  |
| Domain 3: Other                    |                                   |                                         |                                     |                                                                                         |  |  |  |
|                                    | Metric 5:                         | Databases                               | High                                | Data is from a secondary database with a references to the peer-reviewed original       |  |  |  |
|                                    |                                   |                                         | <b>NT/A</b>                         | source.                                                                                 |  |  |  |
|                                    | Metric 6:                         | Models                                  | N/A                                 | Rating of this factor is not applicable to this kind of information.                    |  |  |  |

# **Overall Quality Determination**

High

\* Related References: Data range determined from multiple primary sources in REAXYS.

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| Study Citation:<br>OECD Harmonized | Grub, J., Löser, E<br>Melting Point | . (2011). Butadiene. :381-396.               |                 |                                                                                                                                                                                                                                                     |  |  |
|------------------------------------|-------------------------------------|----------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                           | 9493526                             |                                              |                 |                                                                                                                                                                                                                                                     |  |  |
|                                    |                                     |                                              | EXTRACTIO       | N                                                                                                                                                                                                                                                   |  |  |
| Parameter                          |                                     | Data                                         |                 |                                                                                                                                                                                                                                                     |  |  |
| Maltin - Daint                     |                                     | Not Dono stol                                |                 |                                                                                                                                                                                                                                                     |  |  |
| CASPN and Test Material            |                                     | 106 00 0: 1.2 butadiana                      |                 |                                                                                                                                                                                                                                                     |  |  |
| Confidentiality Type and (         | Juidalina                           | no: not specified: Not Reported              |                 |                                                                                                                                                                                                                                                     |  |  |
| Solvent Reactivity Storage         | and Stability                       | Not Reported: Not Reported: Not Reported     | d: Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Radiolabel Source State a          | and Purity                          | Not Reported: Not Reported: Not Reported     | d: Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Results Details Methods            | and I drifty                        | Not Reported                                 | a, not reponed  |                                                                                                                                                                                                                                                     |  |  |
| Standard Deviation Results         |                                     | Not Reported                                 |                 |                                                                                                                                                                                                                                                     |  |  |
| Results Details                    |                                     | Enthalpy of melting: 7.988 kJ/mol at 164.    | 2 K. 101.3 kPa  |                                                                                                                                                                                                                                                     |  |  |
|                                    |                                     |                                              | ,               |                                                                                                                                                                                                                                                     |  |  |
|                                    | EVALUATION                          |                                              |                 |                                                                                                                                                                                                                                                     |  |  |
| Domain                             |                                     | Metric                                       | Rating          | Comments                                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance                |                                     |                                              |                 |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 1:                           | Representativeness                           | High            | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |
|                                    | Metric 2:                           | Appropriateness                              | High            | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |  |  |
|                                    |                                     |                                              |                 | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                                                                                                          |  |  |
|                                    |                                     |                                              |                 | below 25°C and a boiling point above 25°C) or behaviors.                                                                                                                                                                                            |  |  |
|                                    |                                     |                                              |                 |                                                                                                                                                                                                                                                     |  |  |
| Domain 2: Test Reliabil            | ity                                 |                                              |                 |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 3:                           | Reliability/Unbiased<br>(Method Objectivity) | Medium          | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |  |  |
|                                    | Metric 4:                           | Reliability/Analytical Method                | Medium          | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |
| Domain 2. Other                    |                                     |                                              |                 |                                                                                                                                                                                                                                                     |  |  |
| Domain 5: Other                    | Metric 5                            | Databases                                    | High            | The information or data is from a recognized data collection/repository where data are                                                                                                                                                              |  |  |
|                                    | Weule 5.                            | Dataotases                                   | Ingn            | peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                       |  |  |
|                                    | Metric 6:                           | Models                                       | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| <b>Overall Qualit</b>              | y Determin                          | ation                                        | High            |                                                                                                                                                                                                                                                     |  |  |

\* Related References: cited from D. R. Lide: CRC Handbook of Chemistry and Physics, 79th edition, CRC Press, New York, 1998. (HERO ID: 5349247) and C. L. Yaws et al., Chem. Eng. 83 (1976) no. 17, 79 (HERO ID: 5706678)

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1,3-Butadiene

| Study Citation:<br>OECD Harmonized | Kerns, M., Henr<br>Melting Point | ning, S., Rachita, M. (2002). Butadiene p  | olymers. :317-35 | 6.                                                                                                                                                                                  |
|------------------------------------|----------------------------------|--------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | 0.4005.40                        |                                            |                  |                                                                                                                                                                                     |
| HERO ID:                           | 9493542                          |                                            |                  |                                                                                                                                                                                     |
|                                    |                                  |                                            | EXTRACTIO        | N                                                                                                                                                                                   |
| Parameter                          |                                  | Data                                       |                  |                                                                                                                                                                                     |
| Malting Point                      |                                  | 108 015 °C                                 |                  |                                                                                                                                                                                     |
| CASRN and Test Material            |                                  | 106-99-0: 1 3-Butadiene                    |                  |                                                                                                                                                                                     |
| Confidentiality Type, and (        | Guideline                        | no: not specified: Not Reported            |                  |                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability                 | Not Reported: Not Reported: Not Report     | ed: Not Reported |                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                       | Not Reported; Not Reported; Not Report     | ed; Not Reported |                                                                                                                                                                                     |
| Results Details Methods            | 2                                | Not Reported                               | , I              |                                                                                                                                                                                     |
| Standard Deviation Results         |                                  | Not Reported                               |                  |                                                                                                                                                                                     |
| Results Details                    |                                  | Reported as freezing point in air at 101.3 | kPa              |                                                                                                                                                                                     |
|                                    |                                  |                                            |                  | NT .                                                                                                                                                                                |
| Domain                             |                                  | Metric                                     | E VALUATIO       | Comments                                                                                                                                                                            |
| Domain 1: Substance                |                                  | Wietric                                    | Katilig          | Comments                                                                                                                                                                            |
| Domain 1. Substance                | Metric 1                         | Representativeness                         | High             | Data are measured or estimated for the subject chemical substance                                                                                                                   |
|                                    | Metric 2:                        | Appropriateness                            | High             | Measured data are consistent with the subject chemical substance.                                                                                                                   |
|                                    |                                  |                                            | 6                | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                                          |
|                                    |                                  |                                            |                  | if the physical state is described as a liquid, the substance should have a melting point                                                                                           |
|                                    |                                  |                                            |                  | below 25°C and a boiling point above 25°C) or behaviors.                                                                                                                            |
| Domain 2: Test Reliabil            | ity                              |                                            |                  |                                                                                                                                                                                     |
|                                    | Metric 3:                        | Reliability/Unbiased                       | Medium           | There is no indication that the methodology for producing the information was biased                                                                                                |
|                                    |                                  | (Method Objectivity)                       |                  | towards a particular product or outcome.                                                                                                                                            |
|                                    | Metric 4:                        | Reliability/Analytical Method              | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a |
|                                    |                                  |                                            |                  | peer-reviewed/recognized database or other secondary source.                                                                                                                        |
| Domain 3: Other                    |                                  |                                            |                  |                                                                                                                                                                                     |
|                                    | Metric 5:                        | Databases                                  | High             | The information or data is from a recognized data collection/repository where data are                                                                                              |
|                                    |                                  |                                            | C                | peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                       |
|                                    | Metric 6:                        | Models                                     | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                |
| Overall Augli                      | v Determi                        | nation                                     | High             |                                                                                                                                                                                     |
|                                    | y Determin                       |                                            | Ingii            |                                                                                                                                                                                     |

\* Related References: cited from F. O. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953.
| Study Citation:<br>OECD Harmonized       | National Toxicology Program (NTP), (1999). NTP report on carcinogens background document for 1,3-butadiene. Melting Point |                                         |                    |                                                                                                                                                                                                                                                     |  |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| HERO ID:                                 | 5160135                                                                                                                   |                                         |                    |                                                                                                                                                                                                                                                     |  |
|                                          |                                                                                                                           |                                         | EXTRACTIO          | N                                                                                                                                                                                                                                                   |  |
| Parameter                                |                                                                                                                           | Data                                    |                    |                                                                                                                                                                                                                                                     |  |
|                                          |                                                                                                                           |                                         |                    |                                                                                                                                                                                                                                                     |  |
| Melting Point<br>CASRN and Test Material |                                                                                                                           | -108.97 - °C<br>106-99-0: 1 3-Butadiene |                    |                                                                                                                                                                                                                                                     |  |
| Confidentiality, Type, and C             | Guideline                                                                                                                 | no: not specified: Not Reported         |                    |                                                                                                                                                                                                                                                     |  |
| Solvent, Reactivity, Storage             | , and Stability                                                                                                           | Not Reported; Not Reported; Not Repo    | rted; Not Reported |                                                                                                                                                                                                                                                     |  |
| Radiolabel, Source, State, a             | nd Purity                                                                                                                 | Not Reported; Not Reported; Not Repo    | rted; Not Reported |                                                                                                                                                                                                                                                     |  |
| Results Details Methods                  |                                                                                                                           | Not Reported                            |                    |                                                                                                                                                                                                                                                     |  |
| Standard Deviation Results               |                                                                                                                           | Not Reported                            |                    |                                                                                                                                                                                                                                                     |  |
| Results Details                          |                                                                                                                           | Not Reported                            |                    |                                                                                                                                                                                                                                                     |  |
|                                          |                                                                                                                           |                                         |                    |                                                                                                                                                                                                                                                     |  |
| Domain                                   |                                                                                                                           | Matria                                  | EVALUATIO          | Comments                                                                                                                                                                                                                                            |  |
| Domain 1: Substance                      |                                                                                                                           | Metric                                  | Kating             | Comments                                                                                                                                                                                                                                            |  |
| Domain 1. Substance                      | Metric 1:                                                                                                                 | Representativeness                      | High               | Data are measured or estimated for the subject chemical substance                                                                                                                                                                                   |  |
|                                          | Metric 2:                                                                                                                 | Appropriateness                         | High               | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |  |
|                                          |                                                                                                                           |                                         | C                  | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.       |  |
| Demain 2. Test Delishil                  | ·                                                                                                                         |                                         |                    |                                                                                                                                                                                                                                                     |  |
| Domain 2: Test Reliabili                 | Ity<br>Metric 3:                                                                                                          | Reliability/Unbiased                    | Medium             | There is no indication that the methodology for producing the information was biased                                                                                                                                                                |  |
|                                          | Methe 5.                                                                                                                  | (Method Objectivity)                    | Medium             | towards a particular product or outcome.                                                                                                                                                                                                            |  |
|                                          | Metric 4:                                                                                                                 | Reliability/Analytical Method           | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |
| Domain 2: Other                          |                                                                                                                           |                                         |                    |                                                                                                                                                                                                                                                     |  |
| Domain 5: Other                          | Metric 5:                                                                                                                 | Databases                               | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |
|                                          | Metric 6:                                                                                                                 | Models                                  | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |
| <b>Overall Qualit</b>                    | Overall Quality Determination High                                                                                        |                                         |                    |                                                                                                                                                                                                                                                     |  |

\* Related References: cited from Budavari, S., Ed. 1996. The Merck Index, 12th ed. Merck & Co, Inc., Whitehall, NJ.(HERO ID 670297)

| Study Citation:<br>OECD Harmonized | NCBI, (2020). Pu<br>Melting Point | bChem Compound Summary for CIE            | 0 7845 1,3 Butadie  | ne.                                                                                                                                                                                                                                                               |
|------------------------------------|-----------------------------------|-------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 10171483                          |                                           |                     |                                                                                                                                                                                                                                                                   |
|                                    |                                   |                                           | FYTRACTIO           | N                                                                                                                                                                                                                                                                 |
| Parameter                          |                                   | Data                                      | EATRACIIO           |                                                                                                                                                                                                                                                                   |
|                                    |                                   | 2                                         |                     |                                                                                                                                                                                                                                                                   |
| Melting Point                      |                                   | Not Reported                              |                     |                                                                                                                                                                                                                                                                   |
| Confidentiality Type and (         | Guideline                         | no: not specified: Not Reported           |                     |                                                                                                                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e. and Stability                  | Not Reported: Not Reported: Not Reported  | orted: Not Reported |                                                                                                                                                                                                                                                                   |
| Radiolabel, Source, State, a       | and Purity                        | Not Reported; Not Reported; Not Repo      | orted; Not Reported |                                                                                                                                                                                                                                                                   |
| Results Details Methods            | •                                 | Not Reported                              |                     |                                                                                                                                                                                                                                                                   |
| Standard Deviation Results         |                                   | Not Reported                              |                     |                                                                                                                                                                                                                                                                   |
| Results Details                    |                                   | Enthalpy of fusion: 7.98 kJ/mol           |                     |                                                                                                                                                                                                                                                                   |
|                                    |                                   |                                           |                     |                                                                                                                                                                                                                                                                   |
|                                    |                                   |                                           | EVALUATIO           | N                                                                                                                                                                                                                                                                 |
| Domain                             |                                   | Metric                                    | Rating              | Comments                                                                                                                                                                                                                                                          |
| Domain 1: Substance                | 34.1.1                            |                                           | TT' 1               |                                                                                                                                                                                                                                                                   |
|                                    | Metric 1:<br>Metric 2:            | Appropriatoness                           | High                | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                |
|                                    | Metric 2.                         | Appropriateness                           | Figi                | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors. |
| Domain 2. Tost Daliabil            |                                   |                                           |                     |                                                                                                                                                                                                                                                                   |
| Domain 2: Test Renadir             | Metric 3:                         | Reliability/Unbiased (Method Objectivity) | Medium              | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                     |
|                                    | Metric 4:                         | Reliability/Analytical Method             | Medium              | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.               |
| Domain 2. Other                    |                                   |                                           |                     |                                                                                                                                                                                                                                                                   |
| Domain 3: Other                    | Metric 5:                         | Databases                                 | High                | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                              |
|                                    | Metric 6:                         | Models                                    | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                              |
| <b>Overall Qualit</b>              | ty Determin                       | ation                                     | High                |                                                                                                                                                                                                                                                                   |

\* Related References: Cited from Haynes, W.M. (ed.). CRC Handbook of Chemistry and Physics. 95th Edition. CRC Press LLC, Boca Raton: FL 2014-2015, p. 3-76 (HERO ID: 2828348)

PUBLIC RELEASE DRAFT November 2024 Melting Point

| Study Citation               | NIOSU (2007)     | NIOSH pocket guide to chemical haz  | arda      |                                                                                                                                                                   |
|------------------------------|------------------|-------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OFCD Harmonized              | Melting Point    | NIOSH pocket guide to chemical haza | arus.     |                                                                                                                                                                   |
| Template                     | Menning I onit   |                                     |           |                                                                                                                                                                   |
| HERO ID.                     | 192177           |                                     |           |                                                                                                                                                                   |
|                              | 1)2177           |                                     |           |                                                                                                                                                                   |
|                              |                  |                                     | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                    |                  | Data                                |           |                                                                                                                                                                   |
|                              |                  |                                     |           |                                                                                                                                                                   |
| Melting Point                |                  | -164 - F                            |           |                                                                                                                                                                   |
| CASRN and Test Material      |                  | 106-99-0; 1,3-butadiene             |           |                                                                                                                                                                   |
| Confidentiality, Type, and C | Guideline        | None; Experimental; Not reported    |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                      |           |                                                                                                                                                                   |
| Radiolabel, Source, State, a | nd Purity        | NR; NR; NR; NR Notes: NR            |           |                                                                                                                                                                   |
| Results Details Methods      |                  | NR                                  |           |                                                                                                                                                                   |
| Standard Deviation Results   |                  | NR                                  |           |                                                                                                                                                                   |
| Results Details              |                  | Reported as freezing point          |           |                                                                                                                                                                   |
|                              |                  |                                     |           |                                                                                                                                                                   |
|                              |                  |                                     | EVALUATIO | N                                                                                                                                                                 |
| Domain                       |                  | Metric                              | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance          |                  |                                     |           |                                                                                                                                                                   |
|                              | Metric 1:        | Representativeness                  | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                              | Metric 2:        | Appropriateness                     | High      | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
|                              |                  |                                     |           |                                                                                                                                                                   |
| Domain 2: Test Reliabil      | ity              |                                     |           |                                                                                                                                                                   |
|                              | Metric 3:        | Reliability/Unbiased                | Medium    | There is no indication that the methodology for producing the information was biased                                                                              |
|                              |                  | (Method Objectivity)                |           | towards a particular product or outcome.                                                                                                                          |
|                              | Metric 4:        | Reliability/Analytical Method       | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                              |                  |                                     |           | - • •                                                                                                                                                             |
| Domain 3: Other              |                  |                                     |           |                                                                                                                                                                   |
|                              | Metric 5:        | Databases                           | Medium    | Data is from a recognized, peer-reviewed data collection.                                                                                                         |
|                              | Metric 6:        | Models                              | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |
|                              |                  |                                     |           |                                                                                                                                                                   |
| <b>Overall Qualit</b>        | y Determi        | nation                              | High      |                                                                                                                                                                   |

| Study Citation:<br>OECD Harmonized       | NIST, (2022). NI<br>Melting Point | ST Chemistry WebBook. 1,3-Butadie                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ne (106-99-0). Sta  | ndard Reference Database No. 69.                                                                                                                                                                                                                                                                                                   |
|------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                 | 10225178                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                                                                                                                                                                                                                    |
|                                          |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EXTRACTIO           | N                                                                                                                                                                                                                                                                                                                                  |
| Parameter                                |                                   | Data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                                                                                                                                                                                                                                                                                                                                    |
| Melting Point<br>CASRN and Test Material |                                   | 164.5 - K<br>106-99-0: 1.3-Butadiene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                                                                                                                                                                                                                                                                                                                                    |
| Confidentiality, Type, and               | Guideline                         | No; Experimental; Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |                                                                                                                                                                                                                                                                                                                                    |
| Solvent, Reactivity, Storage             | e, and Stability                  | Not Reported; No | orted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |
| Radiolabel, Source, State, a             | and Purity                        | Not Reported; Not Reported; Not Repo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | orted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |
| Results Details Methods                  |                                   | Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                                                                                                                                                                                                                                                                                                                    |
| Standard Deviation Results               | 5                                 | 0.2 K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                                                                                                                                                                                                                                                                                                                                    |
| Results Details                          |                                   | Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                                                                                                                                                                                                                                                                                                                    |
|                                          |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EVALUATIO           | N                                                                                                                                                                                                                                                                                                                                  |
| Domain                                   |                                   | Metric                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Rating              | Comments                                                                                                                                                                                                                                                                                                                           |
| Domain 1: Substance                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                                                                                                                                                                                                                    |
|                                          | Metric 1:                         | Representativeness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | High                | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |
|                                          | Metric 2:                         | Appropriateness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | High                | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2 <sup>.</sup> Test Reliabil      | ity                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                                                                                                                                                                                                                    |
| Domain 2. Test Remain                    | Metric 3:                         | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Medium              | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |
|                                          | Metric 4:                         | Reliability/Analytical Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Medium              | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |
| Domain 3 <sup>.</sup> Other              |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                                                                                                                                                                                                                    |
|                                          | Metric 5:                         | Databases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | High                | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |
|                                          | Metric 6:                         | Models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |
| <b>Overall Qualit</b>                    | ty Determin                       | ation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | High                |                                                                                                                                                                                                                                                                                                                                    |

\* Related References: cited from Kistiakowsky, G.B.; Ruhoff, J.R.; Smith, H.A.; Vaughan, W.E., Heats of Organic Reactions IV. Hydrogenation of Some Dienes and of Benzene, J. Am. Chem. Soc., 1936, 58, 146-53.

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Melting Point | IST Chemistry WebBook. 1,3-Butadier    | ne (106-99-0). Sta    | ndard Reference Database No. 69.                                                                                                                                                                                                                                                                                                   |
|------------------------------------|----------------------------------|----------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 10225178                         |                                        |                       |                                                                                                                                                                                                                                                                                                                                    |
|                                    |                                  |                                        | EXTRACTIO             | N                                                                                                                                                                                                                                                                                                                                  |
| Parameter                          |                                  | Data                                   |                       |                                                                                                                                                                                                                                                                                                                                    |
|                                    |                                  |                                        |                       |                                                                                                                                                                                                                                                                                                                                    |
| Melting Point                      |                                  | 164.210 - К                            |                       |                                                                                                                                                                                                                                                                                                                                    |
| CASRN and Test Material            |                                  | 106-99-0; 1,3-Butadiene                |                       |                                                                                                                                                                                                                                                                                                                                    |
| Confidentiality, Type, and         | Guideline                        | No; Experimental; Not Reported         |                       |                                                                                                                                                                                                                                                                                                                                    |
| Solvent, Reactivity, Storage       | e, and Stability                 | Not Reported; Not Reported; Not Repo   | rted; Not Reported    |                                                                                                                                                                                                                                                                                                                                    |
| Radiolabel, Source, State, a       | and Purity                       | Not Reported; Not Reported; Not Repo   | rted; Not Reported    |                                                                                                                                                                                                                                                                                                                                    |
| Results Details Methods            |                                  | Not Reported                           |                       |                                                                                                                                                                                                                                                                                                                                    |
| Standard Deviation Results         | 5                                | 0.04 K                                 |                       |                                                                                                                                                                                                                                                                                                                                    |
| Results Details                    |                                  | Also report 164.210 K with standard de | eviation of 0.03 K in | same chart under melting point.                                                                                                                                                                                                                                                                                                    |
|                                    |                                  |                                        | EVALUATIO             | N                                                                                                                                                                                                                                                                                                                                  |
| Domain                             |                                  | Metric                                 | Rating                | Comments                                                                                                                                                                                                                                                                                                                           |
| Domain 1: Substance                |                                  |                                        |                       |                                                                                                                                                                                                                                                                                                                                    |
|                                    | Metric 1:                        | Representativeness                     | High                  | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |
|                                    | Metric 2:                        | Appropriateness                        | High                  | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |
| Demein 2. Test Delishil            | :4                               |                                        |                       |                                                                                                                                                                                                                                                                                                                                    |
| Domain 2: Test Reliabil            | ILY<br>Matria 2.                 | Daliability/Ilabiasad                  | Madium                | There is no indication does do made delance for any desire desire for modifier and                                                                                                                                                                                                                                                 |
|                                    | Metric 5:                        | (Method Objectivity)                   | Medium                | towards a particular product or outcome.                                                                                                                                                                                                                                                                                           |
|                                    | Metric 4:                        | Reliability/Analytical Method          | Medium                | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |
| Domain 3: Other                    |                                  |                                        |                       |                                                                                                                                                                                                                                                                                                                                    |
| Domain 5. Outer                    | Metric 5:                        | Databases                              | High                  | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |
|                                    | Metric 6:                        | Models                                 | N/A                   | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |
| Overall Quality Determination High |                                  |                                        |                       |                                                                                                                                                                                                                                                                                                                                    |

\* Related References: cited from Streiff, A.J.; Soule, L.F.; Kennedy, C.M.; Janes, M.E.; Sedlak, V.A.; Willingham, C.B.; Rossini, F.D., Purification, purity, and freezing points of twentynine hydrocarbons of the API-standard and API-NBS series., J. Res. Natl. Bur. Stand. (U. S.), 1950, 45, 173.

| Study Citation:<br>OECD Harmonized | NIST, (2022). NI<br>Melting Point | ST Chemistry WebBook. 1,3-Butadien           | e (106-99-0). Sta | ndard Reference Database No. 69.                                                                                                                                                     |
|------------------------------------|-----------------------------------|----------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                   |                                              |                   |                                                                                                                                                                                      |
| HERO ID:                           | 10225178                          |                                              |                   |                                                                                                                                                                                      |
| _                                  |                                   | _                                            | EXTRACTIO         | N                                                                                                                                                                                    |
| Parameter                          |                                   | Data                                         |                   |                                                                                                                                                                                      |
|                                    |                                   |                                              |                   |                                                                                                                                                                                      |
| Melting Point                      |                                   | 164.3 - К                                    |                   |                                                                                                                                                                                      |
| CASRN and Test Material            | ~                                 | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                      |
| Confidentiality, Type, and C       | Juideline                         | No; Experimental; Not Reported               |                   |                                                                                                                                                                                      |
| Solvent, Reactivity, Storage       | e, and Stability                  | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                                                      |
| Radioladel, Source, State, a       | ind Purity                        | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                      |
| Standard Deviation Results         |                                   | 0.4 K                                        |                   |                                                                                                                                                                                      |
| Results Details                    |                                   | Not Reported                                 |                   |                                                                                                                                                                                      |
|                                    |                                   | 1 of Topolog                                 |                   |                                                                                                                                                                                      |
|                                    |                                   |                                              | EVALUATIO         | N                                                                                                                                                                                    |
| Domain                             |                                   | Metric                                       | Rating            | Comments                                                                                                                                                                             |
| Domain 1: Substance                |                                   |                                              |                   |                                                                                                                                                                                      |
|                                    | Metric 1:                         | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                   |
|                                    | Metric 2:                         | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                 |
|                                    |                                   |                                              |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point |
|                                    |                                   |                                              |                   | below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors.                                                                                                         |
|                                    |                                   |                                              |                   |                                                                                                                                                                                      |
| Domain 2: Test Reliabil            | ity                               |                                              |                   |                                                                                                                                                                                      |
|                                    | Metric 3:                         | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                        |
|                                    | Metric 4:                         | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                                              |
|                                    |                                   |                                              |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a                                                                                             |
|                                    |                                   |                                              |                   | peci-revieweurrecognized database of other secondary source.                                                                                                                         |
| Domain 3: Other                    |                                   |                                              |                   |                                                                                                                                                                                      |
|                                    | Metric 5:                         | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are                                                                                               |
|                                    |                                   |                                              |                   | peer-reviewed by experts in the field, are broadly available to the public for review and                                                                                            |
|                                    | Matria (                          | M- J-1-                                      | NT/ 4             | use OR includes references to the original sources.                                                                                                                                  |
|                                    | Metric 6:                         | wodels                                       | N/A               | Kating of this factor is not applicable to this kind of information.                                                                                                                 |
| <b>Overall</b> Oualit              | v Determin                        | ation                                        | High              |                                                                                                                                                                                      |
| Storm Yuun                         |                                   |                                              |                   |                                                                                                                                                                                      |

\* Related References: cited from Anonymous, R., , Am. Pet. Inst. Res. Proj. 45, Ohio State Univ., 1958.

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | NIST, (2022). NIST Chemistry WebBook. 1,3-Butadiene (106-99-0). Standard Reference Database No. 69.<br>Melting Point |                                              |                                       |                                                                                                                                                                                                                                                     |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Template:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10225179                                                                                                             |                                              |                                       |                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 10223178                                                                                                             |                                              |                                       |                                                                                                                                                                                                                                                     |  |
| <b>D</b> (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                      |                                              | EXTRACTIO                             | N                                                                                                                                                                                                                                                   |  |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                      | Data                                         |                                       |                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                      |                                              |                                       |                                                                                                                                                                                                                                                     |  |
| Melting Point                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                      | 164.220 - K                                  |                                       |                                                                                                                                                                                                                                                     |  |
| CASRN and Test Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                      | 106-99-0; 1,3-Butadiene                      |                                       |                                                                                                                                                                                                                                                     |  |
| Confidentiality, Type, and Confidentiality, and | Guideline                                                                                                            | No; Experimental; Not Reported               |                                       |                                                                                                                                                                                                                                                     |  |
| Solvent, Reactivity, Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | e, and Stability                                                                                                     | Not Reported; Not Reported; Not Repo         | rted; Not Reported                    |                                                                                                                                                                                                                                                     |  |
| Radiolabel, Source, State, a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | and Purity                                                                                                           | Not Reported; Not Reported; Not Repo         | orted; Not Reported                   |                                                                                                                                                                                                                                                     |  |
| Results Details Methods                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                      | Not Reported                                 |                                       |                                                                                                                                                                                                                                                     |  |
| Standard Deviation Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5                                                                                                                    | 0.04 K                                       | · · · · · · · · · · · · · · · · · · · |                                                                                                                                                                                                                                                     |  |
| Results Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                      | Also report 164.230 K with standard de       | eviation of 0.02 K in                 | same chart under melting point.                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                      |                                              | EVALUATIO                             | Ν                                                                                                                                                                                                                                                   |  |
| Domain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                      | Metric                                       | Rating                                | Comments                                                                                                                                                                                                                                            |  |
| Domain 1: Substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                      |                                              |                                       |                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 1:                                                                                                            | Representativeness                           | High                                  | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 2:                                                                                                            | Appropriateness                              | High                                  | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                      |                                              |                                       | if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors.                                                                              |  |
| Domain 2 <sup>.</sup> Test Reliabil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ity                                                                                                                  |                                              |                                       |                                                                                                                                                                                                                                                     |  |
| Domain 2. Test Remain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Metric 3:                                                                                                            | Reliability/Unbiased<br>(Method Objectivity) | Medium                                | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 4:                                                                                                            | Reliability/Analytical Method                | Medium                                | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |
| Domain 3: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                      |                                              |                                       |                                                                                                                                                                                                                                                     |  |
| Domain 5. Otter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 5:                                                                                                            | Databases                                    | High                                  | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 6:                                                                                                            | Models                                       | N/A                                   | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |
| <b>Overall Qualit</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ty Determin                                                                                                          | nation                                       | High                                  |                                                                                                                                                                                                                                                     |  |

\* Related References: cited from Glasgow, A.R.; Krouskop, N.C.; Beadle, J.; Axilrod, G.D.; Rossini, F.D., Compounds involved in production of synthetic rubber. determination of purity by measurement of freezing points., Anal. Chem., 1948, 20, 410.

| Study Citation:<br>OECD Harmonized | NLM, (2003). Pu<br>Melting Point | ıbChem: Hazardous Substance Data B | ank: 1,3-Butadien | e, 106-99-0.                                                                                                                                                      |  |
|------------------------------------|----------------------------------|------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| HERO ID:                           | 5926134                          |                                    |                   |                                                                                                                                                                   |  |
|                                    |                                  |                                    | EXTRACTIO         | N                                                                                                                                                                 |  |
| Parameter                          |                                  | Data                               |                   |                                                                                                                                                                   |  |
|                                    |                                  | 100.077.00                         |                   |                                                                                                                                                                   |  |
| Melting Point                      |                                  | -108.966 °C                        |                   |                                                                                                                                                                   |  |
| CASRN and Test Material            |                                  | 106-99-0; 1,3-Butadiene            |                   |                                                                                                                                                                   |  |
| Confidentiality, Type, and C       | Juideline                        | None; Experimental; Not Reported   |                   |                                                                                                                                                                   |  |
| Badialabal Source State            | , and Stability                  | NR, NR, NR, NR<br>ND, ND, ND, ND   |                   |                                                                                                                                                                   |  |
| Rauloiabel, Source, State, a       | inu Fullty                       | Not Reported                       |                   |                                                                                                                                                                   |  |
| Standard Daviation Basulta         |                                  | Not Reported                       |                   |                                                                                                                                                                   |  |
| Results Details                    |                                  | Not Reported                       |                   |                                                                                                                                                                   |  |
| Results Details                    |                                  | Not Reported                       |                   |                                                                                                                                                                   |  |
|                                    |                                  |                                    | EVALUATIO         | N                                                                                                                                                                 |  |
| Domain                             |                                  | Metric                             | Rating            | Comments                                                                                                                                                          |  |
| Domain 1: Substance                |                                  |                                    |                   |                                                                                                                                                                   |  |
|                                    | Metric 1:                        | Representativeness                 | High              | Data are measured or estimated for the subject chemical substance.                                                                                                |  |
|                                    | Metric 2:                        | Appropriateness                    | High              | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |  |
| Domain 2: Test Reliabil            | ity                              |                                    |                   |                                                                                                                                                                   |  |
|                                    | Metric 3:                        | Reliability/Unbiased               | Medium            | There is no indication that the methodology for producing the information was biased                                                                              |  |
|                                    | 34.1.4                           | (Method Objectivity)               |                   | towards a particular product or outcome.                                                                                                                          |  |
|                                    | Metric 4:                        | Reliability/Analytical Method      | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |  |
| Domain 3: Other                    | Demoir 2: Other                  |                                    |                   |                                                                                                                                                                   |  |
| Domain 5. Outer                    | Metric 5:                        | Databases                          | High              | Data is from a publicly available, peer-reviewed database that provides references to a recognized data collection.                                               |  |
|                                    | Metric 6:                        | Models                             | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                              |  |
| Overall Qualit                     | y Determin                       | ation                              | High              |                                                                                                                                                                   |  |

\* Related References: Haynes, W.M. (Ed.). CRC Handbook of Chemistry and Physics. 95th Edition. CRC Press LLC, Boca Raton: FL 2014-2015

PUBLIC RELEASE DRAFT November 2024 Melting Point

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | O'Neil, M. J. (2<br>Melting Point | 013). 1,3-Butadiene. 106-99-0. :267. |           |                                                                                                                                                                   |
|------------------------------------|-----------------------------------|--------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | 8                                 |                                      |           |                                                                                                                                                                   |
| HERO ID:                           | 5926379                           |                                      |           |                                                                                                                                                                   |
|                                    |                                   |                                      | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                          |                                   | Data                                 |           |                                                                                                                                                                   |
|                                    |                                   |                                      |           |                                                                                                                                                                   |
| Melting Point                      |                                   | -108.966 °C                          |           |                                                                                                                                                                   |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene              |           |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Guideline                         | None; Experimental; Not Reported     |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability                  | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | and Purity                        | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Results Details Methods            |                                   | Not Reported                         |           |                                                                                                                                                                   |
| Standard Deviation Results         |                                   | Not Reported                         |           |                                                                                                                                                                   |
| Results Details                    |                                   | Not Reported                         |           |                                                                                                                                                                   |
|                                    |                                   |                                      |           |                                                                                                                                                                   |
|                                    |                                   |                                      | EVALUATIO | N                                                                                                                                                                 |
| Domain                             |                                   | Metric                               | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance                |                                   |                                      |           |                                                                                                                                                                   |
|                                    | Metric 1:                         | Representativeness                   | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                    | Metric 2:                         | Appropriateness                      | High      | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil            | ity                               |                                      |           |                                                                                                                                                                   |
| Domain 2. Test Kelldoll            | Metric 3                          | Reliability/Unbiased                 | Medium    | There is no indication that the methodology for producing the information was biased                                                                              |
|                                    | Weute 5.                          | (Method Objectivity)                 | Wiedrum   | towards a particular product or outcome.                                                                                                                          |
|                                    | Metric 4:                         | Reliability/Analytical Method        | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Demain 2. Other                    |                                   |                                      |           |                                                                                                                                                                   |
| Domain 3: Other                    | Matria 5.                         | Datahasas                            | High      |                                                                                                                                                                   |
|                                    | Matria 6                          | Madala                               | High      | Data is from a recognized, peer-reviewed data collection.                                                                                                         |
|                                    | Metric 0:                         | wodels                               | IN/A      | kating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Qualit</b>              | ty Determi                        | nation                               | High      |                                                                                                                                                                   |

| Study Citation:<br>OECD Harmonized | O'Neil, M. J. (20<br>Melting Point | 013). 1,3-Butadiene. 106-99-0. :267. |           |                                                                                                                                                                   |
|------------------------------------|------------------------------------|--------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                    |                                      |           |                                                                                                                                                                   |
| HERO ID:                           | 5926379                            |                                      |           |                                                                                                                                                                   |
|                                    |                                    |                                      | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                          |                                    | Data                                 |           |                                                                                                                                                                   |
|                                    |                                    |                                      |           |                                                                                                                                                                   |
| Melting Point                      |                                    | -108.902 °C                          |           |                                                                                                                                                                   |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene              |           |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Guideline                          | None; Experimental; Not Reported     |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability                   | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | and Purity                         | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Results Details Methods            |                                    | Freezing point                       |           |                                                                                                                                                                   |
| Standard Deviation Results         |                                    | Not Reported                         |           |                                                                                                                                                                   |
| Results Details                    |                                    | Not Reported                         |           |                                                                                                                                                                   |
|                                    |                                    |                                      |           |                                                                                                                                                                   |
| D '                                |                                    |                                      | EVALUATIO | N C C                                                                                                                                                             |
| Domain                             |                                    | Metric                               | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance                | Matria 1.                          | Democratic                           | TT: -1-   |                                                                                                                                                                   |
|                                    | Metric 1:                          | A manufacture and                    | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                    | Metric 2:                          | Appropriateness                      | High      | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil            | ity                                |                                      |           |                                                                                                                                                                   |
|                                    | Metric 3:                          | Reliability/Unbiased                 | Medium    | There is no indication that the methodology for producing the information was biased                                                                              |
|                                    |                                    | (Method Objectivity)                 |           | towards a particular product or outcome.                                                                                                                          |
|                                    | Metric 4:                          | Reliability/Analytical Method        | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                                    |                                      |           |                                                                                                                                                                   |
| Domain 5. Other                    | Metric 5                           | Databases                            | High      | Data is from a recognized neer-reviewed data collection                                                                                                           |
|                                    | Metric 6:                          | Models                               | N/A       | Pating of this factor is not applicable to this kind of information                                                                                               |
|                                    |                                    | 1100013                              | 11/11     | Rating of and factor is not applicable to this kind of information.                                                                                               |
| <b>Overall Qualit</b>              | ty Determin                        | nation                               | High      |                                                                                                                                                                   |

PUBLIC RELEASE DRAFT November 2024 Melting Point

| Study Citation:<br>OECD Harmonized | RSC, (2019). Che<br>Melting Point | mSpider: 1,3-Butadiene.                      |            |                                                                                                                               |
|------------------------------------|-----------------------------------|----------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 5926255                           |                                              |            |                                                                                                                               |
|                                    |                                   |                                              | EXTRACTION |                                                                                                                               |
| Parameter                          |                                   | Data                                         |            |                                                                                                                               |
|                                    |                                   |                                              |            |                                                                                                                               |
| Melting Point                      |                                   | -108.9 °C                                    |            |                                                                                                                               |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene                      |            |                                                                                                                               |
| Confidentiality, Type, and C       | Guideline                         | None; Experimental; Not Reported             |            |                                                                                                                               |
| Solvent, Reactivity, Storage       | e, and Stability                  | NR; NR; NR; NR                               |            |                                                                                                                               |
| Radiolabel, Source, State, a       | nd Purity                         | NR; NR; NR; NR                               |            |                                                                                                                               |
| Results Details Methods            |                                   | Not Reported                                 |            |                                                                                                                               |
| Standard Deviation Results         |                                   | Not Reported                                 |            |                                                                                                                               |
| Results Details                    |                                   | Not Reported                                 |            |                                                                                                                               |
|                                    |                                   |                                              | EVALUATION |                                                                                                                               |
| Domain                             |                                   | Metric                                       | Rating     | Comments                                                                                                                      |
| Domain 1: Substance                |                                   |                                              |            |                                                                                                                               |
|                                    | Metric 1:                         | Representativeness                           | High       | Data are measured or estimated for the subject chemical substance.                                                            |
|                                    | Metric 2:                         | Appropriateness                              | High       | Measured data are consistent with the subject chemical's physical/chemical properties.                                        |
| Domain 2: Test Reliabil            | itv                               |                                              |            |                                                                                                                               |
|                                    | Metric 3:                         | Reliability/Unbiased<br>(Method Objectivity) | Medium     | There is no indication that the methodology for producing the information was biased towards a particular product or outcome. |
|                                    | Metric 4:                         | Reliability/Analytical Method                | Low        | The analytical method is unknown and there is no indication that a reliable method was used.                                  |
| Domain 3: Other                    |                                   |                                              |            |                                                                                                                               |
| Domain 5. Outer                    | Metric 5:                         | Databases                                    | Medium     | Data is from a publicly available secondary source with references to non-peer reviewed sources.                              |
|                                    | Metric 6:                         | Models                                       | N/A        | Rating of this factor is not applicable to this kind of information.                                                          |
| <b>Overall Qualit</b>              | y Determina                       | ation                                        | Medium     |                                                                                                                               |

\* Related References: Jean-Claude Bradley Open Melting Point Dataset

| Study Citation:<br>OECD Harmonized | RSC, (2019). Che<br>Melting Point | emSpider: 1,3-Butadiene.          |            |                                                                                              |
|------------------------------------|-----------------------------------|-----------------------------------|------------|----------------------------------------------------------------------------------------------|
| HERO ID:                           | 5926255                           |                                   |            |                                                                                              |
|                                    |                                   |                                   | EXTRACTION |                                                                                              |
| Parameter                          |                                   | Data                              |            |                                                                                              |
| Melting Point                      |                                   | 100 °C                            |            |                                                                                              |
| CASRN and Test Material            |                                   | -109 C<br>106-99-0: 1 3-Butadiene |            |                                                                                              |
| Confidentiality Type and (         | Juideline                         | None: Experimental: Not Reported  |            |                                                                                              |
| Solvent, Reactivity, Storage       | e, and Stability                  | NR: NR: NR                        |            |                                                                                              |
| Radiolabel, Source, State, a       | and Purity                        | NR; NR; NR; NR                    |            |                                                                                              |
| Results Details Methods            | 2                                 | Not Reported                      |            |                                                                                              |
| Standard Deviation Results         |                                   | Not Reported                      |            |                                                                                              |
| Results Details                    |                                   | Not Reported                      |            |                                                                                              |
|                                    |                                   |                                   |            |                                                                                              |
|                                    |                                   |                                   | EVALUATION |                                                                                              |
| Domain                             |                                   | Metric                            | Rating     | Comments                                                                                     |
| Domain 1: Substance                |                                   |                                   |            |                                                                                              |
|                                    | Metric 1:                         | Representativeness                | High       | Data are measured or estimated for the subject chemical substance.                           |
|                                    | Metric 2:                         | Appropriateness                   | High       | Measured data are consistent with the subject chemical's physical/chemical properties.       |
| Domain 2: Test Reliabil            | itv                               |                                   |            |                                                                                              |
|                                    | Metric 3:                         | Reliability/Unbiased              | Medium     | There is no indication that the methodology for producing the information was biased         |
|                                    | M-4-: 4.                          | (Method Objectivity)              | T          | towards a particular product or outcome.                                                     |
|                                    | Metric 4:                         | Reliability/Analytical Method     | Low        | The analytical method is unknown and there is no indication that a reliable method was used. |
| Domain 3: Other                    |                                   |                                   |            |                                                                                              |
| Domain 5. Outer                    | Metric 5:                         | Databases                         | Medium     | Data is from a publicly available secondary source with references to non-neer reviewed      |
|                                    | moure 5.                          | Dunibabes                         | Weddulli   | sources.                                                                                     |
|                                    | Metric 6:                         | Models                            | N/A        | Rating of this factor is not applicable to this kind of information.                         |
| <b>Overall Qualit</b>              | v Determin                        | ation                             | Medium     |                                                                                              |

\* Related References: Parchem-fine & specialty chemicals

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| Study Citation:              | Rumble, J. R., ( | Ed.) (2018). 1,3-Butadiene. :3-8. |            |                                                                                                                                                                   |
|------------------------------|------------------|-----------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Melting Point    |                                   |            |                                                                                                                                                                   |
| Template:                    |                  |                                   |            |                                                                                                                                                                   |
| HERO ID:                     | 5349186          |                                   |            |                                                                                                                                                                   |
|                              |                  |                                   | EXTRACTIO  | N                                                                                                                                                                 |
| Parameter                    |                  | Data                              |            |                                                                                                                                                                   |
|                              |                  |                                   |            |                                                                                                                                                                   |
| Melting Point                |                  | -108.9 °C                         |            |                                                                                                                                                                   |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene           |            |                                                                                                                                                                   |
| Confidentiality, Type, and   | Guideline        | None; Experimental; Not Reported  |            |                                                                                                                                                                   |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                    |            |                                                                                                                                                                   |
| Radiolabel, Source, State, a | and Purity       | NR; NR; NR; NR                    |            |                                                                                                                                                                   |
| Results Details Methods      |                  | Not Reported                      |            |                                                                                                                                                                   |
| Standard Deviation Results   | 5                | Not Reported                      |            |                                                                                                                                                                   |
| Results Details              |                  | Not Reported                      |            |                                                                                                                                                                   |
|                              |                  |                                   |            |                                                                                                                                                                   |
|                              |                  |                                   | EVALUATIO  | N                                                                                                                                                                 |
| Domain                       |                  | Metric                            | Rating     | Comments                                                                                                                                                          |
| Domain 1: Substance          |                  |                                   |            |                                                                                                                                                                   |
|                              | Metric 1:        | Representativeness                | High       | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                              | Metric 2:        | Appropriateness                   | High       | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil      | ity              |                                   |            |                                                                                                                                                                   |
|                              | Metric 3:        | Reliability/Unbiased              | Medium     | There is no indication that the methodology for producing the information was biased                                                                              |
|                              | intente or       | (Method Objectivity)              | 1120010111 | towards a particular product or outcome.                                                                                                                          |
|                              | Metric 4:        | Reliability/Analytical Method     | Medium     | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                              |                  |                                   |            |                                                                                                                                                                   |
| Domain 3: Other              | M ( 1 5          |                                   | TT: 1      |                                                                                                                                                                   |
|                              | Metric 5:        | Databases                         | High       | Data is from a recognized, peer-reviewed data collection.                                                                                                         |
|                              | Metric 6:        | Models                            | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Qualit               | tv Determi       | nation                            | High       |                                                                                                                                                                   |
|                              | y Duu IIII       | nauvii                            | Ingn       |                                                                                                                                                                   |

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1,3-Butadiene

| Study Citation:<br>OECD Harmonized   | U.S. EPA, (2019)<br>Melting Point | . Chemistry Dashboard Information for        | or 1,3-Butadiene. | 106-99-0                                                                                                                                                          |
|--------------------------------------|-----------------------------------|----------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                             | 5926160                           |                                              |                   |                                                                                                                                                                   |
|                                      |                                   |                                              | EXTRACTIO         | N                                                                                                                                                                 |
| Parameter                            |                                   | Data                                         |                   |                                                                                                                                                                   |
| Molting Doint                        |                                   | 100 °C                                       |                   |                                                                                                                                                                   |
| CASRN and Test Material              |                                   | -109 C<br>106-99-0: 1 3-Butadiene            |                   |                                                                                                                                                                   |
| Confidentiality. Type, and C         | Guideline                         | None: Experimental: Not Reported             |                   |                                                                                                                                                                   |
| Solvent, Reactivity, Storage         | e, and Stability                  | NR; NR; NR; NR                               |                   |                                                                                                                                                                   |
| Radiolabel, Source, State, a         | nd Purity                         | NR; NR; NR; NR                               |                   |                                                                                                                                                                   |
| Results Details Methods              |                                   | Not Reported                                 |                   |                                                                                                                                                                   |
| Standard Deviation Results           |                                   | Not Reported                                 |                   |                                                                                                                                                                   |
| Results Details                      |                                   | Not Reported                                 |                   |                                                                                                                                                                   |
|                                      |                                   |                                              |                   |                                                                                                                                                                   |
| Demain                               |                                   | M - tui -                                    | EVALUATIO         | N Community                                                                                                                                                       |
| Domain<br>Domain 1: Substance        |                                   | Metric                                       | Kating            | Comments                                                                                                                                                          |
| Domain 1. Substance                  | Metric 1:                         | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance                                                                                                 |
|                                      | Metric 2:                         | Appropriateness                              | High              | Measured data are consistent with the subject chemical's physical/chemical properties                                                                             |
|                                      | 11100110 21                       |                                              |                   |                                                                                                                                                                   |
| Domain 2: Test Reliabil              | ity                               |                                              |                   |                                                                                                                                                                   |
|                                      | Metric 3:                         | Reliability/Unbiased<br>(Method Obiectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                      | Metric 4:                         | Reliability/Analytical Method                | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                                      |                                   |                                              |                   |                                                                                                                                                                   |
| Domain 5: Other                      | Metric 5:                         | Databases                                    | High              | Data is from a publicly available database that provides references to the original, peer-<br>reviewed source.                                                    |
|                                      | Metric 6:                         | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Quality Determination</b> |                                   |                                              | High              |                                                                                                                                                                   |

\* Related References: PhysProp

| Study Citation:<br>OECD Harmonized | U.S. EPA, (2019<br>Melting Point   | ). Chemistry Dashboard Information for | or 1,3-Butadiene. | 106-99-0                                                                                |  |
|------------------------------------|------------------------------------|----------------------------------------|-------------------|-----------------------------------------------------------------------------------------|--|
| Template:                          |                                    |                                        |                   |                                                                                         |  |
| HERO ID:                           | 5926160                            |                                        |                   |                                                                                         |  |
|                                    |                                    |                                        | EXTRACTIO         | N                                                                                       |  |
| Parameter                          |                                    | Data                                   |                   |                                                                                         |  |
|                                    |                                    |                                        |                   |                                                                                         |  |
| Melting Point                      |                                    | -109 °C                                |                   |                                                                                         |  |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene                |                   |                                                                                         |  |
| Confidentiality, Type, and         | Guideline                          | None; Experimental; Not Reported       |                   |                                                                                         |  |
| Solvent, Reactivity, Storage       | e, and Stability                   | NR; NR; NR; NR                         |                   |                                                                                         |  |
| Radiolabel, Source, State, a       | and Purity                         | NR; NR; NR; NR                         |                   |                                                                                         |  |
| Results Details Methods            |                                    | Not Reported                           |                   |                                                                                         |  |
| Standard Deviation Results         | 6                                  | Not Reported                           |                   |                                                                                         |  |
| Results Details                    |                                    | Not Reported                           |                   |                                                                                         |  |
|                                    |                                    |                                        |                   |                                                                                         |  |
|                                    |                                    |                                        | EVALUATIO         | N                                                                                       |  |
| Domain                             |                                    | Metric                                 | Rating            | Comments                                                                                |  |
| Domain 1: Substance                |                                    |                                        |                   |                                                                                         |  |
|                                    | Metric 1:                          | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance.                      |  |
|                                    | Metric 2:                          | Appropriateness                        | High              | Measured data are consistent with the subject chemical's physical/chemical properties.  |  |
| Domain 2: Test Peliabil            | ity                                |                                        |                   |                                                                                         |  |
| Domain 2. Test Kellaun             | Metric 3.                          | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased    |  |
|                                    | Wieure 5.                          | (Method Objectivity)                   | Wiedium           | towards a particular product or outcome.                                                |  |
|                                    | Metric 4:                          | Reliability/Analytical Method          | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu- |  |
|                                    |                                    |                                        |                   | sion in a peer-reviewed/recognized database or other secondary source.                  |  |
| Domain 3: Other                    |                                    |                                        |                   |                                                                                         |  |
|                                    | Metric 5:                          | Databases                              | High              | Data is from a publicly available database that references a peer-reviewed source.      |  |
|                                    | Metric 6:                          | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                    |  |
| Overall Qualit                     | Overall Quality Determination High |                                        |                   |                                                                                         |  |
| Steran Quan                        | J Determin                         |                                        | 111511            |                                                                                         |  |

\* Related References: NIOSH

| Study Citation:              | U.S. EPA, (201   | 9). Chemistry Dashboard Information f | or 1,3-Butadiene. 106-9 | 9-0                                                                                              |
|------------------------------|------------------|---------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Melting Point    |                                       |                         |                                                                                                  |
| Template:                    |                  |                                       |                         |                                                                                                  |
| HERO ID:                     | 5926160          |                                       |                         |                                                                                                  |
|                              |                  |                                       | EXTRACTION              |                                                                                                  |
| Parameter                    |                  | Data                                  |                         |                                                                                                  |
|                              |                  |                                       |                         |                                                                                                  |
| Melting Point                |                  | -113 °C                               |                         |                                                                                                  |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene               |                         |                                                                                                  |
| Confidentiality, Type, and   | Guideline        | None; Experimental; Not Reported      |                         |                                                                                                  |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                        |                         |                                                                                                  |
| Radiolabel, Source, State, a | and Purity       | NR; NR; NR; NR                        |                         |                                                                                                  |
| Results Details Methods      |                  | Not Reported                          |                         |                                                                                                  |
| Standard Deviation Results   | 5                | Not Reported                          |                         |                                                                                                  |
| Results Details              |                  | Not Reported                          |                         |                                                                                                  |
|                              |                  |                                       |                         |                                                                                                  |
|                              |                  |                                       | EVALUATION              |                                                                                                  |
| Domain                       |                  | Metric                                | Rating                  | Comments                                                                                         |
| Domain 1: Substance          |                  |                                       |                         |                                                                                                  |
|                              | Metric 1:        | Representativeness                    | High                    | Data are measured or estimated for the subject chemical substance.                               |
|                              | Metric 2:        | Appropriateness                       | High                    | Measured data are consistent with the subject chemical's physical/chemical properties.           |
| Domain 2: Test Reliabil      | ity              |                                       |                         |                                                                                                  |
|                              | Metric 3:        | Reliability/Unbiased                  | Medium                  | There is no indication that the methodology for producing the information was biased             |
|                              |                  | (Method Objectivity)                  |                         | towards a particular product or outcome.                                                         |
|                              | Metric 4:        | Reliability/Analytical Method         | Low                     | The analytical method is unknown and there is no indication that a reliable method was used.     |
| Domain 3 <sup>.</sup> Other  |                  |                                       |                         |                                                                                                  |
| Domain 5. Other              | Metric 5:        | Databases                             | Medium                  | Data is from a publicly available secondary source with references to non-peer reviewed sources. |
|                              | Metric 6:        | Models                                | N/A                     | Rating of this factor is not applicable to this kind of information.                             |
| Overall Qualit               | ty Determi       | nation                                | Medium                  |                                                                                                  |

\* Related References: Jean-Claude Bradley Open Melting Point Dataset

| Study Citation:<br>OECD Harmonized | U.S. EPA, (2019<br>Melting Point      | ). Chemistry Dashboard Information for | or 1,3-Butadiene. 106-9 | 9-0                                                                                          |  |  |
|------------------------------------|---------------------------------------|----------------------------------------|-------------------------|----------------------------------------------------------------------------------------------|--|--|
| Template:                          | 8                                     |                                        |                         |                                                                                              |  |  |
| HERO ID:                           | 5926160                               |                                        |                         |                                                                                              |  |  |
|                                    |                                       |                                        | EXTRACTION              |                                                                                              |  |  |
| Parameter                          |                                       | Data                                   |                         |                                                                                              |  |  |
|                                    |                                       |                                        |                         |                                                                                              |  |  |
| Melting Point                      |                                       | -109 °C                                |                         |                                                                                              |  |  |
| CASRN and Test Material            |                                       | 106-99-0; 1,3-Butadiene                |                         |                                                                                              |  |  |
| Confidentiality, Type, and         | Guideline                             | None; Experimental; Not Reported       |                         |                                                                                              |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                      | NR; NR; NR; NR                         |                         |                                                                                              |  |  |
| Radiolabel, Source, State, a       | and Purity                            | NR; NR; NR; NR                         |                         |                                                                                              |  |  |
| Results Details Methods            |                                       | Not Reported                           |                         |                                                                                              |  |  |
| Standard Deviation Results         | 5                                     | Not Reported                           |                         |                                                                                              |  |  |
| Results Details                    |                                       | Not Reported                           |                         |                                                                                              |  |  |
|                                    |                                       |                                        |                         |                                                                                              |  |  |
| Domain                             |                                       | Matria                                 | EVALUATION              | Commente                                                                                     |  |  |
| Domain 1: Substance                |                                       | Metric                                 | Katilig                 | Comments                                                                                     |  |  |
| Domain 1. Substance                | Matric 1.                             | Depresentativaness                     | High                    | Data are measured or estimated for the subject chemical substance                            |  |  |
|                                    | Metric 2:                             | Appropriateness                        | High                    | Manager measured of estimated for the subject chemical's physical/chemical properties        |  |  |
|                                    | Wieure 2.                             | Appropriateness                        | Ingn                    | weasured data are consistent with the subject chemical's physical/chemical properties.       |  |  |
| Domain 2: Test Reliabil            | ity                                   |                                        |                         |                                                                                              |  |  |
|                                    | Metric 3:                             | Reliability/Unbiased                   | Medium                  | There is no indication that the methodology for producing the information was biased         |  |  |
|                                    |                                       | (Method Objectivity)                   |                         | towards a particular product or outcome.                                                     |  |  |
|                                    | Metric 4:                             | Reliability/Analytical Method          | Low                     | The analytical method is unknown and there is no indication that a reliable method was used. |  |  |
|                                    |                                       |                                        |                         |                                                                                              |  |  |
| Domani 5. Outer                    | Metric 5                              | Databases                              | Medium                  | Data is from a publicly available secondary source with references to non-near raviawed      |  |  |
|                                    | metric J.                             | DataUases                              | Mediulli                | sources.                                                                                     |  |  |
|                                    | Metric 6:                             | Models                                 | N/A                     | Rating of this factor is not applicable to this kind of information.                         |  |  |
| Avorall Anali                      | Overall Overlitz Determination Medium |                                        |                         |                                                                                              |  |  |
|                                    | ly Determin                           |                                        | wieuium                 |                                                                                              |  |  |

\* Related References: Jean-Claude Bradley Open Melting Point Dataset

| Study Citation:<br>OECD Harmonized | U.S. EPA, (2019). Chemistry Dashboard Information for 1,3-Butadiene. 106-99-0<br>Melting Point |                                  |            |                                                                                              |
|------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------|------------|----------------------------------------------------------------------------------------------|
| Template:                          | C C                                                                                            |                                  |            |                                                                                              |
| HERO ID:                           | 5926160                                                                                        |                                  |            |                                                                                              |
|                                    |                                                                                                |                                  | EXTRACTION |                                                                                              |
| Parameter                          |                                                                                                | Data                             |            |                                                                                              |
|                                    |                                                                                                |                                  |            |                                                                                              |
| Melting Point                      |                                                                                                | -109 °C                          |            |                                                                                              |
| CASRN and Test Material            |                                                                                                | 106-99-0; 1,3-Butadiene          |            |                                                                                              |
| Confidentiality, Type, and C       | Guideline                                                                                      | None; Experimental; Not Reported |            |                                                                                              |
| Solvent, Reactivity, Storage       | e, and Stability                                                                               | NR; NR; NR; NR                   |            |                                                                                              |
| Radiolabel, Source, State, a       | and Purity                                                                                     | NR; NR; NR; NR                   |            |                                                                                              |
| Results Details Methods            |                                                                                                | Not Reported                     |            |                                                                                              |
| Standard Deviation Results         | 1                                                                                              | Not Reported                     |            |                                                                                              |
| Results Details                    |                                                                                                | Not Reported                     |            |                                                                                              |
|                                    |                                                                                                |                                  | EVALUATION |                                                                                              |
| Domain                             |                                                                                                | Matria                           | EVALUATION | Commente                                                                                     |
| Domain 1. Substance                |                                                                                                | Metric                           | Kaung      | Comments                                                                                     |
| Domain 1. Substance                | Matria 1                                                                                       | Depresentativeness               | Uiah       | Data are manyword on actimated for the sphilast chemical spherones                           |
|                                    | Metric 1.                                                                                      | Appropriatopage                  | High       | Data are measured or estimated for the subject chemical substance.                           |
|                                    | Metric 2.                                                                                      | Appropriateness                  | rigii      | Measured data are consistent with the subject chemical's physical/chemical properties.       |
| Domain 2: Test Reliabil            | ity                                                                                            |                                  |            |                                                                                              |
|                                    | Metric 3:                                                                                      | Reliability/Unbiased             | Medium     | There is no indication that the methodology for producing the information was biased         |
|                                    |                                                                                                | (Method Objectivity)             |            | towards a particular product or outcome.                                                     |
|                                    | Metric 4:                                                                                      | Reliability/Analytical Method    | Low        | The analytical method is unknown and there is no indication that a reliable method was used. |
| Domain 3. Other                    |                                                                                                |                                  |            |                                                                                              |
| Domain 5. Outer                    | Metric 5.                                                                                      | Databases                        | Medium     | Data is from a publicly available secondary source with references to non-near reviewed      |
|                                    | Mettre 5.                                                                                      | DataUasto                        | wicdfulli  | sources.                                                                                     |
|                                    | Metric 6:                                                                                      | Models                           | N/A        | Rating of this factor is not applicable to this kind of information.                         |
| <b>Overall Qualit</b>              | ty Determin                                                                                    | nation                           | Medium     |                                                                                              |

\* Related References: SynQuest

| Study Citation:<br>OECD Harmonized | U.S. EPA, (2019). Chemistry Dashboard Information for 1,3-Butadiene. 106-99-0<br>Melting Point |                                  |            |                                                                                              |
|------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------|------------|----------------------------------------------------------------------------------------------|
| Template:                          | C C                                                                                            |                                  |            |                                                                                              |
| HERO ID:                           | 5926160                                                                                        |                                  |            |                                                                                              |
|                                    |                                                                                                |                                  | EXTRACTION |                                                                                              |
| Parameter                          |                                                                                                | Data                             |            |                                                                                              |
|                                    |                                                                                                |                                  |            |                                                                                              |
| Melting Point                      |                                                                                                | -109 °C                          |            |                                                                                              |
| CASRN and Test Material            |                                                                                                | 106-99-0; 1,3-Butadiene          |            |                                                                                              |
| Confidentiality, Type, and C       | Guideline                                                                                      | None; Experimental; Not Reported |            |                                                                                              |
| Solvent, Reactivity, Storage       | e, and Stability                                                                               | NR; NR; NR; NR                   |            |                                                                                              |
| Radiolabel, Source, State, a       | and Purity                                                                                     | NR; NR; NR; NR                   |            |                                                                                              |
| Results Details Methods            |                                                                                                | Not Reported                     |            |                                                                                              |
| Standard Deviation Results         |                                                                                                | Not Reported                     |            |                                                                                              |
| Results Details                    |                                                                                                | Not Reported                     |            |                                                                                              |
|                                    |                                                                                                |                                  | EVALUATION |                                                                                              |
| Domain                             |                                                                                                | Matria                           | EVALUATION | Commente                                                                                     |
| Domain 1. Substance                |                                                                                                | Metric                           | Kaung      | Comments                                                                                     |
| Domain 1. Substance                | Matria 1                                                                                       | Depresentativeness               | Uiah       | Data are manyword on actimated for the sphilast chemical spherones                           |
|                                    | Metric 1.                                                                                      | Appropriatopage                  | High       | Data are measured or estimated for the subject chemical substance.                           |
|                                    | Metric 2.                                                                                      | Appropriateness                  | rigii      | Measured data are consistent with the subject chemical's physical/chemical properties.       |
| Domain 2: Test Reliabil            | ity                                                                                            |                                  |            |                                                                                              |
|                                    | Metric 3:                                                                                      | Reliability/Unbiased             | Medium     | There is no indication that the methodology for producing the information was biased         |
|                                    |                                                                                                | (Method Objectivity)             |            | towards a particular product or outcome.                                                     |
|                                    | Metric 4:                                                                                      | Reliability/Analytical Method    | Low        | The analytical method is unknown and there is no indication that a reliable method was used. |
| Domain 3. Other                    |                                                                                                |                                  |            |                                                                                              |
| Domain 5. Outer                    | Metric 5.                                                                                      | Databases                        | Medium     | Data is from a publicly available secondary source with references to non-near reviewed      |
|                                    | Mettre 5.                                                                                      | DataUasto                        | wicdfulli  | sources.                                                                                     |
|                                    | Metric 6:                                                                                      | Models                           | N/A        | Rating of this factor is not applicable to this kind of information.                         |
| <b>Overall Qualit</b>              | ty Determin                                                                                    | nation                           | Medium     |                                                                                              |

\* Related References: SynQuest

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                   | tion:U.S. EPA, (1996). Locating and estimating air emissions from sources of 1,3-butadiene.rmonizedMelting Point |                                                                                                                                                                                                                                         |                                        |                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                                                                                                                                                                                             | 6389860                                                                                                          |                                                                                                                                                                                                                                         |                                        |                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                      |                                                                                                                  |                                                                                                                                                                                                                                         | EXTRACTIO                              | N                                                                                                                                                                                                                                                                                                                  |
| Parameter                                                                                                                                                                                                            |                                                                                                                  | Data                                                                                                                                                                                                                                    |                                        |                                                                                                                                                                                                                                                                                                                    |
| Melting Point<br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Results Details Methods<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>and Purity                                                                      | Not Reported<br>106-99-0; 1,3-Butadiene<br>no; not specified; Not Reported<br>Not Reported; Not Reported; Not Report<br>Not Reported; Not Reported; Not Report<br>Not Reported<br>Not Reported<br>Heat of fusion147 6 1/g (35 28 cal/g) | ted; Not Reported<br>ted; Not Reported |                                                                                                                                                                                                                                                                                                                    |
| Results Details                                                                                                                                                                                                      |                                                                                                                  |                                                                                                                                                                                                                                         |                                        |                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                      |                                                                                                                  |                                                                                                                                                                                                                                         | EVALUATION                             | N                                                                                                                                                                                                                                                                                                                  |
| Domain                                                                                                                                                                                                               |                                                                                                                  | Metric                                                                                                                                                                                                                                  | Rating                                 | Comments                                                                                                                                                                                                                                                                                                           |
| Domain 1: Substance                                                                                                                                                                                                  | Matria 1.                                                                                                        | Depresentativeness                                                                                                                                                                                                                      | Uiah                                   | Data are manying an actimated for the subject chamical substance                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                      | Metric 2:                                                                                                        | Appropriateness                                                                                                                                                                                                                         | High                                   | Measured data are consistent with the subject chemical substance.<br>(e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2: Test Paliabil                                                                                                                                                                                              | tx7                                                                                                              |                                                                                                                                                                                                                                         |                                        |                                                                                                                                                                                                                                                                                                                    |
| Domain 2. Test Kenaon                                                                                                                                                                                                | Metric 3:                                                                                                        | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                                                            | Medium                                 | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                      |
|                                                                                                                                                                                                                      | Metric 4:                                                                                                        | Reliability/Analytical Method                                                                                                                                                                                                           | Medium                                 | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                |
| Domain 2. Other                                                                                                                                                                                                      |                                                                                                                  |                                                                                                                                                                                                                                         |                                        |                                                                                                                                                                                                                                                                                                                    |
| Domain 5. Other                                                                                                                                                                                                      | Metric 5:                                                                                                        | Databases                                                                                                                                                                                                                               | High                                   | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                               |
|                                                                                                                                                                                                                      | Metric 6:                                                                                                        | Models                                                                                                                                                                                                                                  | N/A                                    | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                               |
| <b>Overall Qualit</b>                                                                                                                                                                                                | ty Determina                                                                                                     | ation                                                                                                                                                                                                                                   | High                                   |                                                                                                                                                                                                                                                                                                                    |

\* Related References: source vaguely references both Kirshenbaum, I. Butadiene. In: Kirk-Othmer Encyclopedia of Chemical Technology, 3rd ed, Volume 4. New York, New York: John Wiley and Sons, 1978. (HERO ID 594584 )and Hawley, G.G. 1, 3-Butadiene. In: The Condensed Chemical Dictionary, 10th ed., New York, New York: Van Nostrand Reinhold Company, Inc., 1981. p. 177. (HERO ID HERO ID: 69425)

| Study Citation:            | California Office of Environmental Health Hazard Assessment (OEHHA) (2011). Appendix B: Chemical-specific summaries of the information used to derive unit risk and cancer potency values |                                                       |           |                                                                                                                                                                                              |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized            | Boiling Point                                                                                                                                                                             | ind cancer potency values.                            |           |                                                                                                                                                                                              |
| HERO ID:                   | 5155632                                                                                                                                                                                   |                                                       |           |                                                                                                                                                                                              |
|                            |                                                                                                                                                                                           |                                                       | EXTRACTIO | N                                                                                                                                                                                            |
| Parameter                  |                                                                                                                                                                                           | Data                                                  |           |                                                                                                                                                                                              |
|                            |                                                                                                                                                                                           |                                                       |           |                                                                                                                                                                                              |
| Boiling Point              |                                                                                                                                                                                           | -4.4 C                                                |           |                                                                                                                                                                                              |
| CASRN and Test Material    | S                                                                                                                                                                                         | 106-99-0; 1,3-BUTADIENE                               |           |                                                                                                                                                                                              |
| Solvent Reactivity Storage | Juideline                                                                                                                                                                                 | ND, ND, ND, ND                                        |           |                                                                                                                                                                                              |
| Padialabel Source State of | , and Stability                                                                                                                                                                           | ND ND ND ND ND Notes ND                               |           |                                                                                                                                                                                              |
| Standard Deviation Results | und I unity                                                                                                                                                                               | NR                                                    |           |                                                                                                                                                                                              |
| Results Details            |                                                                                                                                                                                           | Not Reported                                          |           |                                                                                                                                                                                              |
|                            |                                                                                                                                                                                           | Torreporte                                            |           |                                                                                                                                                                                              |
|                            |                                                                                                                                                                                           |                                                       | EVALUATIO | N                                                                                                                                                                                            |
| Domain                     |                                                                                                                                                                                           | Metric                                                | Rating    | Comments                                                                                                                                                                                     |
| Domain 1: Substance        |                                                                                                                                                                                           |                                                       |           |                                                                                                                                                                                              |
|                            | Metric 1:                                                                                                                                                                                 | Representativeness                                    | High      | Data are measured or estimated for the subject chemical substance.                                                                                                                           |
|                            | Metric 2:                                                                                                                                                                                 | Appropriateness                                       | High      | Measured data are consistent with the subject chemical substance structural features.                                                                                                        |
| Domain 2: Test Reliabil    | ity                                                                                                                                                                                       |                                                       |           |                                                                                                                                                                                              |
|                            | Metric 3:                                                                                                                                                                                 | Reliability/Unbiased                                  | Medium    | There is no indication that the methodology for producing the information was biased                                                                                                         |
|                            | Metric 4:                                                                                                                                                                                 | (Method Objectivity)<br>Reliability/Analytical Method | Medium    | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                             |
| Domain 3: Other            |                                                                                                                                                                                           |                                                       |           |                                                                                                                                                                                              |
| Domain 5. Outer            | Metric 5:                                                                                                                                                                                 | Databases                                             | Medium    | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                            | Metric 6:                                                                                                                                                                                 | Models                                                | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| <b>Overall Qualit</b>      | ty Determin                                                                                                                                                                               | nation                                                | High      |                                                                                                                                                                                              |

\* Related References: Citing HSDB, 1998.

| Study Citation:                      | California Office                 | California Office of Environmental Health Hazard Assessment :: OEHHA (2014). Appendix D: Individual acute, 8-hour, and chronic reference exposure |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
|--------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| OECD Harmonized                      | level summaries.<br>Boiling Point |                                                                                                                                                   |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Template:<br>HERO ID:                | 5155603                           |                                                                                                                                                   |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                      |                                   |                                                                                                                                                   | EXTRACTIO          | N                                                                                                                                                                                                                                                                                                                                  |  |  |
| Parameter                            |                                   | Data                                                                                                                                              |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                      |                                   |                                                                                                                                                   |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Boiling Point                        |                                   | -4.4 C                                                                                                                                            |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| CASRN and Test Material              |                                   | 106-99-0; 1,3-Butadiene                                                                                                                           |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Confidentiality, Type, and C         | Juideline                         | No; Not specified; Not Reported                                                                                                                   |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Solvent, Reactivity, Storage         | , and Stability                   | Not Reported; Not Reported; Not Repo                                                                                                              | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Radiolabel, Source, State, a         | nd Purity                         | Not Reported; Not Reported; Not Repo                                                                                                              | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Standard Deviation Results           |                                   | Not Reported                                                                                                                                      |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Results Details                      |                                   | Not Reported                                                                                                                                      |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                      |                                   |                                                                                                                                                   | EVALUATION         |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Domain                               |                                   | Metric                                                                                                                                            | Rating             | Comments                                                                                                                                                                                                                                                                                                                           |  |  |
| Domain 1: Substance                  |                                   |                                                                                                                                                   |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                      | Metric 1:                         | Representativeness                                                                                                                                | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |  |  |
|                                      | Metric 2:                         | Appropriateness                                                                                                                                   | High               | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |  |  |
| Demain 2. Test Delishili             | 4                                 |                                                                                                                                                   |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Domain 2: Test Keliabili             | Ily<br>Metric 3:                  | Paliability/Unbiased                                                                                                                              | Madium             | There is no indication that the methodology for producing the information was biased                                                                                                                                                                                                                                               |  |  |
|                                      | Metric 5.                         | (Method Objectivity)                                                                                                                              | Wiedrum            | towards a particular product or outcome.                                                                                                                                                                                                                                                                                           |  |  |
|                                      | Metric 4:                         | Reliability/Analytical Method                                                                                                                     | Medium             | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                                                                                                                                                   |  |  |
| Domain 3: Other                      |                                   |                                                                                                                                                   |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Somen S. Ouler                       | Metric 5:                         | Databases                                                                                                                                         | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |  |  |
|                                      | Metric 6:                         | Models                                                                                                                                            | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |  |  |
| <b>Overall Quality Determination</b> |                                   |                                                                                                                                                   |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |

\* Related References: No source cited; extracted gray lit

| Study Citation:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DOE, (2016). T                     | able 1: Chemicals of concern and asso | ciated chemical inf | ormation. PACs.                                                                                                                                                                                             |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Template.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Doning Fonit                       |                                       |                     |                                                                                                                                                                                                             |  |
| HERO ID:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3981013                            |                                       |                     |                                                                                                                                                                                                             |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5701015                            |                                       |                     | <b>x</b> ,                                                                                                                                                                                                  |  |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                    | Dete                                  | EXTRACTIO           | N                                                                                                                                                                                                           |  |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                    | Data                                  |                     |                                                                                                                                                                                                             |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                       |                     |                                                                                                                                                                                                             |  |
| Boiling Point                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                    | -4.41 - C                             |                     |                                                                                                                                                                                                             |  |
| CASRN and Test Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                    | 106-99-0; 1,3-Butadiene               |                     |                                                                                                                                                                                                             |  |
| Confidentiality, Type, and Confidentiality, and | Guideline                          | none; not specified; not specified    |                     |                                                                                                                                                                                                             |  |
| Solvent, Reactivity, Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | e, and Stability                   | NR; NR; NR; NR                        |                     |                                                                                                                                                                                                             |  |
| Radiolabel, Source, State, a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | and Purity                         | NR; NR; NR; NR Notes: NR              |                     |                                                                                                                                                                                                             |  |
| Standard Deviation Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5                                  | not reported                          |                     |                                                                                                                                                                                                             |  |
| Results Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    | @ 760 mm Hg                           |                     |                                                                                                                                                                                                             |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                       |                     |                                                                                                                                                                                                             |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                       | EVALUATIO           | N                                                                                                                                                                                                           |  |
| Domain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                    | Metric                                | Rating              | Comments                                                                                                                                                                                                    |  |
| Domain 1: Substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                    |                                       |                     |                                                                                                                                                                                                             |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 1:                          | Representativeness                    | High                | Data are measured or estimated for the subject chemical substance.                                                                                                                                          |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 2:                          | Appropriateness                       | High                | Measured data are consistent with the subject chemical substance structural features.                                                                                                                       |  |
| Domain 2: Test Reliabil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ity                                |                                       |                     |                                                                                                                                                                                                             |  |
| Domain 2. Test Kellauli                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Metric 3                           | Reliability/Unbiased                  | Medium              | There is no indication that the methodology for producing the information was biased                                                                                                                        |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Wieure 5.                          | (Method Objectivity)                  | Wiedium             | towards a particular product or outcome.                                                                                                                                                                    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 4:                          | Reliability/Analytical Method         | Medium              | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                            |  |
| Domain 3: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                       |                     |                                                                                                                                                                                                             |  |
| Domain 5. Outer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 5:                          | Databases                             | High                | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review; specific source not reported. |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 6:                          | Models                                | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                        |  |
| Overall Qualit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Overall Quality Determination High |                                       |                     |                                                                                                                                                                                                             |  |

\* Related References: primary reference not specified but include CRC (2009), HSDB (no date), Merck (2006), SAX (2012)

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| Study Citation:<br>OECD Harmonized                                                                                                                                                        | EC, (2000). Pric<br>Boiling Point           | ority Substances List Assessment Report                                                                                                                                                   | : 1,3-Butadiene.                       |                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                                                                                                                                                                  | 5160048                                     |                                                                                                                                                                                           |                                        |                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                           |                                             |                                                                                                                                                                                           | EXTRACTIO                              | N                                                                                                                                                                                                                                                                                                                                  |
| Parameter                                                                                                                                                                                 |                                             | Data                                                                                                                                                                                      |                                        |                                                                                                                                                                                                                                                                                                                                    |
| Boiling Point<br>CASRN and Test Material<br>Confidentiality, Type, and G<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>and Purity | -4.44 - C<br>106-99-0; 1,3-Butadiene<br>No; not specified; Not Reported<br>Not Reported; Not Reported; Not Repor<br>Not Reported; Not Reported; Not Repor<br>Not Reported<br>Not Reported | ted; Not Reported<br>ted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                           |                                             |                                                                                                                                                                                           | EVALUATIO                              | N                                                                                                                                                                                                                                                                                                                                  |
| Domain                                                                                                                                                                                    |                                             | Metric                                                                                                                                                                                    | Rating                                 | Comments                                                                                                                                                                                                                                                                                                                           |
| Domain 1: Substance                                                                                                                                                                       |                                             |                                                                                                                                                                                           | 6                                      |                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                           | Metric 1:                                   | Representativeness                                                                                                                                                                        | High                                   | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                           | Metric 2:                                   | Appropriateness                                                                                                                                                                           | High                                   | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2: Tost Baliabil                                                                                                                                                                   | t.,                                         |                                                                                                                                                                                           |                                        |                                                                                                                                                                                                                                                                                                                                    |
| Domain 2. Test Kenaon                                                                                                                                                                     | Metric 3:                                   | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                              | Medium                                 | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |
|                                                                                                                                                                                           | Metric 4:                                   | Reliability/Analytical Method                                                                                                                                                             | Medium                                 | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |
|                                                                                                                                                                                           |                                             |                                                                                                                                                                                           |                                        |                                                                                                                                                                                                                                                                                                                                    |
| Domain 3: Other                                                                                                                                                                           | Metric 5:                                   | Databases                                                                                                                                                                                 | High                                   | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |
|                                                                                                                                                                                           | Metric 6:                                   | Models                                                                                                                                                                                    | N/A                                    | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |
| Overall Qualit                                                                                                                                                                            | ty Determin                                 | nation                                                                                                                                                                                    | High                                   |                                                                                                                                                                                                                                                                                                                                    |

\* Related References: cited from Mackay, D., W.Y. Shiu and K.C. Ma. 1993.Illustrated handbook of physical-chemical properties and environmental fate of organic compounds. Vol. III. Lewis Publishers Inc., Chelsea, Michigan.

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| Study Citation:<br>OECD Harmonized | ECB, (2002). European Union risk assessment report: 1,3-butadiene.<br>Boiling Point |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |  |
|------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| HERO ID:                           | 5155560                                                                             |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |  |
|                                    |                                                                                     |                                              | EXTRACTION        |                                                                                                                                                                                                                                                                                                                                    |  |
| Parameter                          |                                                                                     | Data                                         |                   |                                                                                                                                                                                                                                                                                                                                    |  |
|                                    |                                                                                     |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |  |
| Boiling Point                      |                                                                                     | -4.9 - C                                     |                   |                                                                                                                                                                                                                                                                                                                                    |  |
| CASRN and Test Material            |                                                                                     | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                                                                                                                    |  |
| Confidentiality, Type, and         | Guideline                                                                           | no; not specified; Not Reported              |                   |                                                                                                                                                                                                                                                                                                                                    |  |
| Solvent, Reactivity, Storage       | e, and Stability                                                                    | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |
| Radiolabel, Source, State, a       | and Purity                                                                          | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |
| Standard Deviation Results         | 6                                                                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                    |  |
| Results Details                    |                                                                                     | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                    |  |
|                                    |                                                                                     |                                              | EVALUATION        |                                                                                                                                                                                                                                                                                                                                    |  |
| Domain                             |                                                                                     | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                                                                                                           |  |
| Domain 1: Substance                |                                                                                     |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |  |
|                                    | Metric 1:                                                                           | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |  |
|                                    | Metric 2:                                                                           | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |  |
| Domain 2: Test Reliabil            | itv                                                                                 |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |  |
|                                    | Metric 3:                                                                           | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |  |
|                                    | Metric 4:                                                                           | Reliability/Analytical Method                | Low               | The analytical method is unknown and there is no indication that a reliable method was used                                                                                                                                                                                                                                        |  |
| Domain 3: Other                    |                                                                                     |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |  |
|                                    | Metric 5:                                                                           | Databases                                    | Medium            | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources.                                                                                                                                       |  |
|                                    | Metric 6:                                                                           | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |  |
| <b>Overall Qualit</b>              | ty Determi                                                                          | nation                                       | Medium            |                                                                                                                                                                                                                                                                                                                                    |  |

\* Related References: cited from BASF safety data sheet

| Study Citation:<br>OECD Harmonized                                                                                                                                                        | Elsevier, (2019). Reaxys: physical-chemical property data for 1,3-butadiene. CAS Registry Number: 106-99-0<br>Boiling Point |                                                                                                                                                                                                                        |                      |                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                                                                                                                                                                  | 5926412                                                                                                                     |                                                                                                                                                                                                                        |                      |                                                                                                                                                                   |
|                                                                                                                                                                                           |                                                                                                                             |                                                                                                                                                                                                                        | EXTRACTIO            | N                                                                                                                                                                 |
| Parameter                                                                                                                                                                                 |                                                                                                                             | Data                                                                                                                                                                                                                   |                      |                                                                                                                                                                   |
| Boiling Point<br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Standard Deviation Results<br>Results Details | Guideline<br>, and Stability<br>nd Purity                                                                                   | -4.414.6 C<br>106-99-0; 1,3-Butadiene<br>None; Experimental; Not Reported<br>NR; NR; NR; NR<br>NR; NR; NR; NR<br>Not Reported<br>@ 760 torr; 15 values were reported in R<br>this range or measured at unreported or n | Reaxys; 3 of these v | values were reported in the range of -4.41 to -4.6 C at 760 torr; 12 values were outside<br>tres.                                                                 |
|                                                                                                                                                                                           |                                                                                                                             |                                                                                                                                                                                                                        | EVALUATIO            | N                                                                                                                                                                 |
| Domain                                                                                                                                                                                    |                                                                                                                             | Metric                                                                                                                                                                                                                 | Rating               | Comments                                                                                                                                                          |
| Domain 1: Substance                                                                                                                                                                       |                                                                                                                             |                                                                                                                                                                                                                        |                      |                                                                                                                                                                   |
|                                                                                                                                                                                           | Metric 1:                                                                                                                   | Representativeness                                                                                                                                                                                                     | High                 | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                                                                                                                                                                           | Metric 2:                                                                                                                   | Appropriateness                                                                                                                                                                                                        | High                 | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabili                                                                                                                                                                  | ty                                                                                                                          |                                                                                                                                                                                                                        |                      |                                                                                                                                                                   |
|                                                                                                                                                                                           | Metric 3:                                                                                                                   | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                                           | Medium               | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                                                                                                                                                                           | Metric 4:                                                                                                                   | Reliability/Analytical Method                                                                                                                                                                                          | Medium               | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                                                                                                                                                                           |                                                                                                                             |                                                                                                                                                                                                                        |                      |                                                                                                                                                                   |
|                                                                                                                                                                                           | Metric 5:                                                                                                                   | Databases                                                                                                                                                                                                              | High                 | Data is from a secondary database with a references to the peer-reviewed original source.                                                                         |
|                                                                                                                                                                                           | Metric 6:                                                                                                                   | Models                                                                                                                                                                                                                 | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                              |

## **Overall Quality Determination**

mination

\* Related References: Data range determined from multiple primary sources in REAXYS.

High

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| Study Citation:<br>OECD Harmonized                                                                                                                                                        | Grub, J., Löser, E<br>Boiling Point         | E. (2011). Butadiene. :381-396.                                                                                                                                                                                  |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| HERO ID:                                                                                                                                                                                  | 9493526                                     |                                                                                                                                                                                                                  |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
|                                                                                                                                                                                           | EXTRACTION                                  |                                                                                                                                                                                                                  |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Parameter                                                                                                                                                                                 |                                             | Data                                                                                                                                                                                                             |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Boiling Point<br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>and Purity | Not Reported<br>106-99-0; Not Reported<br>Not Reported; Not Reported; Not Repor<br>Not Reported; Not Reported; Not Repor<br>Not Reported; Not Reported; Not Repor<br>Not Reported<br>critical temperature: 425 K | ted<br>ted; Not Reported<br>ted; Not Reported |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
|                                                                                                                                                                                           |                                             |                                                                                                                                                                                                                  | EVALUATIO                                     | N                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |
| Domain                                                                                                                                                                                    |                                             | Metric                                                                                                                                                                                                           | Rating                                        | Comments                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  |
| Domain 1: Substance                                                                                                                                                                       | Metric 1:<br>Metric 2:                      | Representativeness<br>Appropriateness                                                                                                                                                                            | High<br>High                                  | Data are measured or estimated for the subject chemical substance.<br>Measured data are consistent with the subject chemical substance structural features<br>(e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a melting point<br>below 25°C and a boiling point above 25°C) or behaviors. |  |  |  |
| Domain 2: Test Reliabil                                                                                                                                                                   | ity                                         |                                                                                                                                                                                                                  |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Domain 2. Test Renabil                                                                                                                                                                    | Metric 3:                                   | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                                     | Medium                                        | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                                                                                     |  |  |  |
|                                                                                                                                                                                           | Metric 4:                                   | Reliability/Analytical Method                                                                                                                                                                                    | Medium                                        | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source                                                                                                                                                                |  |  |  |
|                                                                                                                                                                                           |                                             |                                                                                                                                                                                                                  |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Domain 3: Other                                                                                                                                                                           | Metric 5:                                   | Databases                                                                                                                                                                                                        | High                                          | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                                                                              |  |  |  |
|                                                                                                                                                                                           | Metric 6:                                   | Models                                                                                                                                                                                                           | N/A                                           | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                              |  |  |  |
| Overall Qualit                                                                                                                                                                            | ty Determin                                 | nation                                                                                                                                                                                                           | High                                          |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |

\* Related References: cited from D. R. Lide: CRC Handbook of Chemistry and Physics, 79th edition, CRC Press, New York, 1998. (HERO ID: 5349247) and C. L. Yaws et al., Chem. Eng. 83 (1976) no. 17, 79 (HERO ID: 5706678)

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| Study Citation:<br>OECD Harmonized                                                                                                                                                        | Kerns, M., Henn<br>Boiling Point           | ing, S., Rachita, M. (2002). Butadiene p                                                                                                                                                                   | oolymers. :317-35                      | б.                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                                                                                                                                                                  | 9493542                                    |                                                                                                                                                                                                            |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                           |                                            |                                                                                                                                                                                                            | EXTRACTIO                              | N                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Parameter                                                                                                                                                                                 |                                            | Data                                                                                                                                                                                                       |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Boiling Point<br>CASRN and Test Material<br>Confidentiality, Type, and O<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>nd Purity | Not Reported<br>106-99-0; 1,3-Butadiene<br>no; not specified; Not Reported<br>Not Reported; Not Reported; Not Repor<br>Not Reported; Not Reported; Not Repor<br>Not Reported<br>critical temperature=152 C | ted; Not Reported<br>ted; Not Reported |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                           |                                            |                                                                                                                                                                                                            | FVAL HATIO                             | N                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Domain                                                                                                                                                                                    |                                            | Metric                                                                                                                                                                                                     | Rating                                 | Comments                                                                                                                                                                                                                                                                                                                                                                                                          |
| Domain 1: Substance                                                                                                                                                                       |                                            |                                                                                                                                                                                                            |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                           | Metric 1:<br>Metric 2:                     | Representativeness<br>Appropriateness                                                                                                                                                                      | High<br>High                           | Data are measured or estimated for the subject chemical substance.<br>Measured data are consistent with the subject chemical substance structural features<br>(e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a melting point<br>below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2: Test Reliabil                                                                                                                                                                   | tv                                         |                                                                                                                                                                                                            |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Domain 2. Test Kenaon                                                                                                                                                                     | Metric 3:                                  | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                               | Medium                                 | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                           | Metric 4:                                  | Reliability/Analytical Method                                                                                                                                                                              | Medium                                 | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                                                                               |
| Domain 3: Other                                                                                                                                                                           |                                            |                                                                                                                                                                                                            |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Domain 5. Outer                                                                                                                                                                           | Metric 5:                                  | Databases                                                                                                                                                                                                  | High                                   | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                                                                              |
|                                                                                                                                                                                           | Metric 6:                                  | Models                                                                                                                                                                                                     | N/A                                    | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                              |
| Overall Qualit                                                                                                                                                                            | y Determin                                 | nation                                                                                                                                                                                                     | High                                   |                                                                                                                                                                                                                                                                                                                                                                                                                   |

\* Related References: cited from F. O. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953.

| Study Citation:              | Karns M. Han  | ning S. Pachita M. (2002). Butadiana n    | olumers 317 3    | 56                                                                                         |
|------------------------------|---------------|-------------------------------------------|------------------|--------------------------------------------------------------------------------------------|
| OECD Harmonized              | Boiling Point | ning, S., Racinta, M. (2002). Butadiene p | orymers517-5.    |                                                                                            |
| Template:                    | U             |                                           |                  |                                                                                            |
| HERO ID:                     | 9493542       |                                           |                  |                                                                                            |
|                              |               |                                           | EXTRACTIO        | N                                                                                          |
| Parameter                    |               | Data                                      |                  |                                                                                            |
|                              |               |                                           |                  |                                                                                            |
| Boiling Point                |               | 14.44 - C                                 |                  |                                                                                            |
| CASRN and Test Material      | G · 1 1       | 106-99-0; 1,3-Butadiene                   |                  |                                                                                            |
| Confidentiality, Type, and C |               | no; not specified; Not Reported           | ad Nat Danautad  |                                                                                            |
| Padiolabel Source State      | and Purity    | Not Reported; Not Reported; Not Report    | ed; Not Reported |                                                                                            |
| Standard Deviation Results   |               | Not Reported                              | eu, Not Reporteu |                                                                                            |
| Results Details              | •             | at 200 kPa                                |                  |                                                                                            |
| Results Details              |               | at 200 Ki u                               |                  |                                                                                            |
|                              |               |                                           | EVALUATIO        | N                                                                                          |
| Domain                       |               | Metric                                    | Rating           | Comments                                                                                   |
| Domain 1: Substance          |               |                                           |                  |                                                                                            |
|                              | Metric 1:     | Representativeness                        | High             | Data are measured or estimated for the subject chemical substance.                         |
|                              | Metric 2:     | Appropriateness                           | High             | Measured data are consistent with the subject chemical substance structural features       |
|                              |               |                                           |                  | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., |
|                              |               |                                           |                  | below 25°C and a boiling point above 25°C) or behaviors.                                   |
| Domain 2. Toot Daliahil      | :4            |                                           |                  |                                                                                            |
| Domain 2: Test Renadi        | Matric 3:     | Peliability/Unbiased                      | Madium           | There is no indication that the methodology for producing the information was biased       |
|                              | Metric 5.     | (Method Objectivity)                      | Wedlulli         | towards a particular product or outcome.                                                   |
|                              | Metric 4:     | Reliability/Analytical Method             | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-    |
|                              |               |                                           |                  | cal method is unknown but is likely to be appropriate based on the data's inclusion in a   |
|                              |               |                                           |                  | peer-revieweu/recoginzed database of other secondary source.                               |
| Domain 3: Other              |               |                                           |                  |                                                                                            |
|                              | Metric 5:     | Databases                                 | High             | The information or data is from a recognized data collection/repository where data are     |
|                              |               |                                           | C                | peer-reviewed by experts in the field, are broadly available to the public for review and  |
|                              |               |                                           | 27/4             | use OR includes references to the original sources.                                        |
|                              | Metric 6:     | Models                                    | N/A              | Rating of this factor is not applicable to this kind of information.                       |
| Overall Augli                | ty Determi    | nation                                    | Hiah             |                                                                                            |
|                              | y Determin    | 11411011                                  | IIIgil           |                                                                                            |

\* Related References: cited from F. O. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953.

| Study Citation:              | Kerns M. Hen     | ning S. Rachita M. (2002). Butadiene n | olymers ·317-3   | 56                                                                                                                                                                    |
|------------------------------|------------------|----------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Boiling Point    | , 5., Ruema, M. (2002). Duadiene p     | orymers          |                                                                                                                                                                       |
| Template:                    |                  |                                        |                  |                                                                                                                                                                       |
| HERO ID:                     | 9493542          |                                        |                  |                                                                                                                                                                       |
| _                            |                  |                                        | EXTRACTIO        | N                                                                                                                                                                     |
| Parameter                    |                  | Data                                   |                  |                                                                                                                                                                       |
| Dailing Daint                |                  | 4 412 C                                |                  |                                                                                                                                                                       |
| CASRN and Test Material      |                  | -4.415 - C<br>106-99-0: 1 3-Butadiene  |                  |                                                                                                                                                                       |
| Confidentiality, Type, and   | Guideline        | no: not specified: Not Reported        |                  |                                                                                                                                                                       |
| Solvent, Reactivity, Storage | e, and Stability | Not Reported; Not Reported; Not Report | ed; Not Reported |                                                                                                                                                                       |
| Radiolabel, Source, State, a | and Purity       | Not Reported; Not Reported; Not Report | ed; Not Reported |                                                                                                                                                                       |
| Standard Deviation Results   | 5                | Not Reported                           |                  |                                                                                                                                                                       |
| Results Details              |                  | at 101.3 kPa                           |                  |                                                                                                                                                                       |
|                              |                  |                                        | EVALUATIO        | N                                                                                                                                                                     |
| Domain                       |                  | Metric                                 | Rating           | Comments                                                                                                                                                              |
| Domain 1: Substance          |                  | mourie                                 | Rung             | connicits                                                                                                                                                             |
|                              | Metric 1:        | Representativeness                     | High             | Data are measured or estimated for the subject chemical substance.                                                                                                    |
|                              | Metric 2:        | Appropriateness                        | High             | Measured data are consistent with the subject chemical substance structural features                                                                                  |
|                              |                  |                                        |                  | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                            |
|                              |                  |                                        |                  | If the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors |
|                              | •.               |                                        |                  |                                                                                                                                                                       |
| Domain 2: Test Reliabil      | ity              |                                        | Malium           |                                                                                                                                                                       |
|                              | Metric 5:        | (Method Objectivity)                   | Medium           | towards a particular product or outcome.                                                                                                                              |
|                              | Metric 4:        | Reliability/Analytical Method          | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                               |
|                              |                  |                                        |                  | cal method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                 |
|                              |                  |                                        |                  |                                                                                                                                                                       |
| Domain 3: Other              |                  |                                        |                  |                                                                                                                                                                       |
|                              | Metric 5:        | Databases                              | High             | The information or data is from a recognized data collection/repository where data are                                                                                |
|                              |                  |                                        |                  | use OR includes references to the original sources.                                                                                                                   |
|                              | Metric 6:        | Models                                 | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                  |
| Overall Qualit               | ty Determi       | nation                                 | High             |                                                                                                                                                                       |
|                              | y Duter III      |                                        | Ingil            |                                                                                                                                                                       |

\* Related References: cited from F. O. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953.

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Kerns, M., Hen<br>Boiling Point | ning, S., Rachita, M. (2002). Butadiene p | olymers. :317-35  | 56.                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.400.5.40                      |                                           |                   |                                                                                                                                                                                                                                                     |
| HERO ID:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9493542                         |                                           |                   |                                                                                                                                                                                                                                                     |
| _                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                 |                                           | EXTRACTIO         | N                                                                                                                                                                                                                                                   |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                 | Data                                      |                   |                                                                                                                                                                                                                                                     |
| Boiling Point                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 | 21 - C                                    |                   |                                                                                                                                                                                                                                                     |
| CASRN and Test Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                 | 106-99-0; 1,3-Butadiene                   |                   |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and Confidentiality, and Confidentiality | Guideline                       | no; not specified; Not Reported           |                   |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | e, and Stability                | Not Reported; Not Reported; Not Report    | ted; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | and Purity                      | Not Reported; Not Reported; Not Report    | ted; Not Reported |                                                                                                                                                                                                                                                     |
| Standard Deviation Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5                               | Not Reported                              |                   |                                                                                                                                                                                                                                                     |
| Results Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 | at 245 kPa                                |                   |                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                           | EVALUATIO         | N                                                                                                                                                                                                                                                   |
| Domain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                 | Metric                                    | Rating            | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                                           | 0                 |                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 1:                       | Representativeness                        | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 2:                       | Appropriateness                           | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                           |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                           |                   | below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors.                                                                                                                                                                        |
| Domain 2: Test Reliabil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ity                             |                                           |                   |                                                                                                                                                                                                                                                     |
| Domain 2. Test Reliabil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Metric 3:                       | Reliability/Unbiased                      | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 | (Method Objectivity)                      |                   | towards a particular product or outcome.                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 4:                       | Reliability/Analytical Method             | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 2: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                           |                   |                                                                                                                                                                                                                                                     |
| Domain 5: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 5:                       | Databases                                 | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 6:                       | Models                                    | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Qualit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ty Determi                      | nation                                    | High              |                                                                                                                                                                                                                                                     |

\* Related References: cited from R. W. Gallant, Hydrocarbon Process. Pet. Refiner 44(10), 151 (1965).

| Study Citation:<br>OECD Harmonized | NCBI, (2020). I<br>Boiling Point | PubChem Compound Summary for CID      | 7845 1,3 Butadie  | ne.                                                                                                                                                      |
|------------------------------------|----------------------------------|---------------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                  |                                       |                   |                                                                                                                                                          |
| HERO ID:                           | 10171483                         |                                       |                   |                                                                                                                                                          |
|                                    |                                  |                                       | EXTRACTIO         | N                                                                                                                                                        |
| Parameter                          |                                  | Data                                  |                   |                                                                                                                                                          |
|                                    |                                  |                                       |                   |                                                                                                                                                          |
| Boiling Point                      |                                  | Not Reported                          |                   |                                                                                                                                                          |
| CASRN and Test Material            |                                  | 106-99-0; 1,3-Butadiene               |                   |                                                                                                                                                          |
| Confidentiality, Type, and C       | Guideline                        | no; not specified; Not Reported       |                   |                                                                                                                                                          |
| Solvent, Reactivity, Storage       | e, and Stability                 | Not Reported; Not Reported; Not Repor | ted; Not Reported |                                                                                                                                                          |
| Radiolabel, Source, State, a       | and Purity                       | Not Reported; Not Reported; Not Repor | ted; Not Reported |                                                                                                                                                          |
| Standard Deviation Results         |                                  | Not Reported                          |                   |                                                                                                                                                          |
| Results Details                    |                                  | Critical Temperature 161.8 C          |                   |                                                                                                                                                          |
|                                    |                                  |                                       |                   |                                                                                                                                                          |
|                                    |                                  |                                       | EVALUATIO         | N                                                                                                                                                        |
| Domain                             |                                  | Metric                                | Rating            | Comments                                                                                                                                                 |
| Domain 1: Substance                |                                  |                                       |                   |                                                                                                                                                          |
|                                    | Metric 1:                        | Representativeness                    | High              | Data are measured or estimated for the subject chemical substance.                                                                                       |
|                                    | Metric 2:                        | Appropriateness                       | High              | Measured data are consistent with the subject chemical substance structural features                                                                     |
|                                    |                                  |                                       |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                               |
|                                    |                                  |                                       |                   | below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors.                                                                             |
|                                    |                                  |                                       |                   |                                                                                                                                                          |
| Domain 2: Test Reliabil            | ity                              |                                       |                   |                                                                                                                                                          |
|                                    | Metric 3:                        | Reliability/Unbiased                  | Medium            | There is no indication that the methodology for producing the information was biased                                                                     |
|                                    |                                  | (Method Objectivity)                  |                   | towards a particular product or outcome.                                                                                                                 |
|                                    | Metric 4:                        | Reliability/Analytical Method         | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                  |
|                                    |                                  |                                       |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>neer-reviewed/recognized database or other secondary source. |
|                                    |                                  |                                       |                   | per-reviewea/recognized database of other secondary source.                                                                                              |
| Domain 3: Other                    |                                  |                                       |                   |                                                                                                                                                          |
|                                    | Metric 5:                        | Databases                             | High              | The information or data is from a recognized data collection/repository where data are                                                                   |
|                                    |                                  |                                       | 0                 | peer-reviewed by experts in the field, are broadly available to the public for review and                                                                |
|                                    |                                  |                                       |                   | use OR includes references to the original sources.                                                                                                      |
|                                    | Metric 6:                        | Models                                | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                     |
|                                    | w Dotomas                        | nation                                | High              |                                                                                                                                                          |
|                                    | y Determin                       |                                       | nigli             |                                                                                                                                                          |

\* Related References: cited from O'Neil, M.J. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Cambridge, UK: Royal Society of Chemistry, 2013., p. 267 (HERO ID: 5926379)

PUBLIC RELEASE DRAFT November 2024 Boiling Point

| Study Citation:              | NIOSH, (2007)    | NIOSH pocket guide to chemical haz           | ards.      |                                                                                                                                                                                              |
|------------------------------|------------------|----------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Boiling Point    |                                              |            |                                                                                                                                                                                              |
| Template:                    | 100177           |                                              |            |                                                                                                                                                                                              |
| HERO ID:                     | 192177           |                                              |            |                                                                                                                                                                                              |
|                              |                  |                                              | EXTRACTIO  | N                                                                                                                                                                                            |
| Parameter                    |                  | Data                                         |            |                                                                                                                                                                                              |
|                              |                  |                                              |            |                                                                                                                                                                                              |
| Boiling Point                |                  | 24 - F                                       |            |                                                                                                                                                                                              |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene                      |            |                                                                                                                                                                                              |
| Confidentiality, Type, and   | Guideline        | None; Experimental; None                     |            |                                                                                                                                                                                              |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                               |            |                                                                                                                                                                                              |
| Radiolabel, Source, State, a | and Purity       | NR; NR; NR; NR Notes: NR                     |            |                                                                                                                                                                                              |
| Standard Deviation Results   | 1                | NR                                           |            |                                                                                                                                                                                              |
| Results Details              |                  | at 1 atmosphere                              |            |                                                                                                                                                                                              |
|                              |                  |                                              |            | AT                                                                                                                                                                                           |
| Domain                       |                  | Matria                                       | E VALUATIO | Comments                                                                                                                                                                                     |
| Domain 1: Substance          |                  | Wethe                                        | Katilig    | Comments                                                                                                                                                                                     |
| Domain 1. Substance          | Metric 1.        | Representativeness                           | High       | Data are measured or estimated for the subject chemical substance                                                                                                                            |
|                              | Metric 2:        | Appropriateness                              | High       | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                                                       |
|                              |                  | 11 1                                         |            | J 1 J 1 I                                                                                                                                                                                    |
| Domain 2: Test Reliabil      | ity              |                                              |            |                                                                                                                                                                                              |
|                              | Metric 3:        | Reliability/Unbiased<br>(Method Objectivity) | Medium     | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                |
|                              | Metric 4:        | Reliability/Analytical Method                | Medium     | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source.                            |
| Domain 3: Other              |                  |                                              |            |                                                                                                                                                                                              |
|                              | Metric 5:        | Databases                                    | Medium     | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                              | Metric 6:        | Models                                       | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| Overall Qualit               | ty Determi       | nation                                       | High       |                                                                                                                                                                                              |

| Study Citation:<br>OECD Harmonized                                                                       | NIST, (2022). NI<br>Boiling Point | NIST, (2022). NIST Chemistry WebBook. 1,3-Butadiene (106-99-0). Standard Reference Database No. 69.<br>Boiling Point    |                          |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|----------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| HERO ID:                                                                                                 | 10225178                          |                                                                                                                         |                          |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|                                                                                                          |                                   |                                                                                                                         | EXTRACTIO                | N                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
| Parameter                                                                                                |                                   | Data                                                                                                                    |                          |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| Boiling Point<br>CASRN and Test Material<br>Confidentiality, Type, and G<br>Solvent, Reactivity, Storage | Guideline<br>and Stability        | 268.7 - K<br>106-99-0; 1,3-Butadiene<br>Not Reported; Experimental; Not Repor<br>Not Reported: Not Reported: Not Report | ted<br>ted: Not Reported |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| Radiolabel, Source, State, a<br>Standard Deviation Results<br>Results Details                            | and Purity                        | Not Reported; Not Reported; Not Report<br>0.4 K<br>Not Reported                                                         | rted; Not Reported       |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|                                                                                                          |                                   |                                                                                                                         | EVALUATIO                | N                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
| Domain                                                                                                   |                                   | Metric                                                                                                                  | Rating                   | Comments                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| Domain 1: Substance                                                                                      | Metric 1:<br>Metric 2:            | Representativeness<br>Appropriateness                                                                                   | High<br>High             | Data are measured or estimated for the subject chemical substance.<br>Measured data are consistent with the subject chemical substance structural features<br>(e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a melting point<br>below 25°C and a boiling point above 25°C) or behaviors. |  |
| Domain 2. Test Reliabil                                                                                  | ity                               |                                                                                                                         |                          |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|                                                                                                          | Metric 3:                         | Reliability/Unbiased<br>(Method Objectivity)                                                                            | Medium                   | There is no indication that the methodology for producing the information was biased towards a particular product or outcome                                                                                                                                                                                                                                                                                      |  |
|                                                                                                          | Metric 4:                         | Reliability/Analytical Method                                                                                           | Medium                   | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                                                                               |  |
| Domain 3: Other                                                                                          | Metric 5:                         | Databases                                                                                                               | High                     | The information or data is from a recognized data collection/repository where data are                                                                                                                                                                                                                                                                                                                            |  |
|                                                                                                          | Matria 6.                         | Madala                                                                                                                  | NI/A                     | peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                                                                                                                                                                     |  |
|                                                                                                          |                                   |                                                                                                                         | IN/A                     | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                              |  |
| Overall Qualit                                                                                           | ty Determin                       | ation                                                                                                                   | High                     |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |

\* Related References: cited from Hooper, J.H.D., The analysis of hydrocarbon gases by low temperature distillation, Analyst (London), 1947, 72, 513-20.

| Study Citation:<br>OECD Harmonized                                                                                                                                                        | NIST, (2022). N<br>Boiling Point            | IIST Chemistry WebBook. 1,3-Butadiene                                                                                                                                                        | e (106-99-0). Sta                          | ndard Reference Database No. 69.                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                                                                                                                                                                                 |                                             |                                                                                                                                                                                              |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| HERO ID:                                                                                                                                                                                  | 10225178                                    |                                                                                                                                                                                              |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                           |                                             |                                                                                                                                                                                              | EXTRACTIO                                  | N                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Parameter                                                                                                                                                                                 |                                             | Data                                                                                                                                                                                         |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Boiling Point<br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>and Purity | 268.40 - K<br>106-99-0; 1,3-Butadiene<br>Not Reported; Experimental; Not Report<br>Not Reported; Not Reported; Not Report<br>Not Reported; Not Reported; Not Report<br>1.0 K<br>Not Reported | ed<br>ed; Not Reported<br>ed; Not Reported |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                           |                                             |                                                                                                                                                                                              | EVALUATIO                                  | N                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Domain                                                                                                                                                                                    |                                             | Metric                                                                                                                                                                                       | Rating                                     | Comments                                                                                                                                                                                                                                                                                                                                                                                                          |
| Domain 1: Substance                                                                                                                                                                       | Metric 1:<br>Metric 2:                      | Representativeness<br>Appropriateness                                                                                                                                                        | High<br>High                               | Data are measured or estimated for the subject chemical substance.<br>Measured data are consistent with the subject chemical substance structural features<br>(e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a melting point<br>below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2: Test Reliabil                                                                                                                                                                   | ity                                         |                                                                                                                                                                                              |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Domain 2. Test Renabil                                                                                                                                                                    | Metric 3:                                   | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                 | Medium                                     | There is no indication that the methodology for producing the information was biased towards a particular product or outcome                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                           | Metric 4:                                   | Reliability/Analytical Method                                                                                                                                                                | Medium                                     | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                                                                               |
| Domain 2. Other                                                                                                                                                                           |                                             |                                                                                                                                                                                              |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Domain 5: Other                                                                                                                                                                           | Metric 5:                                   | Databases                                                                                                                                                                                    | High                                       | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                                                                              |
|                                                                                                                                                                                           | Metric 6:                                   | Models                                                                                                                                                                                       | N/A                                        | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                              |
| Overall Qualit                                                                                                                                                                            | y Determi                                   | nation                                                                                                                                                                                       | High                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   |

\* Related References: cited from Prevost, C., Erythrene and its dibromides, C. R. Hebd. Seances Acad. Sci., 1928, 186, 1209-13.

| Study Citation:<br>OECD Harmonized       | NIST, (2022). N<br>Boiling Point | IIST Chemistry WebBook. 1,3-Butadiene        | e (106-99-0). Sta      | ndard Reference Database No. 69.                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------|----------------------------------|----------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                                | U                                |                                              |                        |                                                                                                                                                                                                                                                                                                                                                        |
| HERO ID:                                 | 10225178                         |                                              |                        |                                                                                                                                                                                                                                                                                                                                                        |
|                                          |                                  |                                              | EXTRACTIO              | N                                                                                                                                                                                                                                                                                                                                                      |
| Parameter                                |                                  | Data                                         |                        |                                                                                                                                                                                                                                                                                                                                                        |
|                                          |                                  |                                              |                        |                                                                                                                                                                                                                                                                                                                                                        |
| Boiling Point<br>CASDN and Test Material |                                  | 208./ - K<br>106.00.0:1.2 Dutadiana          |                        |                                                                                                                                                                                                                                                                                                                                                        |
| CASKIN and Test Material                 | Cuidalina                        | Not Deported: Experimental: Not Deport       | ha                     |                                                                                                                                                                                                                                                                                                                                                        |
| Confidentiality, Type, and C             | Juideline                        | Not Reported: Experimental; Not Report       | ed<br>ad: Not Doportad |                                                                                                                                                                                                                                                                                                                                                        |
| Badialabal Source State                  | e, and Stability                 | Not Reported; Not Reported; Not Report       | ed; Not Reported       |                                                                                                                                                                                                                                                                                                                                                        |
| Standard Daviation Basulta               | and Purity                       | Not Reported                                 | ed; Not Reported       |                                                                                                                                                                                                                                                                                                                                                        |
| Basulta Detaila                          |                                  | Not Reported                                 |                        |                                                                                                                                                                                                                                                                                                                                                        |
| Results Details                          |                                  | Not Reported                                 |                        |                                                                                                                                                                                                                                                                                                                                                        |
|                                          |                                  |                                              | EVALUATIO              | N                                                                                                                                                                                                                                                                                                                                                      |
| Domain                                   |                                  | Metric                                       | Rating                 | Comments                                                                                                                                                                                                                                                                                                                                               |
| Domain 1: Substance                      |                                  |                                              |                        |                                                                                                                                                                                                                                                                                                                                                        |
|                                          | Metric 1:                        | Representativeness                           | High                   | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                     |
|                                          | Metric 2:                        | Appropriateness                              | High                   | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors. |
| Domain 2: Test Reliabil                  | ity                              |                                              |                        |                                                                                                                                                                                                                                                                                                                                                        |
| Bomain 2. Test Reliabil                  | Metric 3:                        | Reliability/Unbiased<br>(Method Objectivity) | Medium                 | There is no indication that the methodology for producing the information was biased towards a particular product or outcome                                                                                                                                                                                                                           |
|                                          | Metric 4:                        | Reliability/Analytical Method                | Medium                 | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                    |
| Domain 3: Other                          |                                  |                                              |                        |                                                                                                                                                                                                                                                                                                                                                        |
| Domain 5. Outer                          | Metric 5:                        | Databases                                    | High                   | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                   |
|                                          | Metric 6:                        | Models                                       | N/A                    | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                   |
| Overall Qualit                           | ty Determi                       | nation                                       | High                   |                                                                                                                                                                                                                                                                                                                                                        |

\* Related References: cited from Aldrich Chemical Company Inc., Catalog Handbook of Fine Chemicals, Aldrich Chemical Company, Inc., Milwaukee WI, 1990, 1.
| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Boiling Point | IIST Chemistry WebBook. 1,3-Butadiene  | e (106-99-0). Sta | ndard Reference Database No. 69.                                                                                                                                                                                                                    |
|------------------------------------|----------------------------------|----------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                  |                                        |                   |                                                                                                                                                                                                                                                     |
| HERO ID:                           | 10225178                         |                                        |                   |                                                                                                                                                                                                                                                     |
|                                    |                                  |                                        | EXTRACTIO         | N                                                                                                                                                                                                                                                   |
| Parameter                          |                                  | Data                                   |                   |                                                                                                                                                                                                                                                     |
| Boiling Point                      |                                  | 268 7 - K                              |                   |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                                  | 106-99-0; 1,3-Butadiene                |                   |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C       | Guideline                        | Not Reported; Experimental; Not Report | ed                |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability                 | Not Reported; Not Reported; Not Report | ed; Not Reported  |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                       | Not Reported; Not Reported; Not Report | ed; Not Reported  |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         |                                  | 0.4 K                                  |                   |                                                                                                                                                                                                                                                     |
| Results Details                    |                                  | Not Reported                           |                   |                                                                                                                                                                                                                                                     |
|                                    |                                  |                                        | EVALUATIO         | N                                                                                                                                                                                                                                                   |
| Domain                             |                                  | Metric                                 | Rating            | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                                  |                                        | -                 |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                        | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                        | Appropriateness                        | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |
|                                    |                                  |                                        |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                                                                                                          |
|                                    |                                  |                                        |                   | below 25°C and a boiling point above 25°C) or behaviors.                                                                                                                                                                                            |
| Domain 2: Test Reliabili           | ity                              |                                        |                   |                                                                                                                                                                                                                                                     |
| Domain 2. Test Reliabili           | Metric 3:                        | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                                                                                |
|                                    |                                  | (Method Objectivity)                   |                   | towards a particular product or outcome                                                                                                                                                                                                             |
|                                    | Metric 4:                        | Reliability/Analytical Method          | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                                  |                                        |                   |                                                                                                                                                                                                                                                     |
| Domain 5. Otier                    | Metric 5:                        | Databases                              | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                        | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Qualit                     | y Determi                        | nation                                 | High              |                                                                                                                                                                                                                                                     |

\* Related References: cited from Anonymous, R., , Am. Pet. Inst. Res. Proj. 45, Ohio State Univ., 1958.

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Boiling Point | NIST Chemistry WebBook. 1,3-Butadiene  | e (106-99-0). Sta | ndard Reference Database No. 69.                                                           |
|------------------------------------|----------------------------------|----------------------------------------|-------------------|--------------------------------------------------------------------------------------------|
| Template:                          | U                                |                                        |                   |                                                                                            |
| HERO ID:                           | 10225178                         |                                        |                   |                                                                                            |
|                                    |                                  |                                        | EXTRACTIO         | N                                                                                          |
| Parameter                          |                                  | Data                                   |                   |                                                                                            |
|                                    |                                  |                                        |                   |                                                                                            |
| Boiling Point                      |                                  | 268.7 - К                              |                   |                                                                                            |
| CASRN and Test Material            |                                  | 106-99-0; 1,3-Butadiene                |                   |                                                                                            |
| Confidentiality, Type, and C       | Guideline                        | Not Reported; Experimental; Not Report | ed                |                                                                                            |
| Solvent, Reactivity, Storage       | e, and Stability                 | Not Reported; Not Reported; Not Report | ed; Not Reported  |                                                                                            |
| Radiolabel, Source, State, a       | and Purity                       | Not Reported; Not Reported; Not Report | ed; Not Reported  |                                                                                            |
| Standard Deviation Results         | 6                                | Not Reported                           |                   |                                                                                            |
| Results Details                    |                                  | Not Reported                           |                   |                                                                                            |
|                                    |                                  |                                        | EVALUATIO         | N                                                                                          |
| Domain                             |                                  | Metric                                 | Rating            | Comments                                                                                   |
| Domain 1: Substance                |                                  |                                        | 8                 |                                                                                            |
|                                    | Metric 1:                        | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance.                         |
|                                    | Metric 2:                        | Appropriateness                        | High              | Measured data are consistent with the subject chemical substance structural features       |
|                                    |                                  |                                        | C C               | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., |
|                                    |                                  |                                        |                   | if the physical state is described as a liquid, the substance should have a melting point  |
|                                    |                                  |                                        |                   | below 25°C and a boiling point above 25°C) or behaviors.                                   |
| Domain 2: Test Reliabil            | ity                              |                                        |                   |                                                                                            |
|                                    | Metric 3:                        | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased       |
|                                    |                                  | (Method Objectivity)                   |                   | towards a particular product or outcome                                                    |
|                                    | Metric 4:                        | Reliability/Analytical Method          | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-    |
|                                    |                                  |                                        |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a   |
|                                    |                                  |                                        |                   | peer-reviewed/recognized database of other secondary source.                               |
| Domain 3. Other                    |                                  |                                        |                   |                                                                                            |
| Domain 5. Outer                    | Metric 5:                        | Databases                              | High              | The information or data is from a recognized data collection/repository where data are     |
|                                    | metric 5.                        | Lunduses                               | 111511            | peer-reviewed by experts in the field, are broadly available to the public for review and  |
|                                    |                                  |                                        |                   | use OR includes references to the original sources.                                        |
|                                    | Metric 6:                        | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                       |
| Overall Qualit                     | ty Dotormi                       | nation                                 | High              |                                                                                            |
| Vieran Quan                        | y Determin                       | 11411011                               | IIIgil            |                                                                                            |

\* Related References: cited from Majer, V.; Svoboda, V., Enthalpies of Vaporization of Organic Compounds: A Critical Review and Data Compilation, Blackwell Scientific Publications, Oxford, 1985, 300.

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Boiling Point | IIST Chemistry WebBook. 1,3-Butadiene  | e (106-99-0). Sta | ndard Reference Database No. 69.                                                           |
|------------------------------------|----------------------------------|----------------------------------------|-------------------|--------------------------------------------------------------------------------------------|
| Template:                          | C                                |                                        |                   |                                                                                            |
| HERO ID:                           | 10225178                         |                                        |                   |                                                                                            |
|                                    |                                  |                                        | EXTRACTIO         | N                                                                                          |
| Parameter                          |                                  | Data                                   |                   |                                                                                            |
| Boiling Point                      |                                  | 268 7 - K                              |                   |                                                                                            |
| CASRN and Test Material            |                                  | 106-99-0: 1 3-Butadiene                |                   |                                                                                            |
| Confidentiality. Type, and C       | Guideline                        | Not Reported: Experimental: Not Report | ed                |                                                                                            |
| Solvent, Reactivity, Storage       | e, and Stability                 | Not Reported: Not Reported: Not Report | ed: Not Reported  |                                                                                            |
| Radiolabel, Source, State, a       | and Purity                       | Not Reported; Not Reported; Not Report | ed; Not Reported  |                                                                                            |
| Standard Deviation Results         | 2                                | 2 K                                    |                   |                                                                                            |
| Results Details                    |                                  | Not Reported                           |                   |                                                                                            |
|                                    |                                  |                                        |                   | AT                                                                                         |
| Domain                             |                                  | Metric                                 | E VALUATIO        | Comments                                                                                   |
| Domain 1: Substance                |                                  | Metric                                 | Katilig           | Comments                                                                                   |
| Domain 1. Substance                | Metric 1.                        | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance                          |
|                                    | Metric 2:                        | Appropriateness                        | High              | Measured data are consistent with the subject chemical substance structural features       |
|                                    |                                  |                                        | 0                 | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., |
|                                    |                                  |                                        |                   | if the physical state is described as a liquid, the substance should have a melting point  |
|                                    |                                  |                                        |                   | below 25°C and a boiling point above 25°C) or behaviors.                                   |
| Domain 2: Test Reliabili           | ity                              |                                        |                   |                                                                                            |
|                                    | Metric 3:                        | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased       |
|                                    |                                  | (Method Objectivity)                   |                   | towards a particular product or outcome                                                    |
|                                    | Metric 4:                        | Reliability/Analytical Method          | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-    |
|                                    |                                  |                                        |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a   |
|                                    |                                  |                                        |                   | per-reviewewrecognized database of outer secondary source.                                 |
| Domain 3: Other                    |                                  |                                        |                   |                                                                                            |
|                                    | Metric 5:                        | Databases                              | High              | The information or data is from a recognized data collection/repository where data are     |
|                                    |                                  |                                        | U                 | peer-reviewed by experts in the field, are broadly available to the public for review and  |
|                                    |                                  |                                        |                   | use OR includes references to the original sources.                                        |
|                                    | Metric 6:                        | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                       |
| Overall Qualit                     | v Determi                        | nation                                 | High              |                                                                                            |
| Yuun Yuun                          |                                  |                                        | 811               |                                                                                            |

\* Related References: cited from Anonymous, R., , Am. Pet. Inst. Res. Proj. 45, Tech. Rep. 14, No. 1, Ohio State Univ., 1955.

| Study Citation:              | NIST, (2022). N  | IIST Chemistry WebBook. 1,3-Butadiene    | e (106-99-0). Sta  | ndard Reference Database No. 69.                                                           |
|------------------------------|------------------|------------------------------------------|--------------------|--------------------------------------------------------------------------------------------|
| OECD Harmonized              | Boiling Point    |                                          |                    |                                                                                            |
| Template:                    | 10005150         |                                          |                    |                                                                                            |
| HERO ID:                     | 10225178         |                                          |                    |                                                                                            |
|                              |                  |                                          | EXTRACTIO          | N                                                                                          |
| Parameter                    |                  | Data                                     |                    |                                                                                            |
|                              |                  |                                          |                    |                                                                                            |
| Boiling Point                |                  | 270.55 - К                               |                    |                                                                                            |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene                  |                    |                                                                                            |
| Confidentiality, Type, and C | Guideline        | Not Reported; Experimental; Not Report   | ed                 |                                                                                            |
| Solvent, Reactivity, Storage | e, and Stability | Not Reported; Not Reported; Not Report   | ed; Not Reported   |                                                                                            |
| Radiolabel, Source, State, a | and Purity       | Not Reported; Not Reported; Not Report   | ed; Not Reported   |                                                                                            |
| Standard Deviation Results   |                  | 1.0 K                                    |                    |                                                                                            |
| Results Details              |                  | results were excluded from overall avera | ge reported on NIS | T reference                                                                                |
|                              |                  |                                          | FVALUATIO          | N                                                                                          |
| Domain                       |                  | Metric                                   | Rating             | Comments                                                                                   |
| Domain 1: Substance          |                  | Weute                                    | Kating             | connients                                                                                  |
| Domain 1. Substance          | Metric 1:        | Representativeness                       | High               | Data are measured or estimated for the subject chemical substance.                         |
|                              | Metric 2:        | Appropriateness                          | High               | Measured data are consistent with the subject chemical substance structural features       |
|                              |                  |                                          | U                  | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., |
|                              |                  |                                          |                    | if the physical state is described as a liquid, the substance should have a melting point  |
|                              |                  |                                          |                    | below 25°C and a boiling point above 25°C) or behaviors.                                   |
| Domain 2: Test Reliabil      | ity              |                                          |                    |                                                                                            |
| 2 0111111 21 1000 1001110    | Metric 3:        | Reliability/Unbiased                     | Medium             | There is no indication that the methodology for producing the information was biased       |
|                              |                  | (Method Objectivity)                     |                    | towards a particular product or outcome                                                    |
|                              | Metric 4:        | Reliability/Analytical Method            | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-    |
|                              |                  |                                          |                    | cal method is unknown but is likely to be appropriate based on the data's inclusion in a   |
|                              |                  |                                          |                    | peer-reviewed/recognized database or other secondary source.                               |
| Domain 3: Other              |                  |                                          |                    |                                                                                            |
| Domain 5. Other              | Metric 5.        | Databases                                | High               | The information or data is from a recognized data collection/repository where data are     |
|                              | Weate 5.         | Databases                                | mgn                | peer-reviewed by experts in the field, are broadly available to the public for review and  |
|                              |                  |                                          |                    | use OR includes references to the original sources.                                        |
|                              | Metric 6:        | Models                                   | N/A                | Rating of this factor is not applicable to this kind of information.                       |
| Overall Qualif               | ty Dotormi       | nation                                   | High               |                                                                                            |
|                              | y Determin       | nanon                                    | Ingn               |                                                                                            |

\* Related References: cited fromGrosse, A.V., Refractive Indices at Low Temperatures, J. Am. Chem. Soc., 1937, 59, 2739-41.

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Boiling Point | NIST Chemistry WebBook. 1,3-Butadiene  | e (106-99-0). Sta | ndard Reference Database No. 69.                                                                                                                                                                                                                    |
|------------------------------------|----------------------------------|----------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                  |                                        |                   |                                                                                                                                                                                                                                                     |
| HERO ID:                           | 10225178                         |                                        |                   |                                                                                                                                                                                                                                                     |
|                                    |                                  |                                        | EXTRACTIO         | N                                                                                                                                                                                                                                                   |
| Parameter                          |                                  | Data                                   |                   |                                                                                                                                                                                                                                                     |
| Boiling Point                      |                                  | 268.2 - K                              |                   |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                                  | 106-99-0; 1,3-Butadiene                |                   |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C       | Guideline                        | Not Reported; Experimental; Not Report | ed                |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability                 | Not Reported; Not Reported; Not Report | ed; Not Reported  |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                       | Not Reported; Not Reported; Not Report | ed; Not Reported  |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         |                                  | 1.0 K                                  |                   |                                                                                                                                                                                                                                                     |
| Results Details                    |                                  | Not Reported                           |                   |                                                                                                                                                                                                                                                     |
|                                    |                                  |                                        | EVALUATIO         | N                                                                                                                                                                                                                                                   |
| Domain                             |                                  | Metric                                 | Rating            | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                                  |                                        |                   |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                        | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                        | Appropriateness                        | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |
|                                    |                                  |                                        |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a malting point                                                             |
|                                    |                                  |                                        |                   | below 25°C and a boiling point above 25°C) or behaviors.                                                                                                                                                                                            |
| Domain 2: Test Reliabil            | itv                              |                                        |                   |                                                                                                                                                                                                                                                     |
|                                    | Metric 3:                        | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                                                                                |
|                                    |                                  | (Method Objectivity)                   |                   | towards a particular product or outcome                                                                                                                                                                                                             |
|                                    | Metric 4:                        | Reliability/Analytical Method          | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3. Other                    |                                  |                                        |                   |                                                                                                                                                                                                                                                     |
| Domain 5. Outer                    | Metric 5:                        | Databases                              | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                        | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Qualit                     | ty Determi                       | nation                                 | High              |                                                                                                                                                                                                                                                     |

\* Related References: cited from Prevost, C., Bull. Soc. Chim. Fr., 1944, 11, 218.

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Boiling Point | NIST Chemistry WebBook. 1,3-Butadiene        | (106-99-0). Sta  | ndard Reference Database No. 69.                                                                                                                                                                                                                    |
|------------------------------------|----------------------------------|----------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                  |                                              |                  |                                                                                                                                                                                                                                                     |
| HERO ID:                           | 10225178                         |                                              |                  |                                                                                                                                                                                                                                                     |
|                                    |                                  |                                              | EXTRACTIO        | N                                                                                                                                                                                                                                                   |
| Parameter                          |                                  | Data                                         |                  |                                                                                                                                                                                                                                                     |
|                                    |                                  |                                              |                  |                                                                                                                                                                                                                                                     |
| Boiling Point                      |                                  | 268.8 - К                                    |                  |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                                  | 106-99-0; 1,3-Butadiene                      |                  |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C       | Guideline                        | Not Reported; Experimental; Not Reported     | ed               |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability                 | Not Reported; Not Reported; Not Reported     | ed; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                       | Not Reported; Not Reported; Not Reported     | ed; Not Reported |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         |                                  | 0.4 K                                        |                  |                                                                                                                                                                                                                                                     |
| Results Details                    |                                  | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |
|                                    |                                  |                                              | FVAL HATIO       | N                                                                                                                                                                                                                                                   |
| Domain                             |                                  | Metric                                       | Rating           | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                                  |                                              |                  |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                        | Representativeness                           | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                        | Appropriateness                              | High             | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |
|                                    |                                  |                                              |                  | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                                                                                                          |
|                                    |                                  |                                              |                  | If the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors.                                                                              |
|                                    |                                  |                                              |                  |                                                                                                                                                                                                                                                     |
| Domain 2: Test Reliabil            | ity                              |                                              |                  |                                                                                                                                                                                                                                                     |
|                                    | Metric 3:                        | Reliability/Unbiased<br>(Method Objectivity) | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome                                                                                                                        |
|                                    | Metric 4:                        | Reliability/Analytical Method                | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
|                                    |                                  |                                              |                  |                                                                                                                                                                                                                                                     |
| Domain 3: Other                    | Matria 5.                        | Detabases                                    | II: -1           |                                                                                                                                                                                                                                                     |
|                                    | Metric 5:                        | Databases                                    | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                        | Models                                       | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Qualit                     | ty Determi                       | nation                                       | High             |                                                                                                                                                                                                                                                     |

\* Related References: cited from Robey, R.F.; Hudson, B.E.; Wiese, H.K., Determination of individual acetylenes in butadiene and in c4 hydrocarbon fractions, Anal. Chem., 1952, 24, 1080-2.

| Stardar Citations            | NUET (2022) N    | HOT Change Web Deals 1.2 Date diagonal | (10( 00 0) 54-    | ndend Defension Detabase No. (0                                                            |
|------------------------------|------------------|----------------------------------------|-------------------|--------------------------------------------------------------------------------------------|
| OECD Harmonized              | Roiling Point    | NIST Chemistry webbook. 1,3-Butadiene  | e (100-99-0). Sta | ndard Reference Database No. 69.                                                           |
| Template:                    | Doning Folia     |                                        |                   |                                                                                            |
| HERO ID:                     | 10225178         |                                        |                   |                                                                                            |
|                              |                  |                                        | EXTRACTIO         | N                                                                                          |
| Parameter                    |                  | Data                                   |                   |                                                                                            |
|                              |                  |                                        |                   |                                                                                            |
| Boiling Point                |                  | 268.61 - К                             |                   |                                                                                            |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene                |                   |                                                                                            |
| Confidentiality, Type, and   | Guideline        | Not Reported; Experimental; Not Report | ed                |                                                                                            |
| Solvent, Reactivity, Storage | e, and Stability | Not Reported; Not Reported; Not Report | ed; Not Reported  |                                                                                            |
| Radiolabel, Source, State, a | and Purity       | Not Reported; Not Reported; Not Report | ed; Not Reported  |                                                                                            |
| Standard Deviation Results   | 8                | 0.2 K                                  |                   |                                                                                            |
| Results Details              |                  | Not Reported                           |                   |                                                                                            |
|                              |                  |                                        | EVALUATIO         | N                                                                                          |
| Domain                       |                  | Metric                                 | Rating            | Comments                                                                                   |
| Domain 1: Substance          |                  | incure                                 | Hutting           | connents                                                                                   |
|                              | Metric 1:        | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance                          |
|                              | Metric 2:        | Appropriateness                        | High              | Measured data are consistent with the subject chemical substance structural features       |
|                              |                  |                                        | 0                 | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., |
|                              |                  |                                        |                   | if the physical state is described as a liquid, the substance should have a melting point  |
|                              |                  |                                        |                   | below 25°C and a boiling point above 25°C) or behaviors.                                   |
| Domain 2: Test Reliabil      | lity             |                                        |                   |                                                                                            |
|                              | Metric 3:        | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased       |
|                              |                  | (Method Objectivity)                   |                   | towards a particular product or outcome                                                    |
|                              | Metric 4:        | Reliability/Analytical Method          | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-    |
|                              |                  |                                        |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a   |
|                              |                  |                                        |                   | peer-reviewed/recognized database or other secondary source.                               |
| Domain 3: Other              |                  |                                        |                   |                                                                                            |
| Domain 5. Outer              | Metric 5:        | Databases                              | High              | The information or data is from a recognized data collection/repository where data are     |
|                              | metrie 5.        | Duuouses                               | mgn               | peer-reviewed by experts in the field, are broadly available to the public for review and  |
|                              |                  |                                        |                   | use OR includes references to the original sources.                                        |
|                              | Metric 6:        | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                       |
|                              |                  |                                        | TT. 1             |                                                                                            |
| Overall Quality              | ty Determi       | nation                                 | High              |                                                                                            |

\* Related References: cited from Benoliel, R.W., Some Physical Constants of Seven Four-Carbon-Atom Hydrocarbons and Neopentane, M.S. Thesis, Penn. State Univ., Univ. Park, PA, 1941.

| Study Citation:                      | NIST, (2022). N      | IIST Chemistry WebBook. 1,3-Butadien         | e (106-99-0). Sta | ndard Reference Database No. 69.                                                                                                                                       |
|--------------------------------------|----------------------|----------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized                      | <b>Boiling Point</b> | •                                            |                   |                                                                                                                                                                        |
| Template:                            | 10225179             |                                              |                   |                                                                                                                                                                        |
| HERO ID:                             | 10225178             |                                              |                   |                                                                                                                                                                        |
| <b>D</b> (                           |                      |                                              | EXTRACTIO         | N                                                                                                                                                                      |
| Parameter                            |                      | Data                                         |                   |                                                                                                                                                                        |
| Boiling Point                        |                      | 268 7 - K                                    |                   |                                                                                                                                                                        |
| CASRN and Test Material              |                      | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                        |
| Confidentiality, Type, and C         | Guideline            | Not Reported; Experimental; Not Report       | ted               |                                                                                                                                                                        |
| Solvent, Reactivity, Storage         | e, and Stability     | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                        |
| Radiolabel, Source, State, a         | and Purity           | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                        |
| Standard Deviation Results           | 5                    | 0.5 K                                        |                   |                                                                                                                                                                        |
| Results Details                      |                      | Not Reported                                 |                   |                                                                                                                                                                        |
|                                      |                      |                                              | EVALUATIO         |                                                                                                                                                                        |
| Domain                               |                      | Metric                                       | Rating            | Comments                                                                                                                                                               |
| Domain 1: Substance                  |                      |                                              |                   |                                                                                                                                                                        |
|                                      | Metric 1:            | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                     |
|                                      | Metric 2:            | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features                                                                                   |
|                                      |                      |                                              |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                             |
|                                      |                      |                                              |                   | If the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors. |
|                                      |                      |                                              |                   |                                                                                                                                                                        |
| Domain 2: Test Reliabil              | ity                  |                                              |                   |                                                                                                                                                                        |
|                                      | Metric 3:            | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome                                        |
|                                      | Metric 4:            | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                                |
|                                      |                      |                                              |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                  |
| Domain 3: Other                      |                      |                                              |                   |                                                                                                                                                                        |
| Domain J. Outer                      | Metric 5.            | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are                                                                                 |
|                                      | weule 5.             | Databases                                    | Ingn              | peer-reviewed by experts in the field, are broadly available to the public for review and<br>use OR includes references to the original sources.                       |
|                                      | Metric 6:            | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                   |
| <b>Overall Quality Determination</b> |                      |                                              | High              |                                                                                                                                                                        |
|                                      | •                    |                                              | 0                 |                                                                                                                                                                        |

\* Related References: cited from Foehr, E.G.; Fenske, M.R., Magneto-optic Rotation of Hydrocarbons, Ind. Eng. Chem., 1949, 41, 1956.

| Study Citation:              | NLM, (2003). P       | ubChem: Hazardous Substance Data Ba | ank: 1,3-Butadien | e, 106-99-0.                                                                                                                                                      |
|------------------------------|----------------------|-------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>OECD Harmonized</b>       | <b>Boiling Point</b> |                                     |                   |                                                                                                                                                                   |
| Template:                    |                      |                                     |                   |                                                                                                                                                                   |
| HERO ID:                     | 5926134              |                                     |                   |                                                                                                                                                                   |
|                              |                      |                                     | EXTRACTIO         | N                                                                                                                                                                 |
| Parameter                    |                      | Data                                |                   |                                                                                                                                                                   |
|                              |                      |                                     |                   |                                                                                                                                                                   |
| Boiling Point                |                      | -4.5 C                              |                   |                                                                                                                                                                   |
| CASRN and Test Material      |                      | 106-99-0; 1,3-Butadiene             |                   |                                                                                                                                                                   |
| Confidentiality, Type, and C | Guideline            | None; Experimental; Not Reported    |                   |                                                                                                                                                                   |
| Solvent, Reactivity, Storage | e, and Stability     | NR; NR; NR; NR                      |                   |                                                                                                                                                                   |
| Radiolabel, Source, State, a | and Purity           | NR; NR; NR; NR                      |                   |                                                                                                                                                                   |
| Standard Deviation Results   |                      | Not Reported                        |                   |                                                                                                                                                                   |
| Results Details              |                      | Not Reported                        |                   |                                                                                                                                                                   |
|                              |                      |                                     |                   |                                                                                                                                                                   |
|                              |                      |                                     | EVALUATIO         | N                                                                                                                                                                 |
| Domain                       |                      | Metric                              | Rating            | Comments                                                                                                                                                          |
| Domain 1: Substance          |                      |                                     |                   |                                                                                                                                                                   |
|                              | Metric 1:            | Representativeness                  | High              | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                              | Metric 2:            | Appropriateness                     | High              | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil      | itv                  |                                     |                   |                                                                                                                                                                   |
|                              | Metric 3:            | Reliability/Unbiased                | Medium            | There is no indication that the methodology for producing the information was biased                                                                              |
|                              | Matria 4.            | (Method Objectivity)                | Madi              | towards a particular product or outcome.                                                                                                                          |
|                              | Metric 4:            | Reliability/Analytical Method       | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 2: Other              |                      |                                     |                   |                                                                                                                                                                   |
| Domain 5: Other              | Matria 5.            | Databasas                           | High              | Data is from a multiply qualitable man reviewed database that provides affine to the                                                                              |
|                              | wieuric 5:           | DataUases                           | nign              | recognized data collection.                                                                                                                                       |
|                              | Metric 6:            | Models                              | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Over                 | Ty Dotomas           | nation                              | High              |                                                                                                                                                                   |
| Overall Quality              | ly Determin          | liauoli                             | nign              |                                                                                                                                                                   |

\* Related References: Haynes, W.M. (Ed.). CRC Handbook of Chemistry and Physics. 95th Edition. CRC Press LLC, Boca Raton: FL 2014-2015

| Study Citation:              | O'Neil, M. J. (2 | 2013). 1,3-Butadiene. 106-99-0. :267. |             |                                                                                                                                                                   |
|------------------------------|------------------|---------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Boiling Point    |                                       |             |                                                                                                                                                                   |
| Tempiate:                    | 5026270          |                                       |             |                                                                                                                                                                   |
| HERO ID:                     | 5926379          |                                       |             |                                                                                                                                                                   |
|                              |                  |                                       | EXTRACTIO   | N                                                                                                                                                                 |
| Parameter                    |                  | Data                                  |             |                                                                                                                                                                   |
|                              |                  |                                       |             |                                                                                                                                                                   |
| Boiling Point                |                  | -4.5 C                                |             |                                                                                                                                                                   |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene               |             |                                                                                                                                                                   |
| Confidentiality, Type, and C | Guideline        | None; Experimental; Not Reported      |             |                                                                                                                                                                   |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                        |             |                                                                                                                                                                   |
| Radiolabel, Source, State, a | and Purity       | NR; NR; NR; NR                        |             |                                                                                                                                                                   |
| Standard Deviation Results   | 5                | Not Reported                          |             |                                                                                                                                                                   |
| Results Details              |                  | @ 760 mm Hg                           |             |                                                                                                                                                                   |
|                              |                  |                                       |             |                                                                                                                                                                   |
|                              |                  |                                       | EVALUATIO   | N                                                                                                                                                                 |
| Domain                       |                  | Metric                                | Rating      | Comments                                                                                                                                                          |
| Domain 1: Substance          |                  |                                       |             |                                                                                                                                                                   |
|                              | Metric 1:        | Representativeness                    | High        | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                              | Metric 2:        | Appropriateness                       | High        | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2. Test Reliabil      | ity              |                                       |             |                                                                                                                                                                   |
| Domain 2. Test Renabil       | Metric 3:        | Reliability/Unbiased                  | Medium      | There is no indication that the methodology for producing the information was biased                                                                              |
|                              |                  | (Method Objectivity)                  |             | towards a particular product or outcome.                                                                                                                          |
|                              | Metric 4:        | Reliability/Analytical Method         | Medium      | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 2: Other              |                  |                                       |             |                                                                                                                                                                   |
| Domain 5: Other              | Matria 5.        | Databasas                             | Uiah        | Data is from a many reviewed data collection                                                                                                                      |
|                              | Metric 5:        | Databases<br>Models                   | High<br>N/A | Data is from a peer-reviewed data collection.                                                                                                                     |
|                              | wieuric o:       | wouels                                | IN/A        | Rating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Qualit</b>        | ty Determi       | nation                                | High        |                                                                                                                                                                   |

| Study Citation:              | O'Neil, M. J. (20 | 013). 1,3-Butadiene. 106-99-0. :267. |           |                                                                                                                                                                   |
|------------------------------|-------------------|--------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Boiling Point     |                                      |           |                                                                                                                                                                   |
| Template:                    | 5026270           |                                      |           |                                                                                                                                                                   |
| HERO ID:                     | 5920379           |                                      |           |                                                                                                                                                                   |
|                              |                   |                                      | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                    |                   | Data                                 |           |                                                                                                                                                                   |
|                              |                   |                                      |           |                                                                                                                                                                   |
| Boiling Point                |                   | 160.0 C                              |           |                                                                                                                                                                   |
| CASRN and Test Material      |                   | 106-99-0; 1,3-Butadiene              |           |                                                                                                                                                                   |
| Confidentiality, Type, and C | Guideline         | None; Experimental; Not Reported     |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storage | e, and Stability  | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Radiolabel, Source, State, a | nd Purity         | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Standard Deviation Results   |                   | Not Reported                         |           |                                                                                                                                                                   |
| Results Details              |                   | 40 atm                               |           |                                                                                                                                                                   |
|                              |                   |                                      |           |                                                                                                                                                                   |
|                              |                   |                                      | EVALUATIO | N                                                                                                                                                                 |
| Domain                       |                   | Metric                               | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance          |                   |                                      |           |                                                                                                                                                                   |
|                              | Metric 1:         | Representativeness                   | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                              | Metric 2:         | Appropriateness                      | High      | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabili     | itv               |                                      |           |                                                                                                                                                                   |
|                              | Metric 3:         | Reliability/Unbiased                 | Medium    | There is no indication that the methodology for producing the information was biased                                                                              |
|                              |                   | (Method Objectivity)                 |           | towards a particular product or outcome.                                                                                                                          |
|                              | Metric 4:         | Reliability/Analytical Method        | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                              |                   |                                      |           |                                                                                                                                                                   |
| Domain 3: Other              |                   | D . 1                                |           |                                                                                                                                                                   |
|                              | Metric 5:         | Databases                            | High      | Data is from a peer-reviewed data collection.                                                                                                                     |
|                              | Metric 6:         | Models                               | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Qualit</b>        | y Determi         | nation                               | High      |                                                                                                                                                                   |

| Study Citation:<br>OECD Harmonized | O'Neil, M. J. (20<br>Boiling Point | 013). 1,3-Butadiene. 106-99-0. :267.         |           |                                                                                                                                                                   |
|------------------------------------|------------------------------------|----------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                    |                                              |           |                                                                                                                                                                   |
| HERO ID:                           | 5926379                            |                                              |           |                                                                                                                                                                   |
|                                    |                                    |                                              | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                          |                                    | Data                                         |           |                                                                                                                                                                   |
|                                    |                                    |                                              |           |                                                                                                                                                                   |
| Boiling Point                      |                                    | 15.3 C                                       |           |                                                                                                                                                                   |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene                      |           |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Guideline                          | None; Experimental; Not Reported             |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability                   | NR; NR; NR; NR                               |           |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | and Purity                         | NR; NR; NR; NR                               |           |                                                                                                                                                                   |
| Standard Deviation Results         |                                    | Not Reported                                 |           |                                                                                                                                                                   |
| Results Details                    |                                    | 2 atm                                        |           |                                                                                                                                                                   |
|                                    |                                    |                                              | EVALUATIO | N                                                                                                                                                                 |
| Domain                             |                                    | Metric                                       | Doting    | Comments                                                                                                                                                          |
| Domain 1: Substance                |                                    | Metric                                       | Katilig   | Comments                                                                                                                                                          |
| Domain 1. Substance                | Matric 1:                          | Depresentativeness                           | High      | Date are measured or estimated for the subject chemical substance                                                                                                 |
|                                    | Metric 2:                          | Appropriateness                              | High      | Magurad data are apprinted for the subject chemical substance.                                                                                                    |
|                                    | Metric 2.                          | Appropriateness                              | Ingn      | weasured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil            | ity                                |                                              |           |                                                                                                                                                                   |
|                                    | Metric 3:                          | Reliability/Unbiased<br>(Method Objectivity) | Medium    | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                    | Metric 4:                          | Reliability/Analytical Method                | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                                    |                                    |                                              |           | - · ·                                                                                                                                                             |
| Domain 3: Other                    |                                    |                                              |           |                                                                                                                                                                   |
|                                    | Metric 5:                          | Databases                                    | High      | Data is from a peer-reviewed data collection.                                                                                                                     |
|                                    | Metric 6:                          | Models                                       | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Qualit</b>              | ty Determi                         | nation                                       | High      |                                                                                                                                                                   |

| Study Citation:<br>OECD Harmonized | O'Neil, M. J. (2)<br>Boiling Point | 013). 1,3-Butadiene. 106-99-0. :267. |           |                                                                                                                                                                   |
|------------------------------------|------------------------------------|--------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | C                                  |                                      |           |                                                                                                                                                                   |
| HERO ID:                           | 5926379                            |                                      |           |                                                                                                                                                                   |
|                                    |                                    |                                      | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                          |                                    | Data                                 |           |                                                                                                                                                                   |
|                                    |                                    |                                      |           |                                                                                                                                                                   |
| Boiling Point                      |                                    | 47.0 C                               |           |                                                                                                                                                                   |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene              |           |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Guideline                          | None; Experimental; Not Reported     |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability                   | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | and Purity                         | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Standard Deviation Results         |                                    | Not Reported                         |           |                                                                                                                                                                   |
| Results Details                    |                                    | 5 atm                                |           |                                                                                                                                                                   |
|                                    |                                    |                                      |           |                                                                                                                                                                   |
|                                    |                                    |                                      | EVALUATIO | N                                                                                                                                                                 |
| Domain                             |                                    | Metric                               | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance                |                                    |                                      |           |                                                                                                                                                                   |
|                                    | Metric 1:                          | Representativeness                   | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                    | Metric 2:                          | Appropriateness                      | High      | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil            | ity                                |                                      |           |                                                                                                                                                                   |
|                                    | Metric 3:                          | Reliability/Unbiased                 | Medium    | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                    | Metric 4:                          | Reliability/Analytical Method        | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                                    |                                    |                                      |           |                                                                                                                                                                   |
| Domain 3: Other                    | M ( <sup>1</sup> 5                 |                                      | TT' 1     |                                                                                                                                                                   |
|                                    | Metric 5:                          | Databases                            | High      | Data is from a peer-reviewed data collection.                                                                                                                     |
|                                    | Metric 6:                          | Models                               | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Qualit</b>              | ty Determin                        | nation                               | High      |                                                                                                                                                                   |

| Study Citation:<br>OECD Harmonized | O'Neil, M. J. (2)<br>Boiling Point | 013). 1,3-Butadiene. 106-99-0. :267.         |           |                                                                                                                                                                   |
|------------------------------------|------------------------------------|----------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | 8                                  |                                              |           |                                                                                                                                                                   |
| HERO ID:                           | 5926379                            |                                              |           |                                                                                                                                                                   |
|                                    |                                    |                                              | EXTRACTIO | <br>N                                                                                                                                                             |
| Parameter                          |                                    | Data                                         |           |                                                                                                                                                                   |
|                                    |                                    |                                              |           |                                                                                                                                                                   |
| Boiling Point                      |                                    | 76.0 C                                       |           |                                                                                                                                                                   |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene                      |           |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Guideline                          | None; Experimental; Not Reported             |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability                   | NR; NR; NR; NR                               |           |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | and Purity                         | NR; NR; NR; NR                               |           |                                                                                                                                                                   |
| Standard Deviation Results         | l .                                | Not Reported                                 |           |                                                                                                                                                                   |
| Results Details                    |                                    | 10 atm                                       |           |                                                                                                                                                                   |
|                                    |                                    |                                              |           |                                                                                                                                                                   |
|                                    |                                    |                                              | EVALUATIO | N                                                                                                                                                                 |
| Domain                             |                                    | Metric                                       | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance                |                                    |                                              |           |                                                                                                                                                                   |
|                                    | Metric 1:                          | Representativeness                           | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                    | Metric 2:                          | Appropriateness                              | High      | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil            | ity                                |                                              |           |                                                                                                                                                                   |
|                                    | Metric 3:                          | Reliability/Unbiased<br>(Method Objectivity) | Medium    | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                    | Metric 4:                          | Reliability/Analytical Method                | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                                    |                                              |           |                                                                                                                                                                   |
| Domain 5. Outer                    | Metric 5                           | Databases                                    | High      | Data is from a peer-reviewed data collection                                                                                                                      |
|                                    | Metric 6:                          | Models                                       | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Qualit                     | ty Determi                         | nation                                       | High      |                                                                                                                                                                   |

| Study Citation:              | O'Neil, M. J. (20<br>Reiling Point | 013). 1,3-Butadiene. 106-99-0. :267. |           |                                                                                                                                                                   |
|------------------------------|------------------------------------|--------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tompleto:                    | Bolling Pollit                     |                                      |           |                                                                                                                                                                   |
| HERO ID.                     | 5026370                            |                                      |           |                                                                                                                                                                   |
|                              | 5920579                            |                                      |           |                                                                                                                                                                   |
| _                            |                                    |                                      | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                    |                                    | Data                                 |           |                                                                                                                                                                   |
|                              |                                    |                                      |           |                                                                                                                                                                   |
| Boiling Point                |                                    | 114.0 C                              |           |                                                                                                                                                                   |
| CASRN and Test Material      |                                    | 106-99-0; 1,3-Butadiene              |           |                                                                                                                                                                   |
| Confidentiality, Type, and C | Guideline                          | None; Experimental; Not Reported     |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storage | e, and Stability                   | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Radiolabel, Source, State, a | and Purity                         | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Standard Deviation Results   |                                    | Not Reported                         |           |                                                                                                                                                                   |
| Results Details              |                                    | 20 atm                               |           |                                                                                                                                                                   |
|                              |                                    |                                      |           |                                                                                                                                                                   |
|                              |                                    |                                      | EVALUATIO | N                                                                                                                                                                 |
| Domain                       |                                    | Metric                               | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance          |                                    |                                      |           |                                                                                                                                                                   |
|                              | Metric 1:                          | Representativeness                   | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                              | Metric 2:                          | Appropriateness                      | High      | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil      | ity                                |                                      |           |                                                                                                                                                                   |
| 2 chiun 2. Test Renuon       | Metric 3:                          | Reliability/Unbiased                 | Medium    | There is no indication that the methodology for producing the information was biased                                                                              |
|                              |                                    | (Method Objectivity)                 |           | towards a particular product or outcome.                                                                                                                          |
|                              | Metric 4:                          | Reliability/Analytical Method        | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                              |                                    |                                      |           |                                                                                                                                                                   |
| Domain 3: Other              |                                    |                                      |           |                                                                                                                                                                   |
|                              | Metric 5:                          | Databases                            | High      | Data is from a peer-reviewed data collection.                                                                                                                     |
|                              | Metric 6:                          | Models                               | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Qualit               | ty Determin                        | nation                               | High      |                                                                                                                                                                   |

| Study Citation:<br>OECD Harmonized | O'Neil, M. J. (2)<br>Boiling Point | 013). 1,3-Butadiene. 106-99-0. :267.         |           |                                                                                                                                                                   |
|------------------------------------|------------------------------------|----------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                    |                                              |           |                                                                                                                                                                   |
| HERO ID:                           | 5926379                            |                                              |           |                                                                                                                                                                   |
|                                    |                                    |                                              | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                          |                                    | Data                                         |           |                                                                                                                                                                   |
|                                    |                                    |                                              |           |                                                                                                                                                                   |
| Boiling Point                      |                                    | 139.8 C                                      |           |                                                                                                                                                                   |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene                      |           |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Guideline                          | None; Experimental; Not Reported             |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability                   | NR; NR; NR; NR                               |           |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | and Purity                         | NR; NR; NR; NR                               |           |                                                                                                                                                                   |
| Standard Deviation Results         |                                    | Not Reported                                 |           |                                                                                                                                                                   |
| Results Details                    |                                    | 30 atm                                       |           |                                                                                                                                                                   |
|                                    |                                    |                                              |           |                                                                                                                                                                   |
|                                    |                                    |                                              | EVALUATIO | N                                                                                                                                                                 |
| Domain                             |                                    | Metric                                       | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance                |                                    |                                              |           |                                                                                                                                                                   |
|                                    | Metric 1:                          | Representativeness                           | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                    | Metric 2:                          | Appropriateness                              | High      | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil            | ity                                |                                              |           |                                                                                                                                                                   |
|                                    | Metric 3:                          | Reliability/Unbiased<br>(Method Objectivity) | Medium    | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                    | Metric 4:                          | Reliability/Analytical Method                | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                                    |                                              |           |                                                                                                                                                                   |
| Domain J. Outer                    | Metric 5                           | Databases                                    | High      | Data is from a near-reviewed data collection                                                                                                                      |
|                                    | Metric 6:                          | Models                                       | N/A       | Rating of this factor is not applicable to this kind of information                                                                                               |
|                                    | metrie 0.                          |                                              | 1 1/2 1   | rading of this factor is not upprease to this kind of information.                                                                                                |
| <b>Overall Qualit</b>              | y Determi                          | nation                                       | High      |                                                                                                                                                                   |

| Study Citation:             | RSC, (2019). C       | hemSpider: 1,3-Butadiene.                             |            |                                                                                                                               |
|-----------------------------|----------------------|-------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>OECD Harmonized</b>      | <b>Boiling Point</b> |                                                       |            |                                                                                                                               |
| Template:                   |                      |                                                       |            |                                                                                                                               |
| HERO ID:                    | 5926255              |                                                       |            |                                                                                                                               |
|                             |                      |                                                       | EXTRACTION |                                                                                                                               |
| Parameter                   |                      | Data                                                  |            |                                                                                                                               |
|                             |                      |                                                       |            |                                                                                                                               |
| Boiling Point               |                      | -4.5 C                                                |            |                                                                                                                               |
| CASRN and Test Material     |                      | 106-99-0; 1,3-Butadiene                               |            |                                                                                                                               |
| Confidentiality, Type, and  | Guideline            | None; Experimental; Not Reported                      |            |                                                                                                                               |
| Solvent, Reactivity, Storag | e, and Stability     | NR; NR; NR; NR                                        |            |                                                                                                                               |
| Radiolabel, Source, State,  | and Purity           | NR; NR; NR; NR                                        |            |                                                                                                                               |
| Standard Deviation Results  | 8                    | Not Reported                                          |            |                                                                                                                               |
| Results Details             |                      | Not Reported                                          |            |                                                                                                                               |
|                             |                      |                                                       |            |                                                                                                                               |
|                             |                      |                                                       | EVALUATION |                                                                                                                               |
| Domain                      |                      | Metric                                                | Rating     | Comments                                                                                                                      |
| Domain 1: Substance         |                      |                                                       |            |                                                                                                                               |
|                             | Metric 1:            | Representativeness                                    | High       | Data are measured or estimated for the subject chemical substance.                                                            |
|                             | Metric 2:            | Appropriateness                                       | High       | Measured data are consistent with the subject chemical's physical/chemical properties.                                        |
| Demain 2. Trat Daliahil     | :                    |                                                       |            |                                                                                                                               |
| Domain 2: Test Reliabil     | ity                  |                                                       | Madian     |                                                                                                                               |
|                             | Metric 3:            | (Mathad Objectivity)                                  | Medium     | I here is no indication that the methodology for producing the information was biased towards a particular product or outcome |
|                             | Matric 4:            | (Method Objectivity)<br>Reliability/Analytical Method | Low        | The analytical method is unknown and there is no indication that a reliable method was                                        |
|                             | Metric 4.            | Renability/Analytical Method                          | Low        | used.                                                                                                                         |
|                             |                      |                                                       |            |                                                                                                                               |
| Domain 3: Other             |                      |                                                       |            |                                                                                                                               |
|                             | Metric 5:            | Databases                                             | Medium     | Data is from a publicly available secondary source with references to non-peer reviewed sources.                              |
|                             | Metric 6:            | Models                                                | N/A        | Rating of this factor is not applicable to this kind of information.                                                          |
|                             |                      |                                                       |            |                                                                                                                               |
| <b>Overall Quali</b>        | ty Determi           | nation                                                | Medium     |                                                                                                                               |

\* Related References: Parchem-fine & specialty chemicals

| Study Citation:<br>OECD Harmonized | Rumble, J. R. (2<br>Boiling Point | 2018). Flammability of chemical substa | unces. :16-16 - 16-3 | 32.                                                                                                                                                              |
|------------------------------------|-----------------------------------|----------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | 8                                 |                                        |                      |                                                                                                                                                                  |
| HERO ID:                           | 6655446                           |                                        |                      |                                                                                                                                                                  |
|                                    |                                   |                                        | EXTRACTIO            | N                                                                                                                                                                |
| Parameter                          |                                   | Data                                   |                      |                                                                                                                                                                  |
|                                    |                                   |                                        |                      |                                                                                                                                                                  |
| Boiling Point                      |                                   | -4.6                                   |                      |                                                                                                                                                                  |
| CASRN and Test Material            |                                   | Not Reported; 1,3-Butadiene            |                      |                                                                                                                                                                  |
| Confidentiality, Type, and C       | Guideline                         | none; experimental; Not Reported       |                      |                                                                                                                                                                  |
| Solvent, Reactivity, Storage       | e, and Stability                  | NR; NR; NR; NR                         |                      |                                                                                                                                                                  |
| Radiolabel, Source, State, a       | nd Purity                         | NR; NR; NR; NR                         |                      |                                                                                                                                                                  |
| Standard Deviation Results         |                                   | Not reported                           |                      |                                                                                                                                                                  |
| Results Details                    |                                   | Not reported                           |                      |                                                                                                                                                                  |
|                                    |                                   |                                        |                      |                                                                                                                                                                  |
|                                    |                                   |                                        | EVALUATIO            | N                                                                                                                                                                |
| Domain                             |                                   | Metric                                 | Rating               | Comments                                                                                                                                                         |
| Domain 1: Substance                |                                   |                                        |                      |                                                                                                                                                                  |
|                                    | Metric 1:                         | Representativeness                     | High                 | Data are measured or estimated for the subject chemical substance.                                                                                               |
|                                    | Metric 2:                         | Appropriateness                        | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                             |
| Domain 2: Test Reliabil            | ity                               |                                        |                      |                                                                                                                                                                  |
|                                    | Metric 3:                         | Reliability/Unbiased                   | Medium               | There is no indication that the methodology for producing the information was biased                                                                             |
|                                    |                                   | (Method Objectivity)                   |                      | towards a particular product or outcome.                                                                                                                         |
|                                    | Metric 4:                         | Reliability/Analytical Method          | Medium               | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                                   |                                        |                      |                                                                                                                                                                  |
|                                    | Metric 5:                         | Databases                              | High                 | Data is from a known data-collection, prepared by experts in the field.                                                                                          |
|                                    | Metric 6:                         | Models                                 | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                             |
| Overall Quality Determination      |                                   |                                        | High                 |                                                                                                                                                                  |

| Study Citation:<br>OECD Harmonized | Rumble, J. R., (I<br>Boiling Point | Ed.) (2018). 1,3-Butadiene. :3-8.            |           |                                                                                                                                                                   |
|------------------------------------|------------------------------------|----------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5349186                            |                                              |           |                                                                                                                                                                   |
|                                    |                                    |                                              | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                          |                                    | Data                                         |           |                                                                                                                                                                   |
|                                    |                                    |                                              |           |                                                                                                                                                                   |
| Boiling Point                      |                                    | -4.6 C                                       |           |                                                                                                                                                                   |
| CASRIN and Test Material           | 0                                  | 100-99-0; 1,3-Buladiene                      |           |                                                                                                                                                                   |
| Solvent Beastivity Storeg          | ond Stability                      | ND: ND: ND: ND                               |           |                                                                                                                                                                   |
| Padiolabel Source State of         | and Purity                         | ND · ND · ND · ND                            |           |                                                                                                                                                                   |
| Standard Deviation Results         |                                    | Not Reported                                 |           |                                                                                                                                                                   |
| Results Details                    | ,                                  | Not Reported                                 |           |                                                                                                                                                                   |
| Results Details                    |                                    | Not Reported                                 |           |                                                                                                                                                                   |
|                                    |                                    |                                              | EVALUATIO | N                                                                                                                                                                 |
| Domain                             |                                    | Metric                                       | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance                |                                    |                                              |           |                                                                                                                                                                   |
|                                    | Metric 1:                          | Representativeness                           | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                    | Metric 2:                          | Appropriateness                              | High      | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil            | ity                                |                                              |           |                                                                                                                                                                   |
|                                    | Metric 3:                          | Reliability/Unbiased<br>(Method Objectivity) | Medium    | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                    | Metric 4:                          | Reliability/Analytical Method                | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                                    |                                              |           |                                                                                                                                                                   |
|                                    | Metric 5:                          | Databases                                    | High      | Data is from a peer-reviewed data collection.                                                                                                                     |
|                                    | Metric 6:                          | Models                                       | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Qualit                     | ty Determin                        | nation                                       | High      |                                                                                                                                                                   |

| Study Citation:              | U.S. EPA, (2002  | 2). Health assessment of 1,3-butadiene. |            |                                                                                                                                                                  |
|------------------------------|------------------|-----------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Boiling Point    |                                         |            |                                                                                                                                                                  |
| Template:                    | 50150            |                                         |            |                                                                                                                                                                  |
| HERO ID:                     | 52153            |                                         |            |                                                                                                                                                                  |
|                              |                  |                                         | EXTRACTION |                                                                                                                                                                  |
| Parameter                    |                  | Data                                    |            |                                                                                                                                                                  |
|                              |                  |                                         |            |                                                                                                                                                                  |
| Boiling Point                |                  | -4.4 C                                  |            |                                                                                                                                                                  |
| CASRN and Test Material      |                  | 106-99-0; 1,3-butadiene                 |            |                                                                                                                                                                  |
| Confidentiality, Type, and C | Guideline        | none; not specified; NA                 |            |                                                                                                                                                                  |
| Solvent, Reactivity, Storage | e, and Stability | NA; NA; NA; NA                          |            |                                                                                                                                                                  |
| Radiolabel, Source, State, a | and Purity       | None; NA; NA; NA                        |            |                                                                                                                                                                  |
| Standard Deviation Results   |                  | Not Reported                            |            |                                                                                                                                                                  |
| Results Details              |                  | Not Reported                            |            |                                                                                                                                                                  |
|                              |                  |                                         |            |                                                                                                                                                                  |
|                              |                  |                                         | EVALUATION |                                                                                                                                                                  |
| Domain                       |                  | Metric                                  | Rating     | Comments                                                                                                                                                         |
| Domain 1: Substance          |                  |                                         |            |                                                                                                                                                                  |
|                              | Metric 1:        | Representativeness                      | High       | Data are measured or estimated for the subject chemical substance.                                                                                               |
|                              | Metric 2:        | Appropriateness                         | High       | Measured data are consistent with the subject chemical substance structural features or other physical/chemical properties or behaviors                          |
|                              |                  |                                         |            |                                                                                                                                                                  |
| Domain 2: Test Reliabil      | ity              |                                         |            |                                                                                                                                                                  |
|                              | Metric 3:        | Reliability/Unbiased                    | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                             |
|                              |                  | (Method Objectivity)                    |            |                                                                                                                                                                  |
|                              | Metric 4:        | Reliability/Analytical Method           | Medium     | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |
| Domain 2: Other              |                  |                                         |            |                                                                                                                                                                  |
| Domain 5. Other              | Metric 5:        | Databases                               | Medium     | The date are from a course that is known but is missing elements required for Uigh                                                                               |
|                              | Wettie 5.        | Databases                               | Medium     | designation such as peer-review, public availability, or the inclusion of references to<br>original sources.                                                     |
|                              | Metric 6:        | Models                                  | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                             |
| Overall Qualit               | ty Determi       | nation                                  | Medium     |                                                                                                                                                                  |

\* Related References: Secondary source referencing: Weast, RC, ed. (1989) CRC handbook of chemistry and physics, 70th ed. Boca Raton, FL: CRC Press, p. C-160.

| Study Citation:              | U.S. EPA, (2019<br>Boiling Point | ). Chemistry Dashboard Information fo | r 1,3-Butadiene. | 106-99-0                                                                                                                                                          |
|------------------------------|----------------------------------|---------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template.                    | Doning Fonit                     |                                       |                  |                                                                                                                                                                   |
| HERO ID:                     | 5926160                          |                                       |                  |                                                                                                                                                                   |
|                              |                                  |                                       | EXTRACTIO        | Ň                                                                                                                                                                 |
| Parameter                    |                                  | Data                                  | LATINICTIO       |                                                                                                                                                                   |
|                              |                                  |                                       |                  |                                                                                                                                                                   |
| Boiling Point                |                                  | -4.44 C                               |                  |                                                                                                                                                                   |
| CASRN and Test Material      |                                  | 106-99-0; 1,3-Butadiene               |                  |                                                                                                                                                                   |
| Confidentiality, Type, and C | Guideline                        | None; Experimental; Not Reported      |                  |                                                                                                                                                                   |
| Solvent, Reactivity, Storage | e, and Stability                 | NR; NR; NR; NR                        |                  |                                                                                                                                                                   |
| Radiolabel, Source, State, a | and Purity                       | NR; NR; NR; NR                        |                  |                                                                                                                                                                   |
| Standard Deviation Results   |                                  | Not Reported                          |                  |                                                                                                                                                                   |
| Results Details              |                                  | Not Reported                          |                  |                                                                                                                                                                   |
|                              |                                  |                                       |                  |                                                                                                                                                                   |
|                              |                                  |                                       | EVALUATIO        | N                                                                                                                                                                 |
| Domain                       |                                  | Metric                                | Rating           | Comments                                                                                                                                                          |
| Domain 1: Substance          |                                  |                                       |                  |                                                                                                                                                                   |
|                              | Metric 1:                        | Representativeness                    | High             | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                              | Metric 2:                        | Appropriateness                       | High             | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil      | ity                              |                                       |                  |                                                                                                                                                                   |
|                              | Metric 3:                        | Reliability/Unbiased                  | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome                                      |
|                              | Metric 4:                        | Reliability/Analytical Method         | Medium           | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                              |                                  |                                       |                  |                                                                                                                                                                   |
| Domain 3: Other              | M ( <sup>1</sup> 5               |                                       | TT' 1            |                                                                                                                                                                   |
|                              | Matria 6                         | Databases                             | High             | Data is from a publicity available database that references a peer-reviewed source.                                                                               |
|                              | Metric 0:                        | wouels                                | IN/A             | kaung of this factor is not applicable to this kind of information.                                                                                               |
| <b>Overall Qualit</b>        | ty Determi                       | nation                                | High             |                                                                                                                                                                   |

\* Related References: NIOSH

| OFCD Harmonized                | <b>Boiling Doint</b> |                                  | , 1,5 Dutudiene. 100-) | 99-0                                                                                             |
|--------------------------------|----------------------|----------------------------------|------------------------|--------------------------------------------------------------------------------------------------|
| Template                       | Boining Point        |                                  |                        |                                                                                                  |
| HFRO ID.                       | 5926160              |                                  |                        |                                                                                                  |
|                                | 3920100              |                                  |                        |                                                                                                  |
| _                              |                      | _                                | EXTRACTION             |                                                                                                  |
| Parameter                      |                      | Data                             |                        |                                                                                                  |
|                                |                      |                                  |                        |                                                                                                  |
| Boiling Point                  |                      | -5.00 C                          |                        |                                                                                                  |
| CASRN and Test Material        |                      | 106-99-0; 1,3-Butadiene          |                        |                                                                                                  |
| Confidentiality, Type, and C   | luideline            | None; Experimental; Not Reported |                        |                                                                                                  |
| Solvent, Reactivity, Storage   | , and Stability      | NR; NR; NR; NR                   |                        |                                                                                                  |
| Radiolabel, Source, State, and | nd Purity            | NR; NR; NR; NR                   |                        |                                                                                                  |
| Standard Deviation Results     |                      | Not Reported                     |                        |                                                                                                  |
| Results Details                |                      | Not Reported                     |                        |                                                                                                  |
|                                |                      |                                  |                        |                                                                                                  |
|                                |                      |                                  | EVALUATION             |                                                                                                  |
| Domain                         |                      | Metric                           | Rating                 | Comments                                                                                         |
| Domain 1: Substance            |                      |                                  |                        |                                                                                                  |
|                                | Metric 1:            | Representativeness               | High                   | Data are measured or estimated for the subject chemical substance.                               |
|                                | Metric 2:            | Appropriateness                  | High                   | Measured data are consistent with the subject chemical's physical/chemical properties.           |
| Domain 2. Test Reliabili       | tv                   |                                  |                        |                                                                                                  |
| 2 officin 2. Toot Kelldolli    | Metric 3:            | Reliability/Unbiased             | Medium                 | There is no indication that the methodology for producing the information was biased             |
|                                |                      | (Method Objectivity)             | meanan                 | towards a particular product or outcome.                                                         |
|                                | Metric 4:            | Reliability/Analytical Method    | Low                    | The analytical method is unknown and there is no indication that a reliable method was used.     |
|                                |                      |                                  |                        |                                                                                                  |
| Domain 3: Other                |                      |                                  |                        |                                                                                                  |
|                                | Metric 5:            | Databases                        | Medium                 | Data is from a publicly available secondary source with references to non-peer reviewed sources. |
|                                | Metric 6:            | Models                           | N/A                    | Rating of this factor is not applicable to this kind of information.                             |

\* Related References: SynQuest

| Study Citation:              | U.S. EPA, (2019  | 9). Chemistry Dashboard Information for      | r 1,3-Butadiene. | 106-99-0                                                                                                                                                          |
|------------------------------|------------------|----------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Boiling Point    |                                              |                  |                                                                                                                                                                   |
| Template:                    |                  |                                              |                  |                                                                                                                                                                   |
| HERO ID:                     | 5926160          |                                              |                  |                                                                                                                                                                   |
|                              |                  |                                              | EXTRACTIO        | N                                                                                                                                                                 |
| Parameter                    |                  | Data                                         |                  |                                                                                                                                                                   |
|                              |                  |                                              |                  |                                                                                                                                                                   |
| Boiling Point                |                  | -4.40 C                                      |                  |                                                                                                                                                                   |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene                      |                  |                                                                                                                                                                   |
| Confidentiality, Type, and   | Guideline        | None; Experimental; Not Reported             |                  |                                                                                                                                                                   |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                               |                  |                                                                                                                                                                   |
| Radiolabel, Source, State, a | and Purity       | NR; NR; NR; NR                               |                  |                                                                                                                                                                   |
| Standard Deviation Results   | 8                | Not Reported                                 |                  |                                                                                                                                                                   |
| Results Details              |                  | Not Reported                                 |                  |                                                                                                                                                                   |
|                              |                  |                                              | EVALUATIO        | N                                                                                                                                                                 |
| Domain                       |                  | Metric                                       | Rating           | Comments                                                                                                                                                          |
| Domain 1: Substance          |                  | Wette                                        | Kating           | Comments                                                                                                                                                          |
| Domain 1. Substance          | Metric 1.        | Representativeness                           | High             | Data are measured or estimated for the subject chemical substance                                                                                                 |
|                              | Metric 2:        | Appropriateness                              | High             | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
|                              |                  |                                              | U                |                                                                                                                                                                   |
| Domain 2: Test Reliabil      | ity              |                                              |                  |                                                                                                                                                                   |
|                              | Metric 3:        | Reliability/Unbiased<br>(Method Objectivity) | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                              | Metric 4:        | Reliability/Analytical Method                | Medium           | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 2: Other              |                  |                                              |                  |                                                                                                                                                                   |
| Domain 5: Other              | Matria 5.        | Detabases                                    | TT: -1           |                                                                                                                                                                   |
|                              | Metric 5:        | Databases                                    | High             | Data is from a publicly available database that provides references to the original, peer-<br>reviewed source.                                                    |
|                              | Metric 6:        | Models                                       | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                              |

\* Related References: PhysProp

| Study Citation:<br>OECD Harmonized                                                                                                                                                        | U.S. EPA, (1996<br>Boiling Point            | ). Locating and estimating air emissions                                                                                                                                                                    | from sources of                        | 1,3-butadiene.                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:                                                                                                                                                                     | 6389860                                     |                                                                                                                                                                                                             |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                           |                                             |                                                                                                                                                                                                             | EXTRACTIO                              | N                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Parameter                                                                                                                                                                                 |                                             | Data                                                                                                                                                                                                        |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Boiling Point<br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>ınd Purity | Not Reported<br>106-99-0; 1,3-Butadiene<br>no; not specified; Not Reported<br>Not Reported; Not Reported; Not Repor<br>Not Reported; Not Reported; Not Repor<br>Not Reported<br>critical temperature: 152 C | ted; Not Reported<br>ted; Not Reported |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                           |                                             |                                                                                                                                                                                                             | EVALUATIO                              | N                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Domain                                                                                                                                                                                    |                                             | Metric                                                                                                                                                                                                      | Rating                                 | Comments                                                                                                                                                                                                                                                                                                                                                                                                          |
| Domain 1: Substance                                                                                                                                                                       |                                             |                                                                                                                                                                                                             |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                           | Metric 1:<br>Metric 2:                      | Representativeness<br>Appropriateness                                                                                                                                                                       | High<br>High                           | Data are measured or estimated for the subject chemical substance.<br>Measured data are consistent with the subject chemical substance structural features<br>(e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a melting point<br>below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2: Test Palishil                                                                                                                                                                   | <b>t</b> x7                                 |                                                                                                                                                                                                             |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                           | Metric 3:                                   | Reliability/Unbiased (Method Objectivity)                                                                                                                                                                   | Medium                                 | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                           | Metric 4:                                   | Reliability/Analytical Method                                                                                                                                                                               | Medium                                 | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                                                                               |
| Demain 2. Other                                                                                                                                                                           |                                             |                                                                                                                                                                                                             |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Domain 3: Other                                                                                                                                                                           | Metric 5:                                   | Databases                                                                                                                                                                                                   | High                                   | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                                                                              |
|                                                                                                                                                                                           | Metric 6:                                   | Models                                                                                                                                                                                                      | N/A                                    | Rating of this factor is not applicable to this kind of information                                                                                                                                                                                                                                                                                                                                               |
| <b>Overall Qualit</b>                                                                                                                                                                     | ty Determin                                 | nation                                                                                                                                                                                                      | High                                   |                                                                                                                                                                                                                                                                                                                                                                                                                   |

\* Related References: source vaguely references both Kirshenbaum, I. Butadiene. In: Kirk-Othmer Encyclopedia of Chemical Technology, 3rd ed, Volume 4. New York, New York: John Wiley and Sons, 1978. (HERO ID 594584 )and Hawley, G.G. 1, 3-Butadiene. In: The Condensed Chemical Dictionary, 10th ed., New York, New York: Van Nostrand Reinhold Company, Inc., 1981. p. 177. (HERO ID HERO ID: 69425)

| Study Citation:<br>OECD Harmonized | Anonymous, (20<br>Density | 05). Butadiene.                              |                  |                                                                                                                                                                                                                                             |  |  |
|------------------------------------|---------------------------|----------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Template:<br>HERO ID:              | 9493531                   |                                              |                  |                                                                                                                                                                                                                                             |  |  |
|                                    |                           |                                              | EXTRACTION       |                                                                                                                                                                                                                                             |  |  |
| Parameter                          |                           | Data                                         |                  |                                                                                                                                                                                                                                             |  |  |
|                                    |                           |                                              |                  |                                                                                                                                                                                                                                             |  |  |
| Density                            |                           | 0.6272 - not reported                        |                  |                                                                                                                                                                                                                                             |  |  |
| CASRN and Test Material            |                           | 106-99-0; 1,3-Butadiene                      |                  |                                                                                                                                                                                                                                             |  |  |
| Confidentiality, Type, and C       | Guideline                 | no; not specified; Not Reported              |                  |                                                                                                                                                                                                                                             |  |  |
| Solvent, Reactivity, Storage       | e, and Stability          | Not Reported; Not Reported; Not Reported     | ed; Not Reported |                                                                                                                                                                                                                                             |  |  |
| Radiolabel, Source, State, a       | and Purity                | Not Reported; Not Reported; Not Reported     | ed; Not Reported |                                                                                                                                                                                                                                             |  |  |
| Density Type                       |                           | specific gravity                             |                  |                                                                                                                                                                                                                                             |  |  |
| System                             |                           | Not Reported                                 |                  |                                                                                                                                                                                                                                             |  |  |
| Temperature                        | Not Reported              |                                              |                  |                                                                                                                                                                                                                                             |  |  |
| Standard Deviation Results         |                           | Not Reported                                 |                  |                                                                                                                                                                                                                                             |  |  |
| Results Details                    |                           | Not Reported                                 |                  |                                                                                                                                                                                                                                             |  |  |
|                                    |                           |                                              |                  |                                                                                                                                                                                                                                             |  |  |
|                                    |                           |                                              | EVALUATION       |                                                                                                                                                                                                                                             |  |  |
| Domain                             |                           | Metric                                       | Rating           | Comments                                                                                                                                                                                                                                    |  |  |
| Domain 1: Substance                |                           |                                              |                  |                                                                                                                                                                                                                                             |  |  |
|                                    | Metric 1:                 | Representativeness                           | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                          |  |  |
|                                    | Metric 2:                 | Appropriateness                              | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                        |  |  |
| Domain 2: Test Reliabil            | ity                       |                                              |                  |                                                                                                                                                                                                                                             |  |  |
|                                    | Metric 3:                 | Reliability/Unbiased<br>(Method Objectivity) | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                               |  |  |
|                                    | Metric 4:                 | Reliability/Analytical Method                | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |  |  |
|                                    |                           |                                              |                  |                                                                                                                                                                                                                                             |  |  |
| Domain 3: Other                    |                           |                                              |                  |                                                                                                                                                                                                                                             |  |  |
|                                    | Metric 5:                 | Databases                                    | Medium           | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources.                                                |  |  |
|                                    | Metric 6:                 | Models                                       | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                        |  |  |
| Overall Qualit                     | y Determin                | nation                                       | Medium           |                                                                                                                                                                                                                                             |  |  |

\* Related References: no references cited

| Study Citation:               | California Office of        | f Environmental Health Hazard Assessme      | ent :: OEHHA | A (2014). Appendix D: Individual acute, 8-hour, and chronic reference exposure                                                                                                                                                                                                                                                     |  |
|-------------------------------|-----------------------------|---------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| OECD Harmonized               | level summaries.<br>Density |                                             |              |                                                                                                                                                                                                                                                                                                                                    |  |
| Template:                     | 5                           |                                             |              |                                                                                                                                                                                                                                                                                                                                    |  |
| HERO ID:                      | 5155603                     |                                             |              |                                                                                                                                                                                                                                                                                                                                    |  |
|                               |                             | E                                           | XTRACTIO     | N                                                                                                                                                                                                                                                                                                                                  |  |
| Parameter                     |                             | Data                                        |              |                                                                                                                                                                                                                                                                                                                                    |  |
|                               |                             |                                             |              |                                                                                                                                                                                                                                                                                                                                    |  |
| Density                       |                             | 0.6211 g/mL                                 |              |                                                                                                                                                                                                                                                                                                                                    |  |
| CASRN and Test Material       |                             | 106-99-0; 1,3-Butadiene                     |              |                                                                                                                                                                                                                                                                                                                                    |  |
| Confidentiality, Type, and G  | luideline                   | No; Not specified; Not Reported             |              |                                                                                                                                                                                                                                                                                                                                    |  |
| Solvent, Reactivity, Storage, | , and Stability             | Not Reported; Not Reported; Not Reported; 1 | Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |
| Radiolabel, Source, State, an | nd Purity                   | Not Reported; Not Reported; Not Reported; 1 | Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |
| Density Type                  |                             | density                                     |              |                                                                                                                                                                                                                                                                                                                                    |  |
| System                        |                             | Not Reported                                |              |                                                                                                                                                                                                                                                                                                                                    |  |
| Temperature                   |                             | 20 C                                        |              |                                                                                                                                                                                                                                                                                                                                    |  |
| Standard Deviation Results    |                             | Not Reported                                |              |                                                                                                                                                                                                                                                                                                                                    |  |
| Results Details               |                             | Not Reported                                |              |                                                                                                                                                                                                                                                                                                                                    |  |
|                               |                             |                                             |              |                                                                                                                                                                                                                                                                                                                                    |  |
|                               | EVALUATION                  |                                             |              |                                                                                                                                                                                                                                                                                                                                    |  |
| Domain                        |                             | Metric                                      | Rating       | Comments                                                                                                                                                                                                                                                                                                                           |  |
| Domain 1: Substance           |                             |                                             |              |                                                                                                                                                                                                                                                                                                                                    |  |
|                               | Metric 1:                   | Representativeness                          | High         | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |  |
|                               | Metric 2:                   | Appropriateness                             | High         | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |  |
| Domain 2: Tast Paliabili      | <b>t</b> ,                  |                                             |              |                                                                                                                                                                                                                                                                                                                                    |  |
| Domain 2: Test Kelladili      | Metric 3:                   | Reliability/Unbiased                        | Medium       | There is no indication that the methodology for producing the information was biased                                                                                                                                                                                                                                               |  |
|                               | Weule 5.                    | (Method Objectivity)                        | wiculum      | towards a particular product or outcome.                                                                                                                                                                                                                                                                                           |  |
|                               | Metric 4:                   | Reliability/Analytical Method               | Medium       | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                                                                                                                                                   |  |
| Domain 3: Other               |                             |                                             |              |                                                                                                                                                                                                                                                                                                                                    |  |
| Johann J. Ouler               | Metric 5:                   | Databases                                   | High         | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |  |
|                               | Metric 6:                   | Models                                      | N/A          | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |  |
| <b>Overall Qualit</b>         | y Determina                 | ition                                       | High         |                                                                                                                                                                                                                                                                                                                                    |  |

\* Related References: No source cited; extracted gray lit

| Study Citation:<br>OECD Harmonized | DOE, (2016). To<br>Density | DOE, (2016). Table 1: Chemicals of concern and associated chemical information. PACs. Density |                      |                                                                                                                                                                               |  |  |
|------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                           | 3981013                    |                                                                                               |                      |                                                                                                                                                                               |  |  |
|                                    | EXTRACTION                 |                                                                                               |                      |                                                                                                                                                                               |  |  |
| Parameter                          |                            | Data                                                                                          |                      |                                                                                                                                                                               |  |  |
|                                    |                            |                                                                                               |                      |                                                                                                                                                                               |  |  |
| Density                            |                            | 0.6149 -                                                                                      |                      |                                                                                                                                                                               |  |  |
| CASRN and Test Material            |                            | 106-99-0; 1,3-Butadiene                                                                       |                      |                                                                                                                                                                               |  |  |
| Confidentiality, Type, and C       | Guideline                  | none; not specified; not specified                                                            |                      |                                                                                                                                                                               |  |  |
| Solvent, Reactivity, Storage       | e, and Stability           | NR; NR; NR; NR                                                                                |                      |                                                                                                                                                                               |  |  |
| Radiolabel, Source, State, a       | and Purity                 | NR; NR; NR; NR Notes: NR                                                                      |                      |                                                                                                                                                                               |  |  |
| Density Type                       |                            | specific gravity (density of a substance d                                                    | livided by the densi | ty of water)                                                                                                                                                                  |  |  |
| System                             |                            | not specified                                                                                 |                      |                                                                                                                                                                               |  |  |
| Temperature                        |                            | 25°C                                                                                          |                      |                                                                                                                                                                               |  |  |
| Standard Deviation Results         |                            | not reported                                                                                  |                      |                                                                                                                                                                               |  |  |
| Results Details                    |                            | not reported                                                                                  |                      |                                                                                                                                                                               |  |  |
|                                    |                            |                                                                                               |                      |                                                                                                                                                                               |  |  |
|                                    |                            |                                                                                               | EVALUATIO            | N                                                                                                                                                                             |  |  |
| Domain                             |                            | Metric                                                                                        | Rating               | Comments                                                                                                                                                                      |  |  |
| Domain 1: Substance                |                            |                                                                                               |                      |                                                                                                                                                                               |  |  |
|                                    | Metric 1:                  | Representativeness                                                                            | High                 | Data are measured or estimated for the subject chemical substance.                                                                                                            |  |  |
|                                    | Metric 2:                  | Appropriateness                                                                               | High                 | Measured data are consistent with the subject chemical substance structural features.                                                                                         |  |  |
|                                    | •,                         |                                                                                               |                      |                                                                                                                                                                               |  |  |
| Domain 2: Test Reliabili           | ity                        |                                                                                               |                      |                                                                                                                                                                               |  |  |
|                                    | Metric 3:                  | Reliability/Unbiased                                                                          | Medium               | There is no indication that the methodology for producing the information was biased                                                                                          |  |  |
|                                    | Matria 4:                  | (Method Objectivity)<br>Reliability/Analytical Mathad                                         | Madium               | The analytical mathed is unknown but is likely to be appropriate based on the date's                                                                                          |  |  |
|                                    | Meuric 4.                  | Renability/Analytical Method                                                                  | Wiedium              | inclusion in a peer-reviewed/recognized database or other secondary source.                                                                                                   |  |  |
|                                    |                            |                                                                                               |                      |                                                                                                                                                                               |  |  |
| Domain 3: Other                    |                            |                                                                                               |                      |                                                                                                                                                                               |  |  |
|                                    | Metric 5:                  | Databases                                                                                     | High                 | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review; |  |  |
|                                    | Metric 6:                  | Models                                                                                        | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                                          |  |  |
| Overall Quality Determination High |                            |                                                                                               |                      |                                                                                                                                                                               |  |  |

\* Related References: primary reference not specified but include CRC (2009), HSDB (no date), Merck (2006), SAX (2012)

| Study Citation:<br>OECD Harmonized | ECB, (2002). Eu<br>Density | uropean Union risk assessment report: 1,     | 3-butadiene.      |                                                                                                                                                                                                                                                     |  |  |
|------------------------------------|----------------------------|----------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Template:                          | 5155560                    |                                              |                   |                                                                                                                                                                                                                                                     |  |  |
|                                    | 5155500                    |                                              |                   |                                                                                                                                                                                                                                                     |  |  |
| Description                        | EXTRACTION                 |                                              |                   |                                                                                                                                                                                                                                                     |  |  |
| Parameter                          |                            | Data                                         |                   |                                                                                                                                                                                                                                                     |  |  |
| Density<br>CASRN and Test Material | Guideline                  | 0.65 - g/cm3<br>106-99-0; 1,3-Butadiene      |                   |                                                                                                                                                                                                                                                     |  |  |
| Solvent Reactivity Storage         | e and Stability            | Not Reported: Not Reported: Not Report       | ted: Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Radiolabel, Source, State, a       | and Purity                 | Not Reported; Not Reported; Not Report       | ted: Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Density Type                       |                            | density                                      | 1                 |                                                                                                                                                                                                                                                     |  |  |
| System                             |                            | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |  |  |
| Temperature                        |                            | -6 C                                         |                   |                                                                                                                                                                                                                                                     |  |  |
| Standard Deviation Results         | 5                          | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |  |  |
| Results Details                    |                            | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |  |  |
|                                    |                            |                                              |                   |                                                                                                                                                                                                                                                     |  |  |
|                                    |                            |                                              | EVALUATIO         | N                                                                                                                                                                                                                                                   |  |  |
| Domain                             |                            | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance                | N 1                        |                                              | TT' 1             |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 1:<br>Matria 2:     | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |
|                                    | Metric 2:                  | Appropriateness                              | IN/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Domain 2: Test Reliabil            | ity                        |                                              |                   |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 3:                  | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |  |  |
|                                    | Metric 4:                  | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |
| Domain 3: Other                    |                            |                                              |                   |                                                                                                                                                                                                                                                     |  |  |
| Domain 5: Other                    | Metric 5:                  | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |
|                                    | Metric 6:                  | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Overall Qualit                     | ty Determi                 | nation                                       | High              |                                                                                                                                                                                                                                                     |  |  |

\* Related References: cited from Merck Index, 11th Edition (1989). (HERO ID: 5185257)and consolidated IUCLID entry

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## Density

HERO ID: 5155560 Table: 2 of 4

| Study Citation:<br>OECD Harmonized | ECB, (2002). E<br>Density | uropean Union risk assessment report: 1,3             | -butadiene.     |                                                                                                                                                                                              |  |  |
|------------------------------------|---------------------------|-------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Template:<br>HERO ID:              | 5155560                   |                                                       |                 |                                                                                                                                                                                              |  |  |
|                                    |                           |                                                       | FYTRACTION      |                                                                                                                                                                                              |  |  |
| Parameter                          |                           | Data                                                  | EATRACTION      |                                                                                                                                                                                              |  |  |
|                                    |                           | Dum                                                   |                 |                                                                                                                                                                                              |  |  |
| Density                            |                           | 0.62 - not reported                                   |                 |                                                                                                                                                                                              |  |  |
| CASRN and Test Material            |                           | 106-99-0: 1 3-Butadiene                               |                 |                                                                                                                                                                                              |  |  |
| Confidentiality, Type, and         | Guideline                 | no; not specified; Not Reported                       |                 |                                                                                                                                                                                              |  |  |
| Solvent, Reactivity, Storage       | e, and Stability          | Not Reported; Not Reported; Not Reporte               | d; Not Reported |                                                                                                                                                                                              |  |  |
| Radiolabel, Source, State, a       | and Purity                | Not Reported; Not Reported; Not Reporte               | d; Not Reported |                                                                                                                                                                                              |  |  |
| Density Type                       |                           | density                                               |                 |                                                                                                                                                                                              |  |  |
| System                             | System Not Reported       |                                                       |                 |                                                                                                                                                                                              |  |  |
| Temperature20 deg C                |                           |                                                       |                 |                                                                                                                                                                                              |  |  |
| Standard Deviation Results         | 6                         | Not Reported                                          |                 |                                                                                                                                                                                              |  |  |
| Results Details                    |                           | reported as relative density to water at 4 C          |                 |                                                                                                                                                                                              |  |  |
|                                    |                           |                                                       | EVALUATION      |                                                                                                                                                                                              |  |  |
| Domain                             |                           | Metric                                                | Rating          | Comments                                                                                                                                                                                     |  |  |
| Domain 1: Substance                |                           |                                                       | 6               |                                                                                                                                                                                              |  |  |
|                                    | Metric 1:                 | Representativeness                                    | High            | Data are measured or estimated for the subject chemical substance.                                                                                                                           |  |  |
|                                    | Metric 2:                 | Appropriateness                                       | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                         |  |  |
| Domain 2: Test Reliabil            | ity                       |                                                       |                 |                                                                                                                                                                                              |  |  |
|                                    | Metric 3:                 | Reliability/Unbiased                                  | Medium          | There is no indication that the methodology for producing the information was biased towards a particular product or outcome                                                                 |  |  |
|                                    | Metric 4.                 | (Method Objectivity)<br>Reliability/Analytical Method | Medium          | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                                                      |  |  |
|                                    | Medie 1.                  | Tendonicy/Tindiydeal Mediod                           | incurum         | cal method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                        |  |  |
| Domain 3: Other                    |                           |                                                       |                 |                                                                                                                                                                                              |  |  |
| Domain 5: Other                    | Metric 5:                 | Databases                                             | Medium          | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |  |  |
|                                    | Metric 6:                 | Models                                                | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                         |  |  |
| <b>Overall Quali</b>               | ty Determi                | nation                                                | Medium          |                                                                                                                                                                                              |  |  |

\* Related References: cited from BASF, Huls, Aver safety data sheets

PUBLIC RELEASE DRAFT November 2024

## Density

HERO ID: 5155560 Table: 3 of 4

| Study Citation:<br>OECD Harmonized | ECB, (2002). European Union risk assessment report: 1,3-butadiene.<br>Density |                                               |                   |                                                                                                                                                                                                                                             |
|------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5155560                                                                       |                                               |                   |                                                                                                                                                                                                                                             |
|                                    |                                                                               |                                               | EXTRACTION        |                                                                                                                                                                                                                                             |
| Parameter                          |                                                                               | Data                                          |                   |                                                                                                                                                                                                                                             |
|                                    |                                                                               |                                               |                   |                                                                                                                                                                                                                                             |
| Density<br>CASRN and Test Material |                                                                               | 1.9 - not reported<br>106-99-0; 1,3-Butadiene |                   |                                                                                                                                                                                                                                             |
| Confidentiality, Type, and C       | Guideline                                                                     | no; not specified; Not Reported               |                   |                                                                                                                                                                                                                                             |
| Solvent, Reactivity, Storage       | e, and Stability                                                              | Not Reported; Not Reported; Not Reported      | ed; Not Reported  |                                                                                                                                                                                                                                             |
| Radiolabel, Source, State, a       | and Purity                                                                    | Not Reported; Not Reported; Not Reported      | ed; Not Reported  |                                                                                                                                                                                                                                             |
| Density Type                       |                                                                               | Vapor Density                                 |                   |                                                                                                                                                                                                                                             |
| System                             |                                                                               | Not Reported                                  |                   |                                                                                                                                                                                                                                             |
| Temperature                        |                                                                               | Not Reported                                  |                   |                                                                                                                                                                                                                                             |
| Basulta Detaila                    |                                                                               | not Reported                                  |                   |                                                                                                                                                                                                                                             |
| Results Details                    |                                                                               | at 20 C                                       |                   |                                                                                                                                                                                                                                             |
|                                    |                                                                               |                                               | <b>EVALUATION</b> |                                                                                                                                                                                                                                             |
| Domain                             |                                                                               | Metric                                        | Rating            | Comments                                                                                                                                                                                                                                    |
| Domain 1: Substance                |                                                                               |                                               | 8                 |                                                                                                                                                                                                                                             |
|                                    | Metric 1:                                                                     | Representativeness                            | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                          |
|                                    | Metric 2:                                                                     | Appropriateness                               | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                        |
| Domain 2: Test Reliabil            | ity                                                                           |                                               |                   |                                                                                                                                                                                                                                             |
|                                    | Metric 3:                                                                     | Reliability/Unbiased<br>(Method Objectivity)  | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                               |
|                                    | Metric 4:                                                                     | Reliability/Analytical Method                 | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |
| Damain 2. Other                    |                                                                               |                                               |                   |                                                                                                                                                                                                                                             |
| Domain 3: Other                    | Metric 5:                                                                     | Databases                                     | Medium            | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources.                                                |
|                                    | Metric 6:                                                                     | Models                                        | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                        |
| Overall Quality Determination      |                                                                               |                                               |                   |                                                                                                                                                                                                                                             |

\* Related References: cited from Kirk – Othmer (1991). Encyclopaedia of Chemical Technology, 4th Edition, 1991. (HERO ID: 3006711)

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| Study Citation:<br>OECD Harmonized | ECB, (2002). Eu<br>Density | ropean Union risk assessment report: 1,3               | -butadiene.     |                                                                                                                                                                                                                                          |
|------------------------------------|----------------------------|--------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 5155560                    |                                                        |                 |                                                                                                                                                                                                                                          |
|                                    |                            |                                                        | FXTRACTIO       | N                                                                                                                                                                                                                                        |
| Parameter                          |                            | Data                                                   | EATRACTIO       | 11                                                                                                                                                                                                                                       |
|                                    |                            |                                                        |                 |                                                                                                                                                                                                                                          |
| Density                            |                            | 0.6211 - not reported                                  |                 |                                                                                                                                                                                                                                          |
| CASRN and Test Material            |                            | 106-99-0; 1,3-Butadiene                                |                 |                                                                                                                                                                                                                                          |
| Confidentiality, Type, and C       | Juideline                  | no; not specified; Not Reported                        |                 |                                                                                                                                                                                                                                          |
| Solvent, Reactivity, Storage       | , and Stability            | Not Reported; Not Reported; Not Reporte                | d; Not Reported |                                                                                                                                                                                                                                          |
| Radiolabel, Source, State, a       | nd Purity                  | Not Reported; Not Reported; Not Reporte                | d; Not Reported |                                                                                                                                                                                                                                          |
| Density Type                       |                            | density                                                |                 |                                                                                                                                                                                                                                          |
| System                             |                            | Not Reported                                           |                 |                                                                                                                                                                                                                                          |
| Temperature                        |                            | Not Reported                                           |                 |                                                                                                                                                                                                                                          |
| Standard Deviation Results         |                            | Not Reported                                           |                 |                                                                                                                                                                                                                                          |
| Results Details                    |                            | reported as relative density.                          |                 |                                                                                                                                                                                                                                          |
|                                    |                            |                                                        |                 |                                                                                                                                                                                                                                          |
|                                    |                            |                                                        | EVALUATIO       | N                                                                                                                                                                                                                                        |
| Domain                             |                            | Metric                                                 | Rating          | Comments                                                                                                                                                                                                                                 |
| Domain 1: Substance                |                            |                                                        |                 |                                                                                                                                                                                                                                          |
|                                    | Metric 1:                  | Representativeness                                     | High            | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                       |
|                                    | Metric 2:                  | Appropriateness                                        | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                     |
| Domain 2: Test Reliabili           | ity                        |                                                        |                 |                                                                                                                                                                                                                                          |
|                                    | Metric 3:                  | Reliability/Unbiased                                   | Medium          | There is no indication that the methodology for producing the information was biased                                                                                                                                                     |
|                                    | Matria 4.                  | (Method Objectivity)<br>Reliability/A polytical Method | Madium          | towards a particular product or outcome.                                                                                                                                                                                                 |
|                                    | Metric 4:                  | Kenabinty/Analytical Method                            | Medium          | cal method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
|                                    |                            |                                                        |                 |                                                                                                                                                                                                                                          |
| Domain 3: Other                    | M ( ' 5                    |                                                        | TT: 1           |                                                                                                                                                                                                                                          |
|                                    | Metric 5:                  | Databases                                              | High            | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.     |
|                                    | Metric 6:                  | Models                                                 | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                     |
| <b>Overall Qualit</b>              | y Determin                 | ation                                                  | High            |                                                                                                                                                                                                                                          |

\* Related References: cited from consolidated IUCLID entry

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | Grub, J., Löser, E<br>Density | E. (2011). Butadiene. :381-396.                                             |                 |                                                                                                                                                                                                                                                     |
|------------------------------------|-------------------------------|-----------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 9493526                       |                                                                             |                 |                                                                                                                                                                                                                                                     |
|                                    |                               |                                                                             | EXTRACTIO       | Ň                                                                                                                                                                                                                                                   |
| Parameter                          |                               | Data                                                                        |                 | •                                                                                                                                                                                                                                                   |
|                                    |                               |                                                                             |                 |                                                                                                                                                                                                                                                     |
| Density<br>CASRN and Test Material | Guidalina                     | 0.646 - g/cm3<br>106-99-0; 1,3-Butadiene<br>po: not specified: Not Reported |                 |                                                                                                                                                                                                                                                     |
| Solvent Reactivity Storage         | and Stability                 | Not Reported: Not Reported: Not Reported                                    | d: Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                    | Not Reported; Not Reported; liquid; Not I                                   | Reported        |                                                                                                                                                                                                                                                     |
| Density Type                       | 5                             | Density                                                                     | I               |                                                                                                                                                                                                                                                     |
| System                             |                               | Not Reported                                                                |                 |                                                                                                                                                                                                                                                     |
| Temperature                        |                               | 0 C                                                                         |                 |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         |                               | Not Reported                                                                |                 |                                                                                                                                                                                                                                                     |
| Results Details                    |                               | Not Reported                                                                |                 |                                                                                                                                                                                                                                                     |
|                                    |                               |                                                                             |                 |                                                                                                                                                                                                                                                     |
|                                    |                               |                                                                             | EVALUATIO       | N                                                                                                                                                                                                                                                   |
| Domain                             |                               | Metric                                                                      | Rating          | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                | M 1                           |                                                                             | TT' 1           |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:<br>Matria 2:        | Appropriatoness                                                             | Hign<br>N/A     | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                     | Appropriateness                                                             | IN/A            | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Domain 2: Test Reliabil            | ity                           |                                                                             |                 |                                                                                                                                                                                                                                                     |
|                                    | Metric 3:                     | Reliability/Unbiased<br>(Method Objectivity)                                | Medium          | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                    | Metric 4:                     | Reliability/Analytical Method                                               | Medium          | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Demein 2. Od                       |                               |                                                                             |                 |                                                                                                                                                                                                                                                     |
| Domain 3: Other                    | Metric 5:                     | Databases                                                                   | High            | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources                 |
|                                    | Metric 6:                     | Models                                                                      | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| <b>Overall Qualit</b>              | ty Determin                   | ation                                                                       | High            |                                                                                                                                                                                                                                                     |

\* Related References: cited from D. R. Lide: CRC Handbook of Chemistry and Physics, 79th edition, CRC Press, New York, 1998. (HERO ID: 5349247) and C. L. Yaws et al., Chem. Eng. 83 (1976) no. 17, 79 (HERO ID: 5706678)

1,3-Butadiene

| Study Citation:<br>OECD Harmonized      | Grub, J., Löser,<br>Density | E. (2011). Butadiene. :381-396.              |                  |                                                                                                                                                                                                                                                     |  |
|-----------------------------------------|-----------------------------|----------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| HERO ID:                                | 9493526                     |                                              |                  |                                                                                                                                                                                                                                                     |  |
|                                         |                             |                                              | EXTRACTIO        | N                                                                                                                                                                                                                                                   |  |
| Parameter                               |                             | Data                                         |                  |                                                                                                                                                                                                                                                     |  |
|                                         |                             | 0.590 / 0                                    |                  |                                                                                                                                                                                                                                                     |  |
| CASPN and Test Material                 |                             | 0.382 - g/cm3<br>106 00 0: 1.3 Butadiana     |                  |                                                                                                                                                                                                                                                     |  |
| Confidentiality Type and                | Guideline                   | no: not specified: Not Reported              |                  |                                                                                                                                                                                                                                                     |  |
| Solvent Reactivity Storage              | e and Stability             | Not Reported: Not Reported: Not Report       | ed. Not Reported |                                                                                                                                                                                                                                                     |  |
| Radiolabel, Source, State,              | and Purity                  | Not Reported: Not Reported: liquid: Not      | Reported         |                                                                                                                                                                                                                                                     |  |
| Density Type                            |                             | Density                                      |                  |                                                                                                                                                                                                                                                     |  |
| System                                  |                             | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |  |
| Temperature 50 C                        |                             |                                              |                  |                                                                                                                                                                                                                                                     |  |
| Standard Deviation Results Not Reported |                             |                                              |                  |                                                                                                                                                                                                                                                     |  |
| Results Details                         |                             | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |  |
|                                         |                             |                                              |                  |                                                                                                                                                                                                                                                     |  |
|                                         | EVALUATION                  |                                              |                  |                                                                                                                                                                                                                                                     |  |
| Domain                                  |                             | Metric                                       | Rating           | Comments                                                                                                                                                                                                                                            |  |
| Domain 1: Substance                     |                             |                                              |                  |                                                                                                                                                                                                                                                     |  |
|                                         | Metric 1:                   | Representativeness                           | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |
|                                         | Metric 2:                   | Appropriateness                              | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |
| Domain 2: Test Reliabil                 | ity                         |                                              |                  |                                                                                                                                                                                                                                                     |  |
|                                         | Metric 3:                   | Reliability/Unbiased<br>(Method Objectivity) | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |  |
|                                         | Metric 4:                   | Reliability/Analytical Method                | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |
| Domain 3: Other                         |                             |                                              |                  |                                                                                                                                                                                                                                                     |  |
| Domain 5. Outer                         | Metric 5:                   | Databases                                    | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources                 |  |
|                                         | Metric 6:                   | Models                                       | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |
| <b>Overall Quali</b>                    | ty Determi                  | nation                                       | High             |                                                                                                                                                                                                                                                     |  |

\* Related References: cited from D. R. Lide: CRC Handbook of Chemistry and Physics, 79th edition, CRC Press, New York, 1998. (HERO ID: 5349247) and C. L. Yaws et al., Chem. Eng. 83 (1976) no. 17, 79 (HERO ID: 5706678)

HERO ID: 9493526 Table: 3 of 3

| Study Citation:<br>OECD Harmonized | Grub, J., Löser, H<br>Density | E. (2011). Butadiene. :381-396.           |                  |                                                                                                                                                                                                                                                     |  |  |
|------------------------------------|-------------------------------|-------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Template:                          |                               |                                           |                  |                                                                                                                                                                                                                                                     |  |  |
| HERO ID:                           | 9493526                       |                                           |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    | EXTRACTION                    |                                           |                  |                                                                                                                                                                                                                                                     |  |  |
| Parameter                          |                               | Data                                      |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    |                               |                                           |                  |                                                                                                                                                                                                                                                     |  |  |
| Density                            |                               | 0.616 - g/cm3                             |                  |                                                                                                                                                                                                                                                     |  |  |
| CASRN and Test Material            |                               | 106-99-0; 1,3-Butadiene                   |                  |                                                                                                                                                                                                                                                     |  |  |
| Confidentiality, Type, and C       | Guideline                     | no; not specified; Not Reported           |                  |                                                                                                                                                                                                                                                     |  |  |
| Solvent, Reactivity, Storage       | e, and Stability              | Not Reported; Not Reported; Not Reporte   | ed; Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Radiolabel, Source, State, a       | and Purity                    | Not Reported; Not Reported; liquid; Not l | Reported         |                                                                                                                                                                                                                                                     |  |  |
| Density Type                       |                               | Density                                   |                  |                                                                                                                                                                                                                                                     |  |  |
| System                             |                               | Not Reported                              |                  |                                                                                                                                                                                                                                                     |  |  |
| Temperature                        |                               | 25 C                                      |                  |                                                                                                                                                                                                                                                     |  |  |
| Standard Deviation Results         |                               | Not Reported                              |                  |                                                                                                                                                                                                                                                     |  |  |
| Results Details                    |                               | Not Reported                              |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    |                               |                                           |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    |                               |                                           | EVALUATIO        | N                                                                                                                                                                                                                                                   |  |  |
| Domain                             |                               | Metric                                    | Rating           | Comments                                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance                |                               |                                           |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 1:                     | Representativeness                        | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |
|                                    | Metric 2:                     | Appropriateness                           | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Domain 2: Test Reliabil            | ity                           |                                           |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 3:                     | Reliability/Unbiased                      | Medium           | There is no indication that the methodology for producing the information was biased                                                                                                                                                                |  |  |
|                                    |                               | (Method Objectivity)                      |                  | towards a particular product or outcome.                                                                                                                                                                                                            |  |  |
|                                    | Metric 4:                     | Reliability/Analytical Method             | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |
| Demain 2. Other                    |                               |                                           |                  |                                                                                                                                                                                                                                                     |  |  |
| Domain 3: Other                    | Matric 5                      | Databases                                 | High             | The information or data is from a recognized data collection/repository where data are                                                                                                                                                              |  |  |
|                                    | Metric 5.                     | Databases                                 | Figh             | peer-reviewed by experts in the field, are broadly available to the public for review and<br>use OR includes references to the original sources                                                                                                     |  |  |
|                                    | Metric 6:                     | Models                                    | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Overall Quality Determination High |                               |                                           |                  |                                                                                                                                                                                                                                                     |  |  |

\* Related References: cited from D. R. Lide: CRC Handbook of Chemistry and Physics, 79th edition, CRC Press, New York, 1998. (HERO ID: 5349247) and C. L. Yaws et al., Chem. Eng. 83 (1976) no. 17, 79 (HERO ID: 5706678)

HERO ID: 7681901 Table: 1 of 1

| HERO ID:   7681901     Parameter   Data     Density   1.87 -     CASRN and Test Material   106-99-0; 1,3-Butadiene     Confidentiality, Type, and Guideline   none; Nor Reported; not specified     Solvent, Reactivity, Storage, and Stability   NR; NR; NR     Radiolabel, Source, State, and Purity   NR; NR; NR     Density Type   vapor density     System   not reported     Temperature   not specified     Standard Deviation Results   not specified     Standard Deviation Results   not specified     Domain   Metric   Rating     Comments   Domain 1: Substance     Metric 1:   Representativeness   High   Data are reported for the subject chemical substance.     Metric 2:   Appropriateness   High   Data are consistent with the subject chemical substance.   |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Parameter     Data       Density     1.87 -       CASRN and Test Material     106-99-0; 1.3-Butadiene       Confidentiality, Type, and Guideline     none; Not Reported; not specified       Solvent, Reactivity, Storage, and Stability     NR; NR; NR       Radiolabel, Source, State, and Purity     NR; NR; NR       Density Type     vapor density       System     not reported       Temperature     not specified       Standard Deviation Results     not specified       Results Details     not specified       Domain     Metric       Results Details     Representativeness       Metric 1:     Representativeness       Metric 2:     Appropriateness       High     Data are reported for the subject chemical substance.                                          |            |
| Parameter   Data     Density   1.87 -     CASRN and Test Material   106-99-0; 1,3-Butadiene     Confidentiality, Type, and Guideline   none; Not Reported; not specified     Solvent, Reactivity, Storage, and Stability   NR; NR; NR     Radiolabel, Source, State, and Purity   NR; NR; NR     Density Type   vapor density     System   not reported     Temperature   not specified     Standard Deviation Results   not specified     not specified   not specified     Standard Deviation Results   not specified     Metric   Rating     Comments   Domain 1: Substance     Metric 1:   Representativeness   High   Data are reported for the subject chemical substance.     Metric 2:   Appropriateness   High   Data are consistent with the subject chemical substance. |            |
| Density   1.87 -     CASRN and Test Material   106-99-0; 1,3-Butadiene     Confidentiality, Type, and Guideline   none; Not Reported; not specified     Solvent, Reactivity, Storage, and Stability   NR; NR; NR     Radiolabel, Source, State, and Purity   NR; NR; NR     Density Type   vapor density     System   not reported     Temperature   not specified     Standard Deviation Results   not specified     Results Details   not specified     Domain   Metric   Rating     Comments   Domain 1: Substance     Metric 1:   Representativeness   High     Metric 2:   Appropriateness   High   Data are reported for the subject chemical substance.                                                                                                                     |            |
| Density   1.87 -     CASRN and Test Material   106-99-0; 1, 3-Butadiene     Confidentiality, Type, and Guideline   none; Not Reported; not specified     Solvent, Reactivity, Storage, and Stability   NR; NR; NR     Radiolabel, Source, State, and Purity   NR; NR; NR     Density Type   vapor density     System   not reported     Temperature   not specified     Standard Deviation Results   not specified     Results Details   not specified     Domain   Metric   Rating     Comments   Data are reported for the subject chemical substance.     Metric 2:   Appropriateness   High   Data are consistent with the subject chemical substance.                                                                                                                         |            |
| CASRN and Test Material   106-99-0; 1,3-Butadiene     Confidentiality, Type, and Guideline   none; Not Reported; not specified     Solvent, Reactivity, Storage, and Stability   NR; NR; NR     Radiolabel, Source, State, and Purity   NR; NR; NR     Density Type   vapor density     System   not reported     Temperature   not specified     Standard Deviation Results   not specified     Results Details   not specified     Comain   Metric     Representativeness   High     Data are reported for the subject chemical substance.     Metric 2:   Appropriateness                                                                                                                                                                                                       |            |
| Confidentiality, Type, and Guideline   none; Not Reported; not specified     Solvent, Reactivity, Storage, and Stability   NR; NR; NR     Radiolabel, Source, State, and Purity   NR; NR; NR     Density Type   vapor density     System   not reported     Temperature   not specified     Standard Deviation Results   not specified     Results Details   not specified     Domain   Metric     Representativeness   High     Data are reported for the subject chemical substance.     Metric 2:   Appropriateness     High   Data are consistent with the subject chemical substance.                                                                                                                                                                                         |            |
| Solvent, Reactivity, Storage, and Stability   NR; NR; NR     Radiolabel, Source, State, and Purity   NR; NR; NR     Density Type   vapor density     System   not reported     Temperature   not specified     Standard Deviation Results   not specified     Results Details   not specified     Domain   Metric     Representativeness   High     Data are reported for the subject chemical substance.     Metric 2:   Appropriateness                                                                                                                                                                                                                                                                                                                                          |            |
| Radiolabel, Source, State, and Purity   NR; NR; NR     Density Type   vapor density     System   not reported     Temperature   not specified     Standard Deviation Results   not specified     Results Details   not specified     Domain   Metric     Representativeness   High     Data are reported for the subject chemical substance.     Metric 2:   Appropriateness                                                                                                                                                                                                                                                                                                                                                                                                       |            |
| Density Type   vapor density     System   not reported     Temperature   not specified     Standard Deviation Results   not specified     Results Details   not specified     Domain   Metric     Metric 1:   Representativeness   High   Data are reported for the subject chemical substance.     Metric 2:   Appropriateness   High   Data are consistent with the subject chemical substance structural features .                                                                                                                                                                                                                                                                                                                                                             |            |
| System   not reported     Temperature   not specified     Standard Deviation Results   not specified     Results Details   not specified     Domain   Metric     Kepresentativeness   High     Data are reported for the subject chemical substance.     Metric 2:   Appropriateness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |
| Temperature   not specified     Standard Deviation Results   not specified     Results Details   not specified     Domain   Metric   EVALUATION     Domain 1: Substance   Rating   Comments     Metric 1:   Representativeness   High   Data are reported for the subject chemical substance.     Metric 2:   Appropriateness   High   Data are consistent with the subject chemical substance structural features .                                                                                                                                                                                                                                                                                                                                                               |            |
| Standard Deviation Results   not specified     Results Details   not specified     EVALUATION   EVALUATION     Domain   Metric   Rating   Comments     Domain 1: Substance   High   Data are reported for the subject chemical substance.     Metric 2:   Appropriateness   High   Data are consistent with the subject chemical substance structural features .                                                                                                                                                                                                                                                                                                                                                                                                                   |            |
| Results Details   not specified     EVALUATION   EVALUATION     Domain   Metric   Rating   Comments     Domain 1: Substance   High   Data are reported for the subject chemical substance.     Metric 2:   Appropriateness   High   Data are consistent with the subject chemical substance structural features .                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            |
| EVALUATION     Domain   Metric   Rating   Comments     Domain 1: Substance   Representativeness   High   Data are reported for the subject chemical substance.     Metric 1:   Representativeness   High   Data are consistent with the subject chemical substance.     Metric 2:   Appropriateness   High   Data are consistent with the subject chemical substance structural features .                                                                                                                                                                                                                                                                                                                                                                                         |            |
| EVALUATION     Domain   Metric   Rating   Comments     Domain 1: Substance   Representativeness   High   Data are reported for the subject chemical substance.     Metric 2:   Appropriateness   High   Data are consistent with the subject chemical substance structural features .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |
| Domain Metric Rating Comments   Domain 1: Substance Metric 1: Representativeness High Data are reported for the subject chemical substance.   Metric 2: Appropriateness High Data are consistent with the subject chemical substance structural features .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |
| Domain 1: Substance   Metric 1:   Representativeness   High   Data are reported for the subject chemical substance.     Metric 2:   Appropriateness   High   Data are consistent with the subject chemical substance structural features .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |
| Metric 1:RepresentativenessHighData are reported for the subject chemical substance.Metric 2:AppropriatenessHighData are consistent with the subject chemical substance structural features .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -          |
| Metric 2: Appropriateness High Data are consistent with the subject chemical substance structural features.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |
| 11 I U                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |
| Domain 2: Test Reliability                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |
| Metric 3: Reliability/Unbiased Medium There is no indication that the methodology for producing the information was bia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ased       |
| (Method Objectivity) towards a particular product or outcome.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |
| Metric 4: Reliability/Analytical Method Low The analytical method is unknown and there is no indication that a reliable method used.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | od was     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |
| Domain 3: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |
| Metric 5: Databases Medium The data are from a source that is known but is missing elements required for High designation such as peer-review public availability or the inclusion of references                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | gh<br>S to |
| original sources. Secondary source citing secondary source.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |
| Metric 6:ModelsN/ARating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |
| Overall Quality Determination Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |

\* Related References: Citation: HSDB - HERO ID 6628926 (not in distiller PChem at time of extraction)

| Study Citation:<br>OECD Harmonized | Kerns, M., Hen<br>Density | ning, S., Rachita, M. (2002). Butadiene p | oolymers. :317-3: | 56.                                                                                                                                                                                                                                        |  |
|------------------------------------|---------------------------|-------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| HERO ID:                           | 9493542                   |                                           |                   |                                                                                                                                                                                                                                            |  |
|                                    |                           |                                           | EXTRACTIO         | N                                                                                                                                                                                                                                          |  |
| Parameter                          |                           | Data                                      |                   |                                                                                                                                                                                                                                            |  |
|                                    |                           |                                           |                   |                                                                                                                                                                                                                                            |  |
| Density                            |                           | 1.87 - g/L                                |                   |                                                                                                                                                                                                                                            |  |
| CASRN and Test Material            |                           | 106-99-0; Not Reported                    |                   |                                                                                                                                                                                                                                            |  |
| Confidentiality, Type, and         | Guideline                 | no; not specified; Not Reported           |                   |                                                                                                                                                                                                                                            |  |
| Solvent, Reactivity, Storage       | e, and Stability          | Not Reported; Not Reported; Not Report    | ted; Not Reported |                                                                                                                                                                                                                                            |  |
| Radiolabel, Source, State, a       | and Purity                | Not Reported; Not Reported; Not Report    | ted; Not Reported |                                                                                                                                                                                                                                            |  |
| Density Type                       |                           | Vapor Density                             |                   |                                                                                                                                                                                                                                            |  |
| System                             |                           | Not Reported                              |                   |                                                                                                                                                                                                                                            |  |
| Temperature Not Reported           |                           |                                           |                   |                                                                                                                                                                                                                                            |  |
| Standard Deviation Results         | 8                         | Not Reported                              |                   |                                                                                                                                                                                                                                            |  |
| Results Details                    |                           | Not Reported                              |                   |                                                                                                                                                                                                                                            |  |
|                                    |                           |                                           |                   |                                                                                                                                                                                                                                            |  |
|                                    | EVALUATION                |                                           |                   |                                                                                                                                                                                                                                            |  |
| Domain                             |                           | Metric                                    | Rating            | Comments                                                                                                                                                                                                                                   |  |
| Domain 1: Substance                |                           |                                           |                   |                                                                                                                                                                                                                                            |  |
|                                    | Metric 1:                 | Representativeness                        | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                         |  |
|                                    | Metric 2:                 | Appropriateness                           | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                       |  |
| Domain 2: Test Peliabil            | its,                      |                                           |                   |                                                                                                                                                                                                                                            |  |
| Domain 2. Test Kendon              | Metric 3:                 | Reliability/Unbiased                      | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                                                                       |  |
|                                    | Metric 5.                 | (Method Objectivity)                      | Wiedrum           | towards a particular product or outcome.                                                                                                                                                                                                   |  |
|                                    | Metric 4:                 | Reliability/Analytical Method             | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                                                                                                    |  |
|                                    |                           |                                           |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a                                                                                                                                                   |  |
|                                    |                           |                                           |                   | peer-reviewed/recognized database or other secondary source.                                                                                                                                                                               |  |
|                                    |                           |                                           |                   |                                                                                                                                                                                                                                            |  |
| Domain 3: Other                    | M                         | Detaharan                                 | TT: -1            |                                                                                                                                                                                                                                            |  |
|                                    | Metric 5:                 | Databases                                 | High              | The information or data is from a recognized data collection/repository where data are<br>peer-reviewed by experts in the field, are broadly available to the public for review and<br>use OR includes references to the original sources. |  |
|                                    | Metric 6:                 | Models                                    | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                       |  |
|                                    |                           |                                           |                   |                                                                                                                                                                                                                                            |  |
| <b>Overall Quali</b>               | ty Determi                | nation                                    | High              |                                                                                                                                                                                                                                            |  |

\* Related References: Cited from F. O. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953.
| Study Citation:<br>OECD Harmonized | Kerns, M., Hen<br>Density | ning, S., Rachita, M. (2002). Butadiene p | olymers. :317-3:     | 56.                                                                                                                                                                                                                                                 |
|------------------------------------|---------------------------|-------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | 2                         |                                           |                      |                                                                                                                                                                                                                                                     |
| HERO ID:                           | 9493542                   |                                           |                      |                                                                                                                                                                                                                                                     |
|                                    |                           |                                           | EXTRACTIO            | N                                                                                                                                                                                                                                                   |
| Parameter                          |                           | Data                                      |                      |                                                                                                                                                                                                                                                     |
| Density                            |                           | 0.245 - g/mL                              |                      |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                           | 106-99-0; Not Reported                    |                      |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C       | Guideline                 | no; not specified; Not Reported           |                      |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability          | Not Reported; Not Reported; Not Report    | ed; Not Reported     |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                | Not Reported; Not Reported; Not Report    | ed; Not Reported     |                                                                                                                                                                                                                                                     |
| Density Type                       | -                         | Density                                   |                      |                                                                                                                                                                                                                                                     |
| System                             |                           | Not Reported                              |                      |                                                                                                                                                                                                                                                     |
| Temperature                        |                           | Not Reported                              |                      |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         | 5                         | Not Reported                              |                      |                                                                                                                                                                                                                                                     |
| Results Details                    |                           | reported as critical density              |                      |                                                                                                                                                                                                                                                     |
|                                    |                           |                                           |                      | N                                                                                                                                                                                                                                                   |
| Domain                             |                           | Metric                                    | EVALUATIO.<br>Rating | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                           | Metric                                    | Katilig              | Comments                                                                                                                                                                                                                                            |
| Domain 1. Substance                | Metric 1.                 | Representativeness                        | High                 | Data are measured or estimated for the subject chemical substance                                                                                                                                                                                   |
|                                    | Metric 2:                 | Appropriateness                           | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
|                                    | :4                        |                                           |                      |                                                                                                                                                                                                                                                     |
| Domain 2: Test Reliabil            | Ity                       |                                           | Madian               |                                                                                                                                                                                                                                                     |
|                                    | Metric 5:                 | (Method Objectivity)                      | Medium               | towards a particular product or outcome.                                                                                                                                                                                                            |
|                                    | Metric 4:                 | Reliability/Analytical Method             | Medium               | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 2. Other                    |                           |                                           |                      |                                                                                                                                                                                                                                                     |
| Domain 3: Other                    | Metric 5:                 | Databases                                 | High                 | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                 | Models                                    | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Qualit                     | ty Determi                | nation                                    | High                 |                                                                                                                                                                                                                                                     |

\* Related References: Cited from F. O. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953.

| Study Citation:<br>OECD Harmonized | National Toxicology Program (NTP), (1999). NTP report on carcinogens background document for 1,3-butadiene.<br>Density |                                              |                |                                                                                                                                                                                                                                                     |  |  |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                           | 5160135                                                                                                                |                                              |                |                                                                                                                                                                                                                                                     |  |  |
|                                    | EXTRACTION                                                                                                             |                                              |                |                                                                                                                                                                                                                                                     |  |  |
| Parameter                          |                                                                                                                        | Data                                         |                |                                                                                                                                                                                                                                                     |  |  |
|                                    |                                                                                                                        |                                              |                |                                                                                                                                                                                                                                                     |  |  |
| Density<br>CASBN and Test Material |                                                                                                                        | 0.621 - not reported                         |                |                                                                                                                                                                                                                                                     |  |  |
| Confidentiality Type, and (        | Juideline                                                                                                              | no: not specified: Not Reported              |                |                                                                                                                                                                                                                                                     |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                                                                                                       | Not Reported: Not Reported: Not Reported     | : Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Radiolabel, Source, State, a       | nd Purity                                                                                                              | Not Reported; Not Reported; Not Reported     | ; Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Density Type                       |                                                                                                                        | Not Reported                                 |                |                                                                                                                                                                                                                                                     |  |  |
| System                             |                                                                                                                        | Not Reported                                 |                |                                                                                                                                                                                                                                                     |  |  |
| Temperature                        |                                                                                                                        | 20 C/ 4 C                                    |                |                                                                                                                                                                                                                                                     |  |  |
| Standard Deviation Results         |                                                                                                                        | Not Reported                                 |                |                                                                                                                                                                                                                                                     |  |  |
| Results Details                    |                                                                                                                        | Not Reported                                 |                |                                                                                                                                                                                                                                                     |  |  |
|                                    |                                                                                                                        |                                              |                |                                                                                                                                                                                                                                                     |  |  |
|                                    |                                                                                                                        | ]                                            | EVALUATIO      | N                                                                                                                                                                                                                                                   |  |  |
| Domain                             |                                                                                                                        | Metric                                       | Rating         | Comments                                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance                |                                                                                                                        |                                              |                |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 1:                                                                                                              | Representativeness                           | High           | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |
|                                    | Metric 2:                                                                                                              | Appropriateness                              | N/A            | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Domain 2: Test Reliabil            | ity                                                                                                                    |                                              |                |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 3:                                                                                                              | Reliability/Unbiased<br>(Method Objectivity) | Medium         | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |  |  |
|                                    | Metric 4:                                                                                                              | Reliability/Analytical Method                | Medium         | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |
| Domain 3: Other                    |                                                                                                                        |                                              |                |                                                                                                                                                                                                                                                     |  |  |
| Domain 5. Other                    | Metric 5:                                                                                                              | Databases                                    | High           | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |
|                                    | Metric 6:                                                                                                              | Models                                       | N/A            | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Overall Quality Determination High |                                                                                                                        |                                              |                |                                                                                                                                                                                                                                                     |  |  |

\* Related References: cited from Lewis, R. J., Sr. 1992. Sax's Dangerous Properties of Industrial Materials. 8th ed., vol. II. Van Nostrand Reinhold, New York, pp. 572-573. (HERO ID 1649

1,3-Butadiene

| Study Citation:<br>OECD Harmonized   | NIOSH, (2007)<br>Density | . NIOSH pocket guide to chemical haz | ards.      |                                                                                                                                                                                              |
|--------------------------------------|--------------------------|--------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                             | 192177                   |                                      |            |                                                                                                                                                                                              |
|                                      |                          |                                      | EXTRACTION |                                                                                                                                                                                              |
| Parameter                            |                          | Data                                 |            |                                                                                                                                                                                              |
| Density                              |                          | 0.65 - Not reported                  |            |                                                                                                                                                                                              |
| CASRN and Test Material              |                          | 106-99-0; 1,3-Butadiene              |            |                                                                                                                                                                                              |
| Confidentiality, Type, and           | Guideline                | None; Experimental; NR               |            |                                                                                                                                                                                              |
| Solvent, Reactivity, Storage         | e, and Stability         | NR; NR; NR; NR                       |            |                                                                                                                                                                                              |
| Radiolabel, Source, State, a         | and Purity               | NR; NR; NR; NR Notes: NR             |            |                                                                                                                                                                                              |
| Density Type                         |                          | Specific gravity                     |            |                                                                                                                                                                                              |
| System                               |                          | Not reported                         |            |                                                                                                                                                                                              |
| Temperature                          |                          | Not Reported                         |            |                                                                                                                                                                                              |
| Standard Deviation Results           |                          | NR                                   |            |                                                                                                                                                                                              |
| Results Details                      |                          | liquid at 24 def F                   |            |                                                                                                                                                                                              |
|                                      |                          |                                      |            |                                                                                                                                                                                              |
|                                      |                          |                                      | EVALUATION | ~                                                                                                                                                                                            |
| Domain                               |                          | Metric                               | Rating     | Comments                                                                                                                                                                                     |
| Domain 1: Substance                  |                          |                                      | TT' 1      |                                                                                                                                                                                              |
|                                      | Metric 1:                | Representativeness                   | High       | Data are measured or estimated for the subject chemical substance                                                                                                                            |
|                                      | Metric 2:                | Appropriateness                      | N/A        | Rating of this factor is not applicable to this kind of information                                                                                                                          |
| Domain 2: Test Reliabil              | ity                      |                                      |            |                                                                                                                                                                                              |
|                                      | Metric 3:                | Reliability/Unbiased                 | Medium     | There is no indication that the methodology for producing the information was biased towards a particular product or outcome                                                                 |
|                                      | Metric 4:                | Reliability/Analytical Method        | Medium     | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                             |
|                                      |                          |                                      |            |                                                                                                                                                                                              |
| Domain 3: Other                      | Metric 5:                | Databases                            | Medium     | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                                      | Metric 6:                | Models                               | N/A        | Rating of this factor is not applicable to this kind of information                                                                                                                          |
| <b>Overall Quality Determination</b> |                          | Medium                               |            |                                                                                                                                                                                              |

1,3-Butadiene

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | NIOSH, (2019).<br>Density | NIOSH pocket guide to chemical hazard  | ds: 1,3-Butadien | е.                                                                                        |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------|------------------|-------------------------------------------------------------------------------------------|--|--|
| Template:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |                                        |                  |                                                                                           |  |  |
| HERO ID:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7348615                   |                                        |                  |                                                                                           |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                        | EXTRACTIO        | N                                                                                         |  |  |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           | Data                                   |                  |                                                                                           |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                        |                  |                                                                                           |  |  |
| Density                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                           | 1.88 not reported                      |                  |                                                                                           |  |  |
| CASRN and Test Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                           | 106-99-0; 1,3-butadiene                |                  |                                                                                           |  |  |
| Confidentiality, Type, and Confidentiality, and | Guideline                 | no; not specified; Not Reported        |                  |                                                                                           |  |  |
| Solvent, Reactivity, Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | e, and Stability          | Not Reported; Not Reported; Not Report | ed; Not Reported |                                                                                           |  |  |
| Radiolabel, Source, State, a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | and Purity                | Not Reported; Not Reported; Not Report | ed; Not Reported |                                                                                           |  |  |
| Density Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                           | vapor density                          |                  |                                                                                           |  |  |
| System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           | Not Reported                           |                  |                                                                                           |  |  |
| Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                           | Not Reported                           |                  |                                                                                           |  |  |
| Standard Deviation Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                           | Not Reported                           |                  |                                                                                           |  |  |
| Results Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           | Not Reported                           |                  |                                                                                           |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                        |                  |                                                                                           |  |  |
| Domain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           | Metric                                 | Rating           | Comments                                                                                  |  |  |
| Domain 1: Substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           | metric                                 | Ituting          | Comments                                                                                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 1:                 | Representativeness                     | High             | Data are measured or estimated for the subject chemical substance.                        |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 2:                 | Appropriateness                        | N/A              | Rating of this factor is not applicable to this kind of information.                      |  |  |
| Domain 2: Test Reliabil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ity                       |                                        |                  |                                                                                           |  |  |
| Domain 2. Test Kendon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Metric 3                  | Reliability/Unbiased                   | Medium           | There is no indication that the methodology for producing the information was biased      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Meule 5.                  | (Method Objectivity)                   | Wiedrum          | towards a particular product or outcome.                                                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 4:                 | Reliability/Analytical Method          | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-   |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                        |                  | cal method is unknown but is likely to be appropriate based on the data's inclusion in a  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                        |                  | peer-reviewed/recognized database or other secondary source.                              |  |  |
| Domain 3: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                        |                  |                                                                                           |  |  |
| Domain 5. Outer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 5:                 | Databases                              | High             | The information or data is from a recognized data collection/repository where data are    |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | meane J.                  |                                        | mgn              | peer-reviewed by experts in the field, are broadly available to the public for review and |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                        |                  | use OR includes references to the original sources.                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 6:                 | Models                                 | N/A              | Rating of this factor is not applicable to this kind of information.                      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                        |                  |                                                                                           |  |  |
| Overall Quality                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ly Determi                | แลนอก                                  | nign             |                                                                                           |  |  |

| Study Citation:              | NIOSH, (1992). Occupational safety and health guideline for butadiene (1,3-butadiene). |                                         |                  |                                                                                                                                                                                                                                          |  |  |  |
|------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Template.                    | Delisity                                                                               |                                         |                  |                                                                                                                                                                                                                                          |  |  |  |
| HERO ID:                     | 8408503                                                                                |                                         |                  |                                                                                                                                                                                                                                          |  |  |  |
|                              | EXTRACTION                                                                             |                                         |                  |                                                                                                                                                                                                                                          |  |  |  |
| Parameter                    |                                                                                        | Data                                    |                  |                                                                                                                                                                                                                                          |  |  |  |
|                              |                                                                                        |                                         |                  |                                                                                                                                                                                                                                          |  |  |  |
| Density                      |                                                                                        | 1.9 - not reported                      |                  |                                                                                                                                                                                                                                          |  |  |  |
| CASRN and Test Material      |                                                                                        | 106-99-0; 1,3-butadiene                 |                  |                                                                                                                                                                                                                                          |  |  |  |
| Confidentiality, Type, and C | Guideline                                                                              | no; not specified; Not Reported         |                  |                                                                                                                                                                                                                                          |  |  |  |
| Solvent, Reactivity, Storage | e, and Stability                                                                       | Not Reported; Not Reported; Not Reporte | ed; Not Reported |                                                                                                                                                                                                                                          |  |  |  |
| Radiolabel, Source, State, a | nd Purity                                                                              | Not Reported; Not Reported; Not Reporte | ed; Not Reported |                                                                                                                                                                                                                                          |  |  |  |
| Density Type                 |                                                                                        | vapor density                           |                  |                                                                                                                                                                                                                                          |  |  |  |
| System                       |                                                                                        | Not Reported                            |                  |                                                                                                                                                                                                                                          |  |  |  |
| Temperature                  |                                                                                        | at the boiling point of butadiene       |                  |                                                                                                                                                                                                                                          |  |  |  |
| Standard Deviation Results   |                                                                                        | Not Reported                            |                  |                                                                                                                                                                                                                                          |  |  |  |
| Results Details              |                                                                                        | Not Reported                            |                  |                                                                                                                                                                                                                                          |  |  |  |
|                              |                                                                                        |                                         | EVALUATIO        | N                                                                                                                                                                                                                                        |  |  |  |
| Domain                       |                                                                                        | Metric                                  | Rating           | Comments                                                                                                                                                                                                                                 |  |  |  |
| Domain 1: Substance          |                                                                                        |                                         | 8                |                                                                                                                                                                                                                                          |  |  |  |
|                              | Metric 1:                                                                              | Representativeness                      | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                       |  |  |  |
|                              | Metric 2:                                                                              | Appropriateness                         | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                     |  |  |  |
| Domain 2: Test Reliabili     | ity                                                                                    |                                         |                  |                                                                                                                                                                                                                                          |  |  |  |
| 2                            | Metric 3:                                                                              | Reliability/Unbiased                    | Medium           | There is no indication that the methodology for producing the information was biased                                                                                                                                                     |  |  |  |
|                              | Matria A.                                                                              | (Method Objectivity)                    | Madimu           | towards a particular product or outcome.                                                                                                                                                                                                 |  |  |  |
|                              | Metric 4:                                                                              | Kenabinty/Anarytical Method             | Medium           | cal method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |  |
| Domain 3: Other              |                                                                                        |                                         |                  |                                                                                                                                                                                                                                          |  |  |  |
| Soman S. Ould                | Metric 5:                                                                              | Databases                               | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.     |  |  |  |
|                              | Metric 6:                                                                              | Models                                  | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                     |  |  |  |
| <b>Overall Qualit</b>        | Overall Quality Determination High                                                     |                                         |                  |                                                                                                                                                                                                                                          |  |  |  |

| Study Citation:                      | NIOSH, (1992).   | Occupational safety and health guideline | for butadiene (  | 1,3-butadiene).                                                                                                                                                                                                                      |
|--------------------------------------|------------------|------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized                      | Density          |                                          |                  |                                                                                                                                                                                                                                      |
| HERO ID:                             | 8408503          |                                          |                  |                                                                                                                                                                                                                                      |
|                                      |                  |                                          | EXTRACTIO        | N                                                                                                                                                                                                                                    |
| Parameter                            |                  | Data                                     |                  |                                                                                                                                                                                                                                      |
|                                      |                  |                                          |                  |                                                                                                                                                                                                                                      |
| Density                              |                  | 0.62 - not reported                      |                  |                                                                                                                                                                                                                                      |
| CASRN and Test Material              |                  | 106-99-0; 1,3-butadiene                  |                  |                                                                                                                                                                                                                                      |
| Confidentiality, Type, and C         | Guideline        | no; not specified; Not Reported          |                  |                                                                                                                                                                                                                                      |
| Solvent, Reactivity, Storage         | e, and Stability | Not Reported; Not Reported; Not Reporte  | ed; Not Reported |                                                                                                                                                                                                                                      |
| Radiolabel, Source, State, a         | and Purity       | Not Reported; Not Reported; Not Reporte  | ed; Not Reported |                                                                                                                                                                                                                                      |
| Density Type                         |                  | density                                  |                  |                                                                                                                                                                                                                                      |
| System                               |                  | Not Reported                             |                  |                                                                                                                                                                                                                                      |
| Temperature                          |                  | 20 C (68 F)                              |                  |                                                                                                                                                                                                                                      |
| Standard Deviation Results           |                  | Not Reported                             |                  |                                                                                                                                                                                                                                      |
| Results Details                      |                  | Not Reported                             |                  |                                                                                                                                                                                                                                      |
|                                      |                  |                                          |                  |                                                                                                                                                                                                                                      |
| - ·                                  |                  |                                          | EVALUATIO        | N                                                                                                                                                                                                                                    |
| Domain                               |                  | Metric                                   | Rating           | Comments                                                                                                                                                                                                                             |
| Domain 1: Substance                  |                  | D                                        |                  |                                                                                                                                                                                                                                      |
|                                      | Metric 1:        | Representativeness                       | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                   |
|                                      | Metric 2:        | Appropriateness                          | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                 |
| Domain 2: Test Reliabili             | ity              |                                          |                  |                                                                                                                                                                                                                                      |
|                                      | Metric 3:        | Reliability/Unbiased                     | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                        |
|                                      | Metric 4:        | Reliability/Analytical Method            | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                                                                                              |
|                                      |                  |                                          |                  | cal method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                                                                |
|                                      |                  |                                          |                  |                                                                                                                                                                                                                                      |
| Domain 3: Other                      |                  |                                          |                  |                                                                                                                                                                                                                                      |
|                                      | Metric 5:        | Databases                                | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources. |
|                                      | Metric 6:        | Models                                   | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                 |
| <b>Overall Quality Determination</b> |                  |                                          | High             |                                                                                                                                                                                                                                      |

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Density | NIST, (2022). NIST Chemistry WebBook. 1,3-Butadiene (106-99-0). Standard Reference Database No. 69. Density |                  |                                                                                                                                                                                                                                                     |  |  |
|------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Template:                          |                            |                                                                                                             |                  |                                                                                                                                                                                                                                                     |  |  |
| HERO ID:                           | 10225178                   |                                                                                                             |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    |                            |                                                                                                             | EXTRACTIO        | N                                                                                                                                                                                                                                                   |  |  |
| Parameter                          |                            | Data                                                                                                        |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    |                            |                                                                                                             |                  |                                                                                                                                                                                                                                                     |  |  |
| Density                            |                            | 4.53 - mol/l                                                                                                |                  |                                                                                                                                                                                                                                                     |  |  |
| CASRN and Test Material            |                            | 106-99-0; 1,3-Butadiene                                                                                     |                  |                                                                                                                                                                                                                                                     |  |  |
| Confidentiality, Type, and         | Guideline                  | No; experimental; Not Reported                                                                              |                  |                                                                                                                                                                                                                                                     |  |  |
| Solvent, Reactivity, Storag        | e, and Stability           | Not Reported; Not Reported; Not Report                                                                      | ed; Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Radiolabel, Source, State,         | and Purity                 | Not Reported; Not Reported; Not Report                                                                      | ed; Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Density Type                       |                            | density                                                                                                     |                  |                                                                                                                                                                                                                                                     |  |  |
| System                             |                            | Not Reported                                                                                                |                  |                                                                                                                                                                                                                                                     |  |  |
| Temperature                        |                            | Not Reported                                                                                                |                  |                                                                                                                                                                                                                                                     |  |  |
| Standard Deviation Results         | 5                          | 0.10 mol/l                                                                                                  |                  |                                                                                                                                                                                                                                                     |  |  |
| Results Details                    |                            | reported as critical                                                                                        |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    |                            |                                                                                                             |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    |                            |                                                                                                             | EVALUATIO        | N                                                                                                                                                                                                                                                   |  |  |
| Domain                             |                            | Metric                                                                                                      | Rating           | Comments                                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance                |                            |                                                                                                             |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 1:                  | Representativeness                                                                                          | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |
|                                    | Metric 2:                  | Appropriateness                                                                                             | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Domain 2: Test Reliabil            | ity                        |                                                                                                             |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 3:                  | Reliability/Unbiased<br>(Method Objectivity)                                                                | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |  |  |
|                                    | Metric 4:                  | Reliability/Analytical Method                                                                               | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |
| Domain 2: Other                    |                            |                                                                                                             |                  |                                                                                                                                                                                                                                                     |  |  |
| Domain 3: Other                    | Metric 5:                  | Databases                                                                                                   | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |
|                                    | Metric 6:                  | Models                                                                                                      | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Overall Quality Determination High |                            |                                                                                                             |                  |                                                                                                                                                                                                                                                     |  |  |

\* Related References: cited from Tsonopoulos, C.; Ambrose, D., Vapor-Liquid Critical Properties of Elements and Compounds. 6. Unsaturated Aliphatic Hydrocarbons, J. Chem.Eng. Data, 1996, 41, 645-656.

| Study Citation:<br>OECD Harmonized | Sun, H. N., Wri<br>Density | sters, J. P. (2002). Butadiene.        |                  |                                                                                                                                                                                                                                                     |
|------------------------------------|----------------------------|----------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5349218                    |                                        |                  |                                                                                                                                                                                                                                                     |
|                                    |                            |                                        | EXTRACTIO        | N                                                                                                                                                                                                                                                   |
| Parameter                          |                            | Data                                   |                  |                                                                                                                                                                                                                                                     |
|                                    |                            |                                        |                  |                                                                                                                                                                                                                                                     |
| Density                            |                            | 0.5818 - not reported                  |                  |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                            | 106-99-0; 1,3-Butadiene                |                  |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and         | Guideline                  | no; not specified; Not Reported        |                  |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability           | Not Reported; Not Reported; Not Report | ed; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                 | Not Reported; Not Reported; Not Report | ed; Not Reported |                                                                                                                                                                                                                                                     |
| Density Type                       |                            | Density                                |                  |                                                                                                                                                                                                                                                     |
| System                             |                            | Not Reported                           |                  |                                                                                                                                                                                                                                                     |
| Temperature                        |                            | 50 C                                   |                  |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         | 5                          | Not Reported                           |                  |                                                                                                                                                                                                                                                     |
| Results Details                    |                            | Not Reported                           |                  |                                                                                                                                                                                                                                                     |
|                                    |                            |                                        |                  |                                                                                                                                                                                                                                                     |
|                                    |                            |                                        | EVALUATIO        | N                                                                                                                                                                                                                                                   |
| Domain                             |                            | Metric                                 | Rating           | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                            |                                        |                  |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                  | Representativeness                     | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                  | Appropriateness                        | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
|                                    | •.                         |                                        |                  |                                                                                                                                                                                                                                                     |
| Domain 2: Test Reliabil            | ity                        |                                        |                  |                                                                                                                                                                                                                                                     |
|                                    | Metric 3:                  | (Method Objectivity)                   | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                    | Metric 4:                  | Reliability/Analytical Method          | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
|                                    |                            |                                        |                  |                                                                                                                                                                                                                                                     |
| Domain 3: Other                    |                            |                                        |                  |                                                                                                                                                                                                                                                     |
|                                    | Metric 5:                  | Databases                              | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                  | Models                                 | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| <b>Overall Qualit</b>              | ty Determi                 | nation                                 | High             |                                                                                                                                                                                                                                                     |

\* Related References: The source cites one of six references W. Baker and A. L. Mossman, Matheson Gas Data Book 83, (1980) F. D. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953. R. C. Weast, CRC Handb. Chem. Phys. 70, C161 (1990). C. L. Yaws and P.-Y. Chiang, Chem. Eng. 95(13), 81 (1988). N. Gee, K. Shinsaka, J. P. Dodelet, and G. R. Freeman, J. Chem. Thermodyn. 18, 221 (1986). C. L. Yaws, H.-C. Yang, J. R. Hopper, and K. C. Hansen, Chem. Eng. 97(4), 177 (1990). Vol. 4 BUTADIENE 385 Standard on Explosion Prevention Systems, National Fire Protection Association, NFPA 69, Boston, Mass., 1973.

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HERO ID: 5349218 Table: 2 of 4

| Study Citation:<br>OECD Harmonized | Sun, H. N., Wris<br>Density | sters, J. P. (2002). Butadiene.              |                   |                                                                                                                                                                                                                                                     |
|------------------------------------|-----------------------------|----------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                             |                                              |                   |                                                                                                                                                                                                                                                     |
| HERO ID:                           | 5349218                     |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    |                             |                                              | EXTRACTIO         | N                                                                                                                                                                                                                                                   |
| Parameter                          |                             | Data                                         |                   |                                                                                                                                                                                                                                                     |
|                                    |                             |                                              |                   |                                                                                                                                                                                                                                                     |
| Density                            |                             | 0.6194 - not reported                        |                   |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                             | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and         | Guideline                   | no; not specified; Not Reported              |                   |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability            | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                  | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                                                                                     |
| Density Type                       |                             | Density                                      |                   |                                                                                                                                                                                                                                                     |
| System                             |                             | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| Temperature                        |                             | 25 C                                         |                   |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         | 8                           | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| Results Details                    |                             | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
|                                    |                             |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    |                             |                                              | EVALUATIO         | N                                                                                                                                                                                                                                                   |
| Domain                             |                             | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                             |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                   | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                   | Appropriateness                              | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Domain 2: Test Reliabil            | lity                        |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    | Metric 3:                   | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                    | Metric 4:                   | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                             |                                              |                   |                                                                                                                                                                                                                                                     |
| Domain 5. Outer                    | Metric 5:                   | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                   | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| <b>Overall Qualit</b>              | ty Determi                  | nation                                       | High              |                                                                                                                                                                                                                                                     |

\* Related References: The source cites one of six references W. Baker and A. L. Mossman, Matheson Gas Data Book 83, (1980) F. D. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953. R. C. Weast, CRC Handb. Chem. Phys. 70, C161 (1990). C. L. Yaws and P.-Y. Chiang, Chem. Eng. 95(13), 81 (1988). N. Gee, K. Shinsaka, J. P. Dodelet, and G. R. Freeman, J. Chem. Thermodyn. 18, 221 (1986). C. L. Yaws, H.-C. Yang, J. R. Hopper, and K. C. Hansen, Chem. Eng. 97(4), 177 (1990). Vol. 4 BUTADIENE 385 Standard on Explosion Prevention Systems, National Fire Protection Association, NFPA 69, Boston, Mass., 1973.

HERO ID: 5349218 Table: 3 of 4

| Study Citation:<br>OECD Harmonized | Sun, H. N., Wri<br>Density | sters, J. P. (2002). Butadiene.              |                  |                                                                                                                                                                                                                                                     |
|------------------------------------|----------------------------|----------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5349218                    |                                              |                  |                                                                                                                                                                                                                                                     |
|                                    |                            |                                              | EXTRACTIO        | N                                                                                                                                                                                                                                                   |
| Parameter                          |                            | Data                                         |                  |                                                                                                                                                                                                                                                     |
| Dongity                            |                            | 0.6452 not reported                          |                  |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                            | 106-99-0: 1 3-Butadiene                      |                  |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and         | Guideline                  | no: not specified: Not Reported              |                  |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e. and Stability           | Not Reported: Not Reported: Not Report       | ed: Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                 | Not Reported; Not Reported; Not Report       | ed; Not Reported |                                                                                                                                                                                                                                                     |
| Density Type                       | •                          | Density                                      | · ·              |                                                                                                                                                                                                                                                     |
| System                             |                            | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |
| Temperature                        |                            | 0 C                                          |                  |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         | 1                          | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |
| Results Details                    |                            | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |
|                                    |                            |                                              | FVALUATIO        |                                                                                                                                                                                                                                                     |
| Domain                             |                            | Metric                                       | Rating           | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                            |                                              | 8                |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                  | Representativeness                           | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                  | Appropriateness                              | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Domain 2: Test Reliabil            | itv                        |                                              |                  |                                                                                                                                                                                                                                                     |
|                                    | Metric 3:                  | Reliability/Unbiased<br>(Method Objectivity) | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                    | Metric 4:                  | Reliability/Analytical Method                | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                            |                                              |                  |                                                                                                                                                                                                                                                     |
| Domain 5. Outer                    | Metric 5:                  | Databases                                    | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                  | Models                                       | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| <b>Overall Qualit</b>              | ty Determi                 | nation                                       | High             |                                                                                                                                                                                                                                                     |

\* Related References: The source cites one of six references W. Baker and A. L. Mossman, Matheson Gas Data Book 83, (1980) F. D. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953. R. C. Weast, CRC Handb. Chem. Phys. 70, C161 (1990). C. L. Yaws and P.-Y. Chiang, Chem. Eng. 95(13), 81 (1988). N. Gee, K. Shinsaka, J. P. Dodelet, and G. R. Freeman, J. Chem. Thermodyn. 18, 221 (1986). C. L. Yaws, H.-C. Yang, J. R. Hopper, and K. C. Hansen, Chem. Eng. 97(4), 177 (1990). Vol. 4 BUTADIENE 385 Standard on Explosion Prevention Systems, National Fire Protection Association, NFPA 69, Boston, Mass., 1973.

HERO ID: 5349218 Table: 4 of 4

| Study Citation:<br>OECD Harmonized | Sun, H. N., Wri<br>Density | sters, J. P. (2002). Butadiene.              |                   |                                                                                                                                                                                                                                                     |
|------------------------------------|----------------------------|----------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5349218                    |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    |                            |                                              | EXTRACTIO         | N                                                                                                                                                                                                                                                   |
| Parameter                          |                            | Data                                         |                   |                                                                                                                                                                                                                                                     |
|                                    |                            |                                              |                   |                                                                                                                                                                                                                                                     |
| Density                            |                            | 0.6274 - not reported                        |                   |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                            | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and         | Guideline                  | no; not specified; Not Reported              |                   |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability           | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                 | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                                                                                     |
| Density Type                       |                            | Density                                      |                   |                                                                                                                                                                                                                                                     |
| System                             |                            | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| Temperature                        |                            | 15 C                                         |                   |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         | 3                          | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| Results Details                    |                            | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
|                                    |                            |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    |                            |                                              | EVALUATIO         | N                                                                                                                                                                                                                                                   |
| Domain                             |                            | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                            |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                  | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                  | Appropriateness                              | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Domain 2: Test Reliabil            | ity                        |                                              |                   |                                                                                                                                                                                                                                                     |
| 2011411-21 1001101401              | Metric 3:                  | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                    | Metric 4:                  | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 2. Other                    |                            |                                              |                   |                                                                                                                                                                                                                                                     |
| Domain 5: Other                    | Metric 5:                  | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                  | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| <b>Overall Quali</b>               | ty Determi                 | nation                                       | High              |                                                                                                                                                                                                                                                     |

\* Related References: The source cites one of six references W. Baker and A. L. Mossman, Matheson Gas Data Book 83, (1980) F. D. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953. R. C. Weast, CRC Handb. Chem. Phys. 70, C161 (1990). C. L. Yaws and P.-Y. Chiang, Chem. Eng. 95(13), 81 (1988). N. Gee, K. Shinsaka, J. P. Dodelet, and G. R. Freeman, J. Chem. Thermodyn. 18, 221 (1986). C. L. Yaws, H.-C. Yang, J. R. Hopper, and K. C. Hansen, Chem. Eng. 97(4), 177 (1990). Vol. 4 BUTADIENE 385 Standard on Explosion Prevention Systems, National Fire Protection Association, NFPA 69, Boston, Mass., 1973.

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | U.S. EPA, (200<br>Density | 2). Health assessment of 1,3-butadiene. |            |                                                                                                                                                                                              |
|------------------------------------|---------------------------|-----------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                           |                                         |            |                                                                                                                                                                                              |
| HERO ID:                           | 52153                     |                                         |            |                                                                                                                                                                                              |
|                                    |                           |                                         | EXTRACTION |                                                                                                                                                                                              |
| Parameter                          |                           | Data                                    |            |                                                                                                                                                                                              |
|                                    |                           |                                         |            |                                                                                                                                                                                              |
| Density                            |                           | 0.6211 g/mL                             |            |                                                                                                                                                                                              |
| CASRN and Test Material            |                           | 106-99-0; 1,3-butadiene                 |            |                                                                                                                                                                                              |
| Confidentiality, Type, and         | Guideline                 | none; not specified; NA                 |            |                                                                                                                                                                                              |
| Solvent, Reactivity, Storage       | e, and Stability          | NA; NA; NA; NA                          |            |                                                                                                                                                                                              |
| Radiolabel, Source, State, a       | and Purity                | NA; NA; gas; NA                         |            |                                                                                                                                                                                              |
| Density Type                       |                           | density                                 |            |                                                                                                                                                                                              |
| System                             |                           | NA                                      |            |                                                                                                                                                                                              |
| Temperature                        |                           | 20°C                                    |            |                                                                                                                                                                                              |
| Standard Deviation Results         | 6                         | Not Reported                            |            |                                                                                                                                                                                              |
| Results Details                    |                           | Not Reported                            |            |                                                                                                                                                                                              |
|                                    |                           |                                         |            |                                                                                                                                                                                              |
|                                    |                           |                                         | EVALUATION |                                                                                                                                                                                              |
| Domain                             |                           | Metric                                  | Rating     | Comments                                                                                                                                                                                     |
| Domain 1: Substance                |                           |                                         |            |                                                                                                                                                                                              |
|                                    | Metric 1:                 | Representativeness                      | High       | Data are measured or estimated for the subject chemical substance.                                                                                                                           |
|                                    | Metric 2:                 | Appropriateness                         | High       | Measured data are consistent with the subject chemical substance structural features or other physical/chemical properties or behaviors.                                                     |
| Domain 2: Taat Daliahil            | it.,                      |                                         |            |                                                                                                                                                                                              |
| Domain 2. Test Kellauli            | Metric 3:                 | Reliability/Unbiased                    | N/A        | Rating of this factor is not applicable to this kind of information                                                                                                                          |
|                                    | Metric 5.                 | (Method Objectivity)                    | IN/A       | Rating of this factor is not applicable to this kind of mormation.                                                                                                                           |
|                                    | Metric 4:                 | Reliability/Analytical Method           | Low        | The analytical method is unknown and there is no indication that a reliable method was                                                                                                       |
|                                    |                           |                                         |            | uovu.                                                                                                                                                                                        |
| Domain 3: Other                    |                           |                                         |            |                                                                                                                                                                                              |
| Domain 5. Onio                     | Metric 5:                 | Databases                               | Medium     | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                                    | Metric 6:                 | Models                                  | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| <b>Overall Quali</b>               | ty Determi                | nation                                  | Medium     |                                                                                                                                                                                              |

\* Related References: Secondary source referencing: Kirshenbaum, I. (1978) Butadiene. In: Kirk-Othmer encyclopedia of chemical technology, 3rd ed., vol. 4. Mark, HF; Othmer, DF; Overberger, CG; et al., eds. New York, NY: John Wiley and Sons, pp. 313-337.andVerschueren, K. (1983) Handbook of environmental data on organic chemicals, 2nd ed. New York, NY:Van Nostrand Reinhold, pp. 295-297.

| Study Citation:<br>OECD Harmonized | U.S. EPA, (1996)<br>Density | . Locating and estimating air emissions f    | from sources of | 1,3-butadiene.                                                                                                                                                                                                                                      |
|------------------------------------|-----------------------------|----------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 6389860                     |                                              |                 |                                                                                                                                                                                                                                                     |
|                                    |                             |                                              | EXTRACTIO       | Ň                                                                                                                                                                                                                                                   |
| Parameter                          |                             | Data                                         |                 | •                                                                                                                                                                                                                                                   |
|                                    |                             |                                              |                 |                                                                                                                                                                                                                                                     |
| Density<br>CASRN and Test Material |                             | 0.245 - g/cm3<br>106-99-0; 1,3-Butadiene     |                 |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C       | Guideline                   | no; not specified; Not Reported              |                 |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability            | Not Reported; Not Reported; Not Reported     | d; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                  | Not Reported; Not Reported; Not Reported     | d; Not Reported |                                                                                                                                                                                                                                                     |
| Density Type                       |                             | density                                      |                 |                                                                                                                                                                                                                                                     |
| System                             |                             | Not Reported                                 |                 |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         |                             | Not Reported                                 |                 |                                                                                                                                                                                                                                                     |
| Results Details                    |                             | reported as critical density                 |                 |                                                                                                                                                                                                                                                     |
| Results Details                    |                             | reported as erritour density                 |                 |                                                                                                                                                                                                                                                     |
|                                    |                             |                                              | EVALUATIO       | N                                                                                                                                                                                                                                                   |
| Domain                             |                             | Metric                                       | Rating          | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                             |                                              |                 |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                   | Representativeness                           | High            | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                   | Appropriateness                              | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Domain 2: Test Reliabil            | itv                         |                                              |                 |                                                                                                                                                                                                                                                     |
|                                    | Metric 3:                   | Reliability/Unbiased<br>(Method Objectivity) | Medium          | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                    | Metric 4:                   | Reliability/Analytical Method                | Medium          | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                             |                                              |                 |                                                                                                                                                                                                                                                     |
| Domain 5. Outer                    | Metric 5:                   | Databases                                    | High            | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                   | Models                                       | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| <b>Overall Qualit</b>              | ty Determin                 | ation                                        | High            |                                                                                                                                                                                                                                                     |

\* Related References: data already entered under HERO ID 7681901source vaguely references both Kirshenbaum, I. Butadiene. In: Kirk-Othmer Encyclopedia of Chemical Technology, 3rd ed, Volume 4. New York, New York: John Wiley and Sons, 1978. (HERO ID 594584 )and Hawley, G.G. 1, 3-Butadiene. In: The Condensed Chemical Dictionary, 10th ed., New York, New York: Van Nostrand Reinhold Company, Inc., 1981. p. 177. (HERO ID HERO ID: 69425)

| Study Citation:<br>OECD Harmonized | Elsevier, (2019).<br>Density | Reaxys: physical-chemical property da                                             | ta for 1,3-butadie                      | ene. CAS Registry Number: 106-99-0                                                                                                                                |
|------------------------------------|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | Density                      |                                                                                   |                                         |                                                                                                                                                                   |
| HERO ID:                           | 5926412                      |                                                                                   |                                         |                                                                                                                                                                   |
|                                    |                              |                                                                                   | EXTRACTIO                               | N                                                                                                                                                                 |
| Parameter                          |                              | Data                                                                              |                                         |                                                                                                                                                                   |
|                                    |                              |                                                                                   |                                         |                                                                                                                                                                   |
| Density                            |                              | 0.6149 - 0.6216 g/cm3                                                             |                                         |                                                                                                                                                                   |
| CASRN and Test Material            |                              | 106-99-0; 1,3-Butadiene                                                           |                                         |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Guideline                    | None; Experimental; Not Reported                                                  |                                         |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability             | NR; NR; NR; NR                                                                    |                                         |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | und Purity                   | NR; NR; NR; NR                                                                    |                                         |                                                                                                                                                                   |
| Temperature                        |                              | 20-25°C                                                                           |                                         |                                                                                                                                                                   |
| Standard Deviation Results         |                              | Not Reported                                                                      |                                         |                                                                                                                                                                   |
| Results Details                    |                              | @20-25°C; 8 values were reported in Re<br>or measured at unreported or non-standa | axys; 3 values were<br>rd temperatures. | e reported in the range of 0.6149 to 0.6216 at 20-25°C; 5 values were outside this range                                                                          |
|                                    |                              |                                                                                   | EVALUATIO                               | N                                                                                                                                                                 |
| Domain                             |                              | Metric                                                                            | Rating                                  | Comments                                                                                                                                                          |
| Domain 1: Substance                |                              |                                                                                   |                                         |                                                                                                                                                                   |
|                                    | Metric 1:                    | Representativeness                                                                | High                                    | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                    | Metric 2:                    | Appropriateness                                                                   | N/A                                     | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Domain 2: Test Reliabil            | ity                          |                                                                                   |                                         |                                                                                                                                                                   |
|                                    | Metric 3:                    | Reliability/Unbiased                                                              | Medium                                  | There is no indication that the methodology for producing the information was biased                                                                              |
|                                    |                              | (Method Objectivity)                                                              |                                         | towards a particular product or outcome.                                                                                                                          |
|                                    | Metric 4:                    | Reliability/Analytical Method                                                     | Medium                                  | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                              |                                                                                   |                                         |                                                                                                                                                                   |
| Domain 5. Other                    | Metric 5                     | Databases                                                                         | High                                    | Data is from a secondary database with a references to the near reviewed original                                                                                 |
|                                    | wieute J.                    | Databases                                                                         | rigii                                   | source.                                                                                                                                                           |
|                                    | Metric 6:                    | Models                                                                            | N/A                                     | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Qualit                     | y Determin                   | nation                                                                            | High                                    |                                                                                                                                                                   |

\* Related References: Data range determined from multiple primary sources in REAXYS.

| Study Citation:<br>OECD Harmonized   | NLM, (2003). Pu<br>Density         | ubChem: Hazardous Substance Data B | ank: 1,3-Butadien | e, 106-99-0.                                                                                                                                                      |  |
|--------------------------------------|------------------------------------|------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| HERO ID:                             | 5926134                            |                                    |                   |                                                                                                                                                                   |  |
|                                      |                                    |                                    | EXTRACTIO         | Ň                                                                                                                                                                 |  |
| Parameter                            |                                    | Data                               |                   |                                                                                                                                                                   |  |
|                                      |                                    | 0 (140 / 2                         |                   |                                                                                                                                                                   |  |
| CASPN and Test Material              |                                    | 0.6149 g/cm3                       |                   |                                                                                                                                                                   |  |
| Confidentiality Type and (           | Suidalina                          | None: Experimental: Not Penorted   |                   |                                                                                                                                                                   |  |
| Solvent Reactivity Storage           | and Stability                      | NR NR NR NR                        |                   |                                                                                                                                                                   |  |
| Radiolabel Source State a            | and Purity                         | NR: NR: NR                         |                   |                                                                                                                                                                   |  |
| Temperature                          | and I dirity                       | 25°C                               |                   |                                                                                                                                                                   |  |
| Standard Deviation Results           |                                    | Not Reported                       |                   |                                                                                                                                                                   |  |
| Results Details                      |                                    | Not Reported                       |                   |                                                                                                                                                                   |  |
|                                      |                                    |                                    |                   |                                                                                                                                                                   |  |
|                                      |                                    |                                    | EVALUATIO         | N                                                                                                                                                                 |  |
| Domain                               |                                    | Metric                             | Rating            | Comments                                                                                                                                                          |  |
| Domain 1: Substance                  |                                    |                                    |                   |                                                                                                                                                                   |  |
|                                      | Metric 1:                          | Representativeness                 | High              | Data are measured or estimated for the subject chemical substance.                                                                                                |  |
|                                      | Metric 2:                          | Appropriateness                    | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                              |  |
| Domain 2 <sup>.</sup> Test Reliabili | ity                                |                                    |                   |                                                                                                                                                                   |  |
| Domain 2. Test Remain                | Metric 3:                          | Reliability/Unbiased               | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |  |
|                                      | Metric 4:                          | Reliability/Analytical Method      | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |  |
|                                      |                                    |                                    |                   |                                                                                                                                                                   |  |
| Domain 3: Other                      | M ( <sup>1</sup> 5                 |                                    | TT: 1             |                                                                                                                                                                   |  |
|                                      | Metric 5:                          | Databases                          | High              | Data is from a publicity available, peer-reviewed database that provides references to a peer-reviewed data collection.                                           |  |
|                                      | Metric 6:                          | Models                             | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                              |  |
| <b>Overall Qualit</b>                | Overall Quality Determination High |                                    |                   |                                                                                                                                                                   |  |

\* Related References: Haynes, W.M. (Ed.). CRC Handbook of Chemistry and Physics. 95th Edition. CRC Press LLC, Boca Raton: FL 2014-2015

| Study Citation:<br>OECD Harmonized | O'Neil, M. J. (2<br>Density | 013). 1,3-Butadiene. 106-99-0. :267. |           |                                                                                                                                                                   |
|------------------------------------|-----------------------------|--------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | j                           |                                      |           |                                                                                                                                                                   |
| HERO ID:                           | 5926379                     |                                      |           |                                                                                                                                                                   |
|                                    |                             |                                      | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                          |                             | Data                                 |           |                                                                                                                                                                   |
|                                    |                             |                                      |           |                                                                                                                                                                   |
| Density                            |                             | 0.650 g/cm3                          |           |                                                                                                                                                                   |
| CASRN and Test Material            |                             | 106-99-0; 1,3-Butadiene              |           |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Guideline                   | None; Experimental; Not Reported     |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability            | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | and Purity                  | NR; NR; NR; NR                       |           |                                                                                                                                                                   |
| Temperature                        |                             | -6°C                                 |           |                                                                                                                                                                   |
| Standard Deviation Results         | 5                           | Not Reported                         |           |                                                                                                                                                                   |
| Results Details                    |                             | at -6°C relative to water at 4°C     |           |                                                                                                                                                                   |
|                                    |                             |                                      |           |                                                                                                                                                                   |
|                                    |                             |                                      | EVALUATIO | N                                                                                                                                                                 |
| Domain                             |                             | Metric                               | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance                |                             | - ·                                  |           |                                                                                                                                                                   |
|                                    | Metric 1:                   | Representativeness                   | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                    | Metric 2:                   | Appropriateness                      | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Domain 2: Test Reliabil            | ity                         |                                      |           |                                                                                                                                                                   |
|                                    | Metric 3:                   | Reliability/Unbiased                 | Medium    | There is no indication that the methodology for producing the information was biased                                                                              |
|                                    |                             | (Method Objectivity)                 |           | towards a particular product or outcome.                                                                                                                          |
|                                    | Metric 4:                   | Reliability/Analytical Method        | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                             |                                      |           |                                                                                                                                                                   |
| Domain J. Oulo                     | Metric 5                    | Databases                            | High      | Data is from a recognized peer-reviewed data collection                                                                                                           |
|                                    | Metric 6                    | Models                               | N/A       | Rating of this factor is not applicable to this kind of information                                                                                               |
|                                    | mente 0.                    | modelo                               | 11/11     | Rading of any factor is not applicable to this kind of information.                                                                                               |
| <b>Overall Qualit</b>              | ty Determi                  | nation                               | High      |                                                                                                                                                                   |

| Study Citation:              | RSC (2010) C     | hemSnider: 1.3. Butadiene        |            |                                                                                              |
|------------------------------|------------------|----------------------------------|------------|----------------------------------------------------------------------------------------------|
| OECD Harmonized              | Density          | nemspher. 1,5-Dutaciene.         |            |                                                                                              |
| Template:                    | Denoty           |                                  |            |                                                                                              |
| HERO ID:                     | 5926255          |                                  |            |                                                                                              |
|                              |                  |                                  | EXTRACTION |                                                                                              |
| Parameter                    |                  | Data                             |            |                                                                                              |
|                              |                  |                                  |            |                                                                                              |
| Density                      |                  | 0.62 g/cm3                       |            |                                                                                              |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene          |            |                                                                                              |
| Confidentiality, Type, and C | Guideline        | None; Experimental; Not Reported |            |                                                                                              |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                   |            |                                                                                              |
| Radiolabel, Source, State, a | and Purity       | NR; NR; NR; NR                   |            |                                                                                              |
| Temperature                  |                  | 20°C                             |            |                                                                                              |
| Standard Deviation Results   |                  | Not Reported                     |            |                                                                                              |
| Results Details              |                  | Not Reported                     |            |                                                                                              |
|                              |                  |                                  |            |                                                                                              |
|                              |                  |                                  | EVALUATION |                                                                                              |
| Domain                       |                  | Metric                           | Rating     | Comments                                                                                     |
| Domain 1: Substance          | N                |                                  | TT' 1      |                                                                                              |
|                              | Metric 1:        | Representativeness               | High       | Data are measured or estimated for the subject chemical substance.                           |
|                              | Metric 2:        | Appropriateness                  | N/A        | Rating of this factor is not applicable to this kind of information.                         |
| Domain 2: Test Reliabil      | ity              |                                  |            |                                                                                              |
|                              | Metric 3:        | Reliability/Unbiased             | Medium     | There is no indication that the methodology for producing the information was biased         |
|                              |                  | (Method Objectivity)             |            | towards a particular product or outcome.                                                     |
|                              | Metric 4:        | Reliability/Analytical Method    | Low        | The analytical method is unknown and there is no indication that a reliable method was used. |
| Domain 3: Other              |                  |                                  |            |                                                                                              |
| Domain 5: Other              | Metric 5:        | Databases                        | Medium     | Data is from a publicly available secondary source with references to non-near raviawed      |
|                              | mente J.         | DataDases                        | Wiediulli  | sources.                                                                                     |
|                              | Metric 6:        | Models                           | N/A        | Rating of this factor is not applicable to this kind of information.                         |
|                              |                  |                                  | N. 7 1.    |                                                                                              |
| <b>Overall Qualit</b>        | ty Determi       | nation                           | Medium     |                                                                                              |

\* Related References: SynQuest

1,3-Butadiene

| Study Citation:             | RSC, (2019). C   | ChemSpider: 1,3-Butadiene.       |            |                                                                                                  |
|-----------------------------|------------------|----------------------------------|------------|--------------------------------------------------------------------------------------------------|
| OECD Harmonized             | Density          |                                  |            |                                                                                                  |
|                             | 5026255          |                                  |            |                                                                                                  |
|                             | 3920233          |                                  |            |                                                                                                  |
| _                           |                  | _                                | EXTRACTION |                                                                                                  |
| Parameter                   |                  | Data                             |            |                                                                                                  |
|                             |                  |                                  |            |                                                                                                  |
| Density                     |                  | 0.62 g/cm3                       |            |                                                                                                  |
| CASRN and Test Material     |                  | 106-99-0; 1,3-Butadiene          |            |                                                                                                  |
| Confidentiality, Type, and  | Guideline        | None; Experimental; Not Reported |            |                                                                                                  |
| Solvent, Reactivity, Storag | e, and Stability | NR; NR; NR; NR                   |            |                                                                                                  |
| Radiolabel, Source, State,  | and Purity       | NR; NR; NR; NR                   |            |                                                                                                  |
| Temperature                 |                  | Not Reported                     |            |                                                                                                  |
| Standard Deviation Results  | 6                | Not Reported                     |            |                                                                                                  |
| Results Details             |                  | Not Reported                     |            |                                                                                                  |
|                             |                  |                                  |            |                                                                                                  |
|                             |                  |                                  | EVALUATION |                                                                                                  |
| Domain                      |                  | Metric                           | Rating     | Comments                                                                                         |
| Domain 1: Substance         |                  |                                  |            |                                                                                                  |
|                             | Metric 1:        | Representativeness               | High       | Data are measured or estimated for the subject chemical substance.                               |
|                             | Metric 2:        | Appropriateness                  | N/A        | Rating of this factor is not applicable to this kind of information.                             |
| Domain 2. Test Reliabil     | ity              |                                  |            |                                                                                                  |
| Domain 2. 105t Reliabli     | Metric 3.        | Reliability/Unbiased             | Medium     | There is no indication that the methodology for producing the information was biased             |
|                             | metrie 5.        | (Method Objectivity)             | meanum     | towards a particular product or outcome.                                                         |
|                             | Metric 4:        | Reliability/Analytical Method    | Low        | The analytical method is unknown and there is no indication that a reliable method was used      |
|                             |                  |                                  |            |                                                                                                  |
| Domain 3: Other             |                  |                                  |            |                                                                                                  |
|                             | Metric 5:        | Databases                        | Medium     | Data is from a publicly available secondary source with references to non-peer reviewed sources. |
|                             | Metric 6:        | Models                           | N/A        | Rating of this factor is not applicable to this kind of information.                             |
| Overall Quali               | ty Determi       | ination                          | Medium     |                                                                                                  |

\* Related References: Parchem-fine & specialty chemicals

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Rumble, J. R., (I<br>Density       | Ed.) (2018). 1,3-Butadiene. :3-8.         |           |                                                                                                                                                                   |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Template:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                    |                                           |           |                                                                                                                                                                   |  |
| HERO ID:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5349186                            |                                           |           |                                                                                                                                                                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                           | EXTRACTIO | N                                                                                                                                                                 |  |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                    | Data                                      |           |                                                                                                                                                                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                           |           |                                                                                                                                                                   |  |
| Density                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                    | 0.6149 g/cm3                              |           |                                                                                                                                                                   |  |
| CASRN and Test Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                    | 106-99-0; 1,3-Butadiene                   |           |                                                                                                                                                                   |  |
| Confidentiality, Type, and Confidentiality, and | Guideline                          | None; Experimental; Not Reported          |           |                                                                                                                                                                   |  |
| Solvent, Reactivity, Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | e, and Stability                   | NR; NR; NR; NR                            |           |                                                                                                                                                                   |  |
| Radiolabel, Source, State, a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | and Purity                         | NR; NR; NR; NR                            |           |                                                                                                                                                                   |  |
| Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                    | $25^{\circ}C$ and $> 1$ atm               |           |                                                                                                                                                                   |  |
| Standard Deviation Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5                                  | Not Reported                              |           |                                                                                                                                                                   |  |
| Results Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    | $25^{\circ}C \text{ and} > 1 \text{ atm}$ |           |                                                                                                                                                                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                           |           |                                                                                                                                                                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                           | EVALUATIO | N                                                                                                                                                                 |  |
| Domain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                    | Metric                                    | Rating    | Comments                                                                                                                                                          |  |
| Domain 1: Substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                    |                                           |           |                                                                                                                                                                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 1:                          | Representativeness                        | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 2:                          | Appropriateness                           | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |  |
| Domain 2. Test Reliabil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ity                                |                                           |           |                                                                                                                                                                   |  |
| 2 sinuin 2. Test Rendon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Metric 3:                          | Reliability/Unbiased                      | Medium    | There is no indication that the methodology for producing the information was biased                                                                              |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | metric 5.                          | (Method Objectivity)                      | mearum    | towards a particular product or outcome.                                                                                                                          |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 4:                          | Reliability/Analytical Method             | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                           |           |                                                                                                                                                                   |  |
| Domain 3: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                           |           |                                                                                                                                                                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 5:                          | Databases                                 | High      | Data is from a recognized, peer-reviewed data collection.                                                                                                         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 6:                          | Models                                    | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |  |
| Overall Qualit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Overall Quality Determination High |                                           |           |                                                                                                                                                                   |  |

| Study Citation:<br>OECD Harmonized   | NLM, (2003). P<br>Density | ubChem: Hazardous Substance Data B | ank: 1,3-Butadien | e, 106-99-0.                                                                                                                                                      |
|--------------------------------------|---------------------------|------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                             | 5926134                   |                                    |                   |                                                                                                                                                                   |
|                                      |                           |                                    | EXTRACTIO         | Ň                                                                                                                                                                 |
| Parameter                            |                           | Data                               |                   |                                                                                                                                                                   |
| Danaity                              |                           | 1.07                               |                   |                                                                                                                                                                   |
| CASEN and Test Material              |                           | 1.07<br>106-00-0: 1.3-Butadiene    |                   |                                                                                                                                                                   |
| Confidentiality Type and (           | Juideline                 | None: Experimental: Not specified  |                   |                                                                                                                                                                   |
| Solvent, Reactivity, Storage         | and Stability             | NR: NR: NR: NR                     |                   |                                                                                                                                                                   |
| Radiolabel, Source, State, a         | and Purity                | NR: NR: NR: NR                     |                   |                                                                                                                                                                   |
| System                               |                           | Not reported                       |                   |                                                                                                                                                                   |
| Temperature                          |                           | Not Reported                       |                   |                                                                                                                                                                   |
| Standard Deviation Results           |                           | Not Reported                       |                   |                                                                                                                                                                   |
| Results Details                      |                           | air = 1                            |                   |                                                                                                                                                                   |
|                                      |                           |                                    |                   |                                                                                                                                                                   |
|                                      |                           |                                    | EVALUATIO         | N                                                                                                                                                                 |
| Domain                               |                           | Metric                             | Rating            | Comments                                                                                                                                                          |
| Domain 1: Substance                  | Metric 1.                 | Representativeness                 | High              | Data are measured or actimated for the subject chemical substance                                                                                                 |
|                                      | Metric 2:                 | Appropriateness                    | High              | Measured data are consistent with the subject chemical's physical/chemical properties                                                                             |
|                                      | Metric 2.                 | Appropriateness                    | Ingn              | incasured data are consistent with the subject enclinear s physical/enclinear properties.                                                                         |
| Domain 2: Test Reliabili             | ity                       |                                    |                   |                                                                                                                                                                   |
|                                      | Metric 3:                 | Reliability/Unbiased               | High              | The methodology for producing the information is designed to answer a specific ques-<br>tion, and the methodology's objective is clear.                           |
|                                      | Metric 4:                 | Reliability/Analytical Method      | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                                      |                           |                                    |                   |                                                                                                                                                                   |
| Domain 3: Other                      | Matria 5.                 | Databasas                          | High              | Details from a multiple contribute many antiqued details of the terroriday of                                                                                     |
|                                      | Metric 5:                 | Databases                          | High              | Data is from a publicity available, peer-reviewed database that provides references to original sources.                                                          |
|                                      | Metric 6:                 | Models                             | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Quality Determination</b> |                           |                                    | High              |                                                                                                                                                                   |

\* Related References: Grub, J., Loser, E. 2011. Ullmann's Encyclopedia of Industrial Chemistry. 7th Edition. New York, NY: John Wiley & Sons.

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                  | Anonymous (2014). Substance overview for 1,3-butadiene. :1-1.<br>Vapor Pressure |                                                                                                                                                                                                                       |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:                                                                                                                                                                                               | 9493530                                                                         |                                                                                                                                                                                                                       |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                     |                                                                                 |                                                                                                                                                                                                                       | EXTRACTION                           |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Parameter                                                                                                                                                                                                           |                                                                                 | Data                                                                                                                                                                                                                  |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Vapor Pressure<br>CASRN and Test Material<br>Confidentiality, Type, and G<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Temperature<br>System<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>nd Purity                                      | 2477 - hPa<br>106-99-0; Not Reported<br>no; not specified; Not Reported<br>Not Reported; Not Reported; Not Reporte<br>Not Reported; Not Reported; Not Reporte<br>20 C<br>Not Reported<br>Not Reported<br>Not Reported | ed; Not Reported<br>ed; Not Reported |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                     |                                                                                 |                                                                                                                                                                                                                       | EVALUATION                           |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Domain                                                                                                                                                                                                              |                                                                                 | Metric                                                                                                                                                                                                                | Rating                               | Comments                                                                                                                                                                                                                                                                                                                                                                                                          |
| Domain 1: Substance                                                                                                                                                                                                 |                                                                                 |                                                                                                                                                                                                                       |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                     | Metric 1:<br>Metric 2:                                                          | Representativeness<br>Appropriateness                                                                                                                                                                                 | High<br>High                         | Data are measured or estimated for the subject chemical substance.<br>Measured data are consistent with the subject chemical substance structural features<br>(e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a melting point<br>below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2. Test Reliabil                                                                                                                                                                                             | ity                                                                             |                                                                                                                                                                                                                       |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Domain 2, 105t Reliabil                                                                                                                                                                                             | Metric 3:                                                                       | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                                          | Medium                               | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                     | Metric 4:                                                                       | Reliability/Analytical Method                                                                                                                                                                                         | Low                                  | The analytical method is unknown and there is no indication that a reliable method was used.                                                                                                                                                                                                                                                                                                                      |
| Domain 3: Other                                                                                                                                                                                                     |                                                                                 |                                                                                                                                                                                                                       |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Domain 5. Outer                                                                                                                                                                                                     | Metric 5:                                                                       | Databases                                                                                                                                                                                                             | Low                                  | The data are from a primary source without expert peer-review or an unknown sec-<br>ondary source without peer-review and references to the original sources.                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                     | Metric 6:                                                                       | Models                                                                                                                                                                                                                | Low                                  | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                              |
| Overall Qualit                                                                                                                                                                                                      | y Determin                                                                      | nation                                                                                                                                                                                                                | Medium                               |                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Study Citation:              | CalEPA, (2008).  | CalEPA, (2008). TSD for noncancer RELs - Appendix D.3 Chronic RELs and toxicity summaries using the previous version of the Hot Spots Risk |               |                                                                                      |  |
|------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------|--|
| OECD Harmonized              | Vapor Pressure   | ennes (OENNA 1999).                                                                                                                        |               |                                                                                      |  |
| Template:<br>HERO ID:        | 628645           |                                                                                                                                            |               |                                                                                      |  |
|                              |                  |                                                                                                                                            | EXTRACTION    |                                                                                      |  |
| Parameter                    |                  | Data                                                                                                                                       |               |                                                                                      |  |
|                              |                  |                                                                                                                                            |               |                                                                                      |  |
| Vapor Pressure               |                  | 910 torr                                                                                                                                   |               |                                                                                      |  |
| CASRN and Test Material      |                  | 106-99-0; 1,3-butadiene                                                                                                                    |               |                                                                                      |  |
| Confidentiality, Type, and C | Guideline        | none; Not Reported; Not Reported                                                                                                           |               |                                                                                      |  |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                                                                                                                             |               |                                                                                      |  |
| Radiolabel, Source, State, a | nd Purity        | None; NR; gas; NR                                                                                                                          |               |                                                                                      |  |
| Temperature                  |                  | 20°C                                                                                                                                       |               |                                                                                      |  |
| System                       |                  | Not Reported                                                                                                                               |               |                                                                                      |  |
| Standard Deviation Results   |                  | Not Reported                                                                                                                               |               |                                                                                      |  |
| Results Details              |                  | Not Reponed                                                                                                                                |               |                                                                                      |  |
|                              |                  |                                                                                                                                            | EVALUATION    |                                                                                      |  |
| Domain                       |                  | Metric                                                                                                                                     | Rating        | Comments                                                                             |  |
| Domain 1: Substance          |                  |                                                                                                                                            |               |                                                                                      |  |
|                              | Metric 1:        | Representativeness                                                                                                                         | High          | Data are measured or estimated for the subject chemical substance.                   |  |
|                              | Metric 2:        | Appropriateness                                                                                                                            | N/A           | Rating of this factor is not applicable to this kind of information.                 |  |
| Domain 2. Test Reliabili     | ity              |                                                                                                                                            |               |                                                                                      |  |
| 2 sinuin 2. Test Rendom      | Metric 3:        | Reliability/Unbiased                                                                                                                       | Medium        | There is no indication that the methodology for producing the information was biased |  |
|                              |                  | (Method Objectivity)                                                                                                                       |               | towards a particular product or outcome.                                             |  |
|                              | Metric 4:        | Reliability/Analytical Method                                                                                                              | Medium        | The analytical method is unknown but is likely to be appropriate based on the data's |  |
|                              |                  |                                                                                                                                            |               | inclusion in a peer-reviewed/recognized database or other secondary source.          |  |
| Domain 3: Other              |                  |                                                                                                                                            |               |                                                                                      |  |
|                              | Metric 5:        | Databases                                                                                                                                  | Uninformative | The data does not match the data reported in the source.                             |  |
|                              | Metric 6:        | Models                                                                                                                                     | N/A           | Rating of this factor is not applicable to this kind of information.                 |  |
|                              |                  |                                                                                                                                            |               |                                                                                      |  |

## **Overall Quality Determination**

Uninformative

\* Related References: Gray lit referencing HSDB 2000 and CRC 1995; HEROID: 5926134 for HSDB (2003) reports 2052 mm Hg and HEROID: 5349186 for CRC (2018) reports 1912 mm Hg @ 295 K

| Study Citation:                      | California Office of Environmental Health Hazard Assessment (OEHHA) (2011). Appendix B: Chemical-specific summaries of the information used to |                                              |           |                                                                                                                                                                                              |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized                      | derive unit risk a<br>Vapor Pressure                                                                                                           | and cancer potency values.                   |           |                                                                                                                                                                                              |
| Template:                            | vapor i ressure                                                                                                                                |                                              |           |                                                                                                                                                                                              |
| HERO ID:                             | 5155632                                                                                                                                        |                                              |           |                                                                                                                                                                                              |
|                                      |                                                                                                                                                |                                              | EXTRACTIO | <br>N                                                                                                                                                                                        |
| Parameter                            |                                                                                                                                                | Data                                         |           |                                                                                                                                                                                              |
|                                      |                                                                                                                                                |                                              |           |                                                                                                                                                                                              |
| Vapor Pressure                       |                                                                                                                                                | 910 mm Hg                                    |           |                                                                                                                                                                                              |
| CASRN and Test Material              | ~                                                                                                                                              | 106-99-0; 1,3-BUTADIENE                      |           |                                                                                                                                                                                              |
| Confidentiality, Type, and C         |                                                                                                                                                | none; not specified; Not reported            |           |                                                                                                                                                                                              |
| Solvent, Reactivity, Storage         | e, and Stability                                                                                                                               | NR; NR; NR; NR                               |           |                                                                                                                                                                                              |
| Radiolabel, Source, State, a         | ind Purity                                                                                                                                     | NR; NR; NR; NR Notes: NR                     |           |                                                                                                                                                                                              |
| Temperature                          |                                                                                                                                                | 20 deg C                                     |           |                                                                                                                                                                                              |
| System<br>Standard Deviation Deculta |                                                                                                                                                | NR<br>ND                                     |           |                                                                                                                                                                                              |
| Standard Deviation Results           |                                                                                                                                                | NK<br>Not Deported                           |           |                                                                                                                                                                                              |
| Results Details                      |                                                                                                                                                | Not Reported                                 |           |                                                                                                                                                                                              |
|                                      |                                                                                                                                                |                                              | EVALUATIO | N                                                                                                                                                                                            |
| Domain                               |                                                                                                                                                | Metric                                       | Rating    | Comments                                                                                                                                                                                     |
| Domain 1: Substance                  |                                                                                                                                                |                                              |           |                                                                                                                                                                                              |
|                                      | Metric 1:                                                                                                                                      | Representativeness                           | High      | Data are measured or estimated for the subject chemical substance.                                                                                                                           |
|                                      | Metric 2:                                                                                                                                      | Appropriateness                              | High      | Measured data are consistent with the subject chemical substance structural features.                                                                                                        |
| Domain 2: Test Reliabil              | itv                                                                                                                                            |                                              |           |                                                                                                                                                                                              |
|                                      | Metric 3:                                                                                                                                      | Reliability/Unbiased<br>(Method Objectivity) | Medium    | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                |
|                                      | Metric 4:                                                                                                                                      | Reliability/Analytical Method                | Medium    | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                             |
| Domain 3: Other                      |                                                                                                                                                |                                              |           |                                                                                                                                                                                              |
| Domain 5. Onei                       | Metric 5:                                                                                                                                      | Databases                                    | Medium    | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                                      | Metric 6:                                                                                                                                      | Models                                       | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| Overall Qualit                       | y Determin                                                                                                                                     | nation                                       | High      |                                                                                                                                                                                              |

\* Related References: Citing HSDB, 1998.

| Study Citation:                                                                                                                                          | California Office                          | California Office of Environmental Health Hazard Assessment :: OEHHA (2014). Appendix D: Individual acute, 8-hour, and chronic reference exposure                    |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| OECD Harmonized                                                                                                                                          | level summaries<br>Vapor Pressure          | •                                                                                                                                                                    |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Template:                                                                                                                                                | -                                          |                                                                                                                                                                      |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| HERO ID:                                                                                                                                                 | 5155603                                    |                                                                                                                                                                      |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
|                                                                                                                                                          | EXTRACTION                                 |                                                                                                                                                                      |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Parameter                                                                                                                                                |                                            | Data                                                                                                                                                                 |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Vapor Pressure<br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Temperature | Guideline<br>e, and Stability<br>nd Purity | 2100 mm Hg<br>106-99-0; 1,3-Butadiene<br>No; Not specified; Not Reported<br>Not Reported; Not Reported; Not Report<br>Not Reported; Not Reported; Not Report<br>25 C | ted; Not Reported<br>ted; Not Reported |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| System                                                                                                                                                   |                                            | Not Reported                                                                                                                                                         |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Standard Deviation Results                                                                                                                               |                                            | Not Reported                                                                                                                                                         |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Results Details                                                                                                                                          |                                            | Not Reported                                                                                                                                                         |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
|                                                                                                                                                          |                                            |                                                                                                                                                                      | EVALUATIO                              | Ň                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |
| Domain                                                                                                                                                   |                                            | Metric                                                                                                                                                               | Rating                                 | Comments                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |  |
| Domain 1: Substance                                                                                                                                      |                                            |                                                                                                                                                                      |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
|                                                                                                                                                          | Metric 1:<br>Metric 2:                     | Representativeness<br>Appropriateness                                                                                                                                | High<br>High                           | Data are measured or estimated for the subject chemical substance.<br>Measured data are consistent with the subject chemical substance structural features<br>(e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a melting point<br>below 25°C and a boiling point above 25°C) or behaviors. |  |  |  |
| Domain 2. Test Reliabil                                                                                                                                  | ity                                        |                                                                                                                                                                      |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Domain 2, Test Reliabil                                                                                                                                  | Metric 3:                                  | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                         | Medium                                 | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                                                                                     |  |  |  |
|                                                                                                                                                          | Metric 4:                                  | Reliability/Analytical Method                                                                                                                                        | Medium                                 | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                                                                                                                                                                                                                                  |  |  |  |
| Domain 3: Other                                                                                                                                          |                                            |                                                                                                                                                                      |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |
| Domain 5. Other                                                                                                                                          | Metric 5:                                  | Databases                                                                                                                                                            | High                                   | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use.                                                                                                                                                                                                                             |  |  |  |
|                                                                                                                                                          | Metric 6:                                  | Models                                                                                                                                                               | N/A                                    | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                              |  |  |  |
| Overall Qualit                                                                                                                                           | Overall Quality Determination High         |                                                                                                                                                                      |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |  |

\* Related References: No source cited; extracted gray lit

| Study Citation:                      | DOE, (2016). Ta | ble 1: Chemicals of concern and associ | ated chemical inf | ormation. PACs.                                                                                                                                                                                             |
|--------------------------------------|-----------------|----------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized                      | Vapor Pressure  |                                        |                   |                                                                                                                                                                                                             |
| HERO ID:                             | 3981013         |                                        |                   |                                                                                                                                                                                                             |
|                                      |                 |                                        | EXTRACTIO         | N                                                                                                                                                                                                           |
| Parameter                            |                 | Data                                   |                   |                                                                                                                                                                                                             |
| V D                                  |                 | 750 11                                 |                   |                                                                                                                                                                                                             |
| Vapor Pressure                       |                 | /50 - mm Hg<br>106 00 0: 1.2 Butadiana |                   |                                                                                                                                                                                                             |
| CASKIN and Test Material             | Tuidalina       | none: not specified: not specified     |                   |                                                                                                                                                                                                             |
| Solvent Reactivity Storage           | and Stability   | NR · NR · NR                           |                   |                                                                                                                                                                                                             |
| Radiolabel Source State a            | and Purity      | NR: NR: NR NR Notes: NR                |                   |                                                                                                                                                                                                             |
| Temperature                          | and I direy     | -4.7°C                                 |                   |                                                                                                                                                                                                             |
| System                               |                 | not reported                           |                   |                                                                                                                                                                                                             |
| Standard Deviation Results           |                 | not reported                           |                   |                                                                                                                                                                                                             |
| Results Details                      |                 | not reported                           |                   |                                                                                                                                                                                                             |
|                                      |                 |                                        |                   |                                                                                                                                                                                                             |
|                                      |                 |                                        | EVALUATIO         | N                                                                                                                                                                                                           |
| Domain                               |                 | Metric                                 | Rating            | Comments                                                                                                                                                                                                    |
| Domain 1: Substance                  | Matria 1.       | D                                      | II:-1-            |                                                                                                                                                                                                             |
|                                      | Metric 1:       | Appresentativeness                     | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                          |
|                                      | Metric 2:       | Appropriateness                        | підп              | Measured data are consistent with the subject chemical substance structural features.                                                                                                                       |
| Domain 2: Test Reliabil              | ity             |                                        |                   |                                                                                                                                                                                                             |
|                                      | Metric 3:       | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                                        |
|                                      |                 | (Method Objectivity)                   |                   | towards a particular product or outcome.                                                                                                                                                                    |
|                                      | Metric 4:       | Reliability/Analytical Method          | Medium            | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                            |
| Domain 3: Other                      |                 |                                        |                   |                                                                                                                                                                                                             |
|                                      | Metric 5:       | Databases                              | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review; specific source not reported. |
|                                      | Metric 6:       | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                        |
| <b>Overall Quality Determination</b> |                 |                                        | High              |                                                                                                                                                                                                             |

\* Related References: primary reference not specified but include CRC (2009), HSDB (no date), Merck (2006), SAX (2012)

| Study Citation:<br>OECD Harmonized | EC, (2000). Prio<br>Vapor Pressure | ority Substances List Assessment Report | t: 1,3-Butadiene.  |                                                                                                                                                                                                                                                     |  |  |  |  |
|------------------------------------|------------------------------------|-----------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| Template:                          | 1                                  |                                         |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| HERO ID:                           | 5160048                            |                                         |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
|                                    | EXTRACTION                         |                                         |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| Parameter                          |                                    | Data                                    |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| Von on Drocouro                    |                                    | 291 kDa                                 |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| CASRN and Test Material            |                                    | 201 - Kra<br>106-99-0: 1 3-Butadiene    |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| Confidentiality Type, and (        | Guideline                          | No: calculation: Not Reported           |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                   | Not Reported: Not Reported: Not Report  | rted: Not Reported |                                                                                                                                                                                                                                                     |  |  |  |  |
| Radiolabel, Source, State, a       | and Purity                         | Not Reported; Not Reported; Not Report  | rted; Not Reported |                                                                                                                                                                                                                                                     |  |  |  |  |
| Temperature                        | 2                                  | 25 C                                    |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| System                             |                                    | Not Reported                            |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| Standard Deviation Results         |                                    | Not Reported                            |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| Results Details                    |                                    | calculated at 25 C and 101.325 kPa      |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
|                                    |                                    |                                         | EVALUATIO          | N                                                                                                                                                                                                                                                   |  |  |  |  |
| Domain                             |                                    | Metric                                  | Rating             | Comments                                                                                                                                                                                                                                            |  |  |  |  |
| Domain 1: Substance                |                                    |                                         |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
|                                    | Metric 1:                          | Representativeness                      | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |  |  |
|                                    | Metric 2:                          | Appropriateness                         | High               | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |  |  |  |  |
|                                    |                                    |                                         |                    | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.       |  |  |  |  |
| Domoin 2. Tost Dalishil            | :                                  |                                         |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| Domain 2. Test Kellabil            | Metric 3:                          | Reliability/Unbiased                    | Medium             | There is no indication that the methodology for producing the information was biased                                                                                                                                                                |  |  |  |  |
|                                    | Weule 5.                           | (Method Objectivity)                    | Wiedium            | towards a particular product or outcome.                                                                                                                                                                                                            |  |  |  |  |
|                                    | Metric 4:                          | Reliability/Analytical Method           | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |  |  |
| Domain 3: Other                    |                                    |                                         |                    |                                                                                                                                                                                                                                                     |  |  |  |  |
| Domain 3. Other                    | Metric 5:                          | Databases                               | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |  |  |
|                                    | Metric 6:                          | Models                                  | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |  |  |
| Overall Qualit                     | ty Determin                        | nation                                  | High               |                                                                                                                                                                                                                                                     |  |  |  |  |

\* Related References: cited from Mackay, D., W.Y. Shiu and K.C. Ma. 1993.Illustrated handbook of physical-chemicalproperties and environmental fate of organiccompounds. Vol. III. Lewis Publishers Inc., Chelsea, Michigan

| Study Citation:<br>OECD Harmonized | ECB, (2002). Eu<br>Vapor Pressure | ropean Union risk assessment report: 1 | ,3-butadiene.     |                                                                                                                                                                                                                                      |
|------------------------------------|-----------------------------------|----------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | 5155560                           |                                        |                   |                                                                                                                                                                                                                                      |
| HERO ID:                           | 5155560                           |                                        |                   |                                                                                                                                                                                                                                      |
|                                    |                                   |                                        | EXTRACTIO         | N                                                                                                                                                                                                                                    |
| Parameter                          |                                   | Data                                   |                   |                                                                                                                                                                                                                                      |
|                                    |                                   |                                        |                   |                                                                                                                                                                                                                                      |
| Vapor Pressure                     |                                   | 244.7 - kPa                            |                   |                                                                                                                                                                                                                                      |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-butadiene                |                   |                                                                                                                                                                                                                                      |
| Confidentiality, Type, and C       | Guideline                         | no; not specified; Not Reported        |                   |                                                                                                                                                                                                                                      |
| Solvent, Reactivity, Storage       | e, and Stability                  | Not Reported; Not Reported; Not Repor  | ted; Not Reported |                                                                                                                                                                                                                                      |
| Radiolabel, Source, State, a       | and Purity                        | Not Reported; Not Reported; Not Repor  | ted; Not Reported |                                                                                                                                                                                                                                      |
| Temperature                        |                                   | 21 C                                   |                   |                                                                                                                                                                                                                                      |
| System                             |                                   | Not Reported                           |                   |                                                                                                                                                                                                                                      |
| Standard Deviation Results         | 1                                 | Not Reported                           |                   |                                                                                                                                                                                                                                      |
| Results Details                    |                                   | (CRC handbook 1988)                    |                   |                                                                                                                                                                                                                                      |
|                                    |                                   |                                        | EVALUATIO         | N                                                                                                                                                                                                                                    |
| Domain                             |                                   | Metric                                 | Rating            | Comments                                                                                                                                                                                                                             |
| Domain 1: Substance                |                                   | Methe                                  | Runng             | connicits                                                                                                                                                                                                                            |
| Domain 1. Substance                | Metric 1:                         | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance                                                                                                                                                                    |
|                                    | Metric 2.                         | Appropriateness                        | N/A               | Rating of this factor is not applicable to this kind of information                                                                                                                                                                  |
|                                    |                                   | rippropriateness                       | 10/11             | Rading of this factor is not appreaded to this kind of mornhadon.                                                                                                                                                                    |
| Domain 2: Test Reliabil            | ity                               |                                        |                   |                                                                                                                                                                                                                                      |
|                                    | Metric 3:                         | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                        |
|                                    | Metric 4:                         | Reliability/Analytical Method          | Medium            | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peop reviewed/reasering database or other accordery source.                                                                      |
|                                    |                                   |                                        |                   | inclusion in a peer-reviewed/recognized database of other secondary soulce.                                                                                                                                                          |
| Domain 3. Other                    |                                   |                                        |                   |                                                                                                                                                                                                                                      |
| Domain 5. Other                    | Metric 5:                         | Databases                              | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources. |
|                                    | Metric 6:                         | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information                                                                                                                                                                  |
| Overall Qualit                     | ty Determir                       | nation                                 | High              |                                                                                                                                                                                                                                      |

\* Related References: cited from the CRC Handbook of Chemistry and Physics (1988). Weast RC, Astle MJ, Beyer WH (Eds). CRC Handbook of Chemistry and Physics, 69th Edition. CRC Press Inc. Boca Raton. USA. (HERO ID: 46579)

| Study Citation:              | ECB, (2002). Eur | ropean Union risk assessment report: 1       | ,3-butadiene.     |                                                                                                                                                                                                                                                    |
|------------------------------|------------------|----------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template.                    | vapor riessure   |                                              |                   |                                                                                                                                                                                                                                                    |
| HERO ID:                     | 5155560          |                                              |                   |                                                                                                                                                                                                                                                    |
|                              |                  |                                              | EXTRACTIO         | Ň                                                                                                                                                                                                                                                  |
| Parameter                    |                  | Data                                         | LAIRICIIO         |                                                                                                                                                                                                                                                    |
|                              |                  |                                              |                   |                                                                                                                                                                                                                                                    |
| Vapor Pressure               |                  | 856 - mm Hg                                  |                   |                                                                                                                                                                                                                                                    |
| CASRN and Test Material      |                  | 106-99-0: 1 3-butadiene                      |                   |                                                                                                                                                                                                                                                    |
| Confidentiality, Type, and C | Guideline        | no: experimental: Not Reported               |                   |                                                                                                                                                                                                                                                    |
| Solvent, Reactivity, Storage | e, and Stability | Not Reported: Not Reported: Not Report       | ted: Not Reported |                                                                                                                                                                                                                                                    |
| Radiolabel, Source, State, a | nd Purity        | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                                                                                                                    |
| Temperature                  | •                | -1.5 C                                       |                   |                                                                                                                                                                                                                                                    |
| System                       |                  | Mercury Manometer                            |                   |                                                                                                                                                                                                                                                    |
| Standard Deviation Results   |                  | Not Reported                                 |                   |                                                                                                                                                                                                                                                    |
| Results Details              |                  | Not Reported                                 |                   |                                                                                                                                                                                                                                                    |
|                              |                  |                                              |                   |                                                                                                                                                                                                                                                    |
|                              |                  |                                              | EVALUATIO         | N                                                                                                                                                                                                                                                  |
| Domain                       |                  | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                           |
| Domain 1: Substance          |                  |                                              |                   |                                                                                                                                                                                                                                                    |
|                              | Metric 1:        | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                 |
|                              | Metric 2:        | Appropriateness                              | Medium            | Data measured for a structural analogue of the subject chemical substance are consistent                                                                                                                                                           |
|                              |                  |                                              |                   | with what is expected for the subject chemical substance structural properties, features or behaviors.                                                                                                                                             |
| Domain 2: Test Reliabili     | ity              |                                              |                   |                                                                                                                                                                                                                                                    |
|                              | Metric 3:        | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                      |
|                              | Metric 4:        | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source |
| Demeir 2. Other              |                  |                                              |                   |                                                                                                                                                                                                                                                    |
| Domain 3: Other              | Metric 5:        | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.               |
|                              | Metric 6:        | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information                                                                                                                                                                                |
| Overall Qualit               | y Determin       | ation                                        | High              |                                                                                                                                                                                                                                                    |

\* Related References: cited from Boublik T et al. (1984). The vapour pressures of pure substances. Volume 17. Elsevier Science Publications, Amsterdam, The Netherlands. and Heisig GB (1933). Action of radon on some unsaturated hydrocarbons. III vinylacetylene and butadiene. J Am Chem Soc. 55; 2304.

| Study Citation:              | ECB (2002) Eur        | opean Union risk assessment report: 1                 | 3-butadiene      |                                                                                                                                                                                      |
|------------------------------|-----------------------|-------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Vapor Pressure        | opean emon risk assessment report. 1,                 | s butuelelle.    |                                                                                                                                                                                      |
| Template:                    |                       |                                                       |                  |                                                                                                                                                                                      |
| HERO ID:                     | 5155560               |                                                       |                  |                                                                                                                                                                                      |
|                              |                       |                                                       | EXTRACTIO        | N                                                                                                                                                                                    |
| Parameter                    |                       | Data                                                  |                  |                                                                                                                                                                                      |
|                              |                       |                                                       |                  |                                                                                                                                                                                      |
| Vapor Pressure               |                       | 240.0 - kPa                                           |                  |                                                                                                                                                                                      |
| CASRN and Test Material      |                       | 106-99-0; 1,3-butadiene                               |                  |                                                                                                                                                                                      |
| Confidentiality, Type, and C | Guideline             | no; not specified; Not Reported                       |                  |                                                                                                                                                                                      |
| Solvent, Reactivity, Storage | e, and Stability      | Not Reported; Not Reported; Not Report                | ed; Not Reported |                                                                                                                                                                                      |
| Radiolabel, Source, State, a | and Purity            | Not Reported; Not Reported; Not Report                | ed; Not Reported |                                                                                                                                                                                      |
| Temperature                  |                       | 20 C                                                  |                  |                                                                                                                                                                                      |
| System                       |                       | Not Reported                                          |                  |                                                                                                                                                                                      |
| Standard Deviation Results   |                       | Not Reported                                          |                  |                                                                                                                                                                                      |
| Results Details              |                       | Not Reported                                          |                  |                                                                                                                                                                                      |
|                              |                       |                                                       |                  |                                                                                                                                                                                      |
| ~ .                          |                       |                                                       | EVALUATION       | N                                                                                                                                                                                    |
| Domain                       |                       | Metric                                                | Rating           | Comments                                                                                                                                                                             |
| Domain 1: Substance          | M 1                   |                                                       | TT: 1            |                                                                                                                                                                                      |
|                              | Metric 1:             | Representativeness                                    | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                   |
|                              | Metric 2:             | Appropriateness                                       | Medium           | Data measured for a structural analogue of the subject chemical substance are consistent<br>with what is expected for the subject chemical substance structural properties, features |
|                              |                       |                                                       |                  | or behaviors.                                                                                                                                                                        |
|                              |                       |                                                       |                  |                                                                                                                                                                                      |
| Domain 2: Test Reliabil      | ity                   |                                                       |                  |                                                                                                                                                                                      |
|                              | Metric 3:             | Reliability/Unbiased                                  | Medium           | There is no indication that the methodology for producing the information was biased                                                                                                 |
|                              | Matria 4              | (Method Objectivity)<br>Reliability/Analytical Mathod | Madium           | towards a particular product or outcome.                                                                                                                                             |
|                              | Metric 4:             | Renability/Analytical Method                          | Medium           | cal method is unknown but is likely to be appropriate based on the data's inclusion in a                                                                                             |
|                              |                       |                                                       |                  | peer-reviewed/recognized database or other secondary source                                                                                                                          |
|                              |                       |                                                       |                  |                                                                                                                                                                                      |
| Domain 3: Other              |                       |                                                       |                  |                                                                                                                                                                                      |
|                              | Metric 5:             | Databases                                             | High             | The information or data is from a recognized data collection/repository where data are                                                                                               |
|                              |                       |                                                       |                  | peer-reviewed by experts in the field, are broadly available to the public for review and<br>use OR includes references to the original sources                                      |
|                              | Metric 6 <sup>.</sup> | Models                                                | N/A              | Rating of this factor is not applicable to this kind of information                                                                                                                  |
|                              |                       |                                                       | 1 1/2 1          | Taking of this factor is not uppreade to this kind of information                                                                                                                    |
| <b>Overall Onalit</b>        | v Determin            | ation                                                 | High             |                                                                                                                                                                                      |
| - , vi un Yuun               |                       |                                                       | 8-11             |                                                                                                                                                                                      |

\* Related References: CRC Handbook of Chemistry and Physics (1988) ((HERO ID: 46579)

| Study Citation:              | Grub, J., Löser, | E. (2011). Butadiene. :381-396.              |                    |                                                                                                                                                                                                                                                     |
|------------------------------|------------------|----------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Vapor Pressure   |                                              |                    |                                                                                                                                                                                                                                                     |
| Template:                    | 0.400.50         |                                              |                    |                                                                                                                                                                                                                                                     |
| HERO ID:                     | 9493526          |                                              |                    |                                                                                                                                                                                                                                                     |
|                              |                  |                                              | EXTRACTIO          | N                                                                                                                                                                                                                                                   |
| Parameter                    |                  | Data                                         |                    |                                                                                                                                                                                                                                                     |
| Vapor Pressure               |                  | Not Reported                                 |                    |                                                                                                                                                                                                                                                     |
| CASRN and Test Material      |                  | 106-99-0: 1.3-Butadiene                      |                    |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and   | Guideline        | no; not specified; Not Reported              |                    |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage | e, and Stability | Not Reported; Not Reported; Not Repo         | rted; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a | and Purity       | Not Reported; Not Reported; Not Repo         | rted; Not Reported |                                                                                                                                                                                                                                                     |
| Temperature                  |                  | Not Reported                                 |                    |                                                                                                                                                                                                                                                     |
| System                       |                  | Not Reported                                 |                    |                                                                                                                                                                                                                                                     |
| Standard Deviation Results   | 1                | Not Reported                                 |                    |                                                                                                                                                                                                                                                     |
| Results Details              |                  | critical pressure= 4.32 MPa                  |                    |                                                                                                                                                                                                                                                     |
|                              |                  |                                              | EVALUATIO          | N                                                                                                                                                                                                                                                   |
| Domain                       |                  | Metric                                       | Rating             | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance          |                  |                                              |                    |                                                                                                                                                                                                                                                     |
|                              | Metric 1:        | Representativeness                           | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                              | Metric 2:        | Appropriateness                              | High               | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |
|                              |                  |                                              |                    | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.       |
| Domain 2: Test Reliabil      | ity              |                                              |                    |                                                                                                                                                                                                                                                     |
|                              | Metric 3:        | Reliability/Unbiased<br>(Method Objectivity) | Medium             | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                              | Metric 4:        | Reliability/Analytical Method                | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other              |                  |                                              |                    |                                                                                                                                                                                                                                                     |
|                              | Metric 5:        | Databases                                    | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                              | Metric 6:        | Models                                       | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Qualit               | ty Determi       | nation                                       | High               |                                                                                                                                                                                                                                                     |

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | Grub, J., Löser, I<br>Vapor Pressure | E. (2011). Butadiene. :381-396.              |                   |                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------|--------------------------------------|----------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 9493526                              |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |
|                                    |                                      |                                              | EXTRACTIO         | N                                                                                                                                                                                                                                                                                                                                  |
| Parameter                          |                                      | Data                                         |                   |                                                                                                                                                                                                                                                                                                                                    |
|                                    |                                      |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |
| Vapor Pressure                     |                                      | 986.7 - kPa                                  |                   |                                                                                                                                                                                                                                                                                                                                    |
| CASRN and Test Material            |                                      | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                                                                                                                    |
| Confidentiality, Type, and C       | Guideline                            | no; not specified; Not Reported              |                   |                                                                                                                                                                                                                                                                                                                                    |
| Solvent, Reactivity, Storage       | e, and Stability                     | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |
| Radiolabel, Source, State, a       | and Purity                           | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |
| Temperature                        |                                      | 75 C                                         |                   |                                                                                                                                                                                                                                                                                                                                    |
| System                             |                                      | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                    |
| Standard Deviation Results         |                                      | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                    |
| Results Details                    |                                      | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                    |
|                                    |                                      |                                              | EVALUATIO         | N                                                                                                                                                                                                                                                                                                                                  |
| Domain                             |                                      | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                                                                                                           |
| Domain 1: Substance                |                                      |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |
|                                    | Metric 1:                            | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |
|                                    | Metric 2:                            | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2: Test Reliabil            | ity                                  |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |
|                                    | Metric 3:                            | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |
|                                    | Metric 4:                            | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |
| Domain 2. Other                    |                                      |                                              |                   |                                                                                                                                                                                                                                                                                                                                    |
| Domain 5: Other                    | Metric 5:                            | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |
|                                    | Metric 6:                            | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |
| Overall Qualit                     | ty Determin                          | nation                                       | High              |                                                                                                                                                                                                                                                                                                                                    |

| Study Citation:<br>OECD Harmonized | Grub, J., Löser, E<br>Vapor Pressure | . (2011). Butadiene. :381-396.               |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
|------------------------------------|--------------------------------------|----------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Template:<br>HERO ID:              | 9493526                              |                                              |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
|                                    | EXTRACTION                           |                                              |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| Parameter                          |                                      | Data                                         |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
|                                    |                                      |                                              |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| Vapor Pressure                     |                                      | Not Reported                                 |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| CASRN and Test Material            | a                                    | 106-99-0; 1,3-Butadiene                      |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| Confidentiality, Type, and         | Guideline                            | no; not specified; Not Reported              |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                     | Not Reported; Not Reported; Not Reporte      | d; Not Reported |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| Radiolabel, Source, State, a       | and Purity                           | Not Reported; Not Reported; Not Reporte      | d; Not Reported |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| Temperature                        |                                      | Not Reported                                 |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| System                             |                                      | Not Reported                                 |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| Standard Deviation Results         | 5                                    | Not Reported                                 |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| Results Details                    |                                      | Enthalpy of Vaporization: 20.86 kJ/mol at    | 25C             |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
|                                    |                                      |                                              | EVALUATIO       | N                                                                                                                                                                                                                                                                                                                                                      |  |  |  |
| Domain                             |                                      | Metric                                       | Rating          | Comments                                                                                                                                                                                                                                                                                                                                               |  |  |  |
| Domain 1: Substance                |                                      |                                              |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
|                                    | Metric 1:                            | Representativeness                           | High            | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                     |  |  |  |
|                                    | Metric 2:                            | Appropriateness                              | High            | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors. |  |  |  |
| Domain 2: Test Reliabil            | itv                                  |                                              |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
|                                    | Metric 3:                            | Reliability/Unbiased<br>(Method Objectivity) | Medium          | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                          |  |  |  |
|                                    | Metric 4:                            | Reliability/Analytical Method                | Medium          | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                    |  |  |  |
| Domain 3: Other                    |                                      |                                              |                 |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |
| Domain 5: Other                    | Metric 5:                            | Databases                                    | High            | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                   |  |  |  |
|                                    | Metric 6:                            | Models                                       | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                   |  |  |  |
| <b>Overall Quali</b>               | ty Determin                          | ation                                        | High            |                                                                                                                                                                                                                                                                                                                                                        |  |  |  |

1,3-Butadiene

| Study Citation:<br>OECD Harmonized<br>Template: | Grub, J., Löser, H<br>Vapor Pressure | E. (2011). Butadiene. :381-396.        |                   |                                                                                                                                                                                     |  |  |
|-------------------------------------------------|--------------------------------------|----------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                                        | 9493526                              |                                        |                   |                                                                                                                                                                                     |  |  |
|                                                 |                                      |                                        | EXTRACTIO         | N                                                                                                                                                                                   |  |  |
| Parameter                                       |                                      | Data                                   |                   |                                                                                                                                                                                     |  |  |
|                                                 |                                      |                                        |                   |                                                                                                                                                                                     |  |  |
| Vapor Pressure                                  |                                      | 101.3 - kPa                            |                   |                                                                                                                                                                                     |  |  |
| CASRN and Test Material                         |                                      | 106-99-0; 1,3-Butadiene                |                   |                                                                                                                                                                                     |  |  |
| Confidentiality, Type, and C                    | Guideline                            | no; not specified; Not Reported        |                   |                                                                                                                                                                                     |  |  |
| Solvent, Reactivity, Storage                    | e, and Stability                     | Not Reported; Not Reported; Not Report | ted; Not Reported |                                                                                                                                                                                     |  |  |
| Radiolabel, Source, State, a                    | and Purity                           | Not Reported; Not Reported; Not Report | ted; Not Reported |                                                                                                                                                                                     |  |  |
| Temperature                                     |                                      | -4.4 C                                 |                   |                                                                                                                                                                                     |  |  |
| System                                          |                                      | Not Reported                           |                   |                                                                                                                                                                                     |  |  |
| Standard Deviation Results                      |                                      | Not Reported                           |                   |                                                                                                                                                                                     |  |  |
| Results Details                                 |                                      | Not Reported                           |                   |                                                                                                                                                                                     |  |  |
|                                                 |                                      |                                        | EVALUATIO         | N                                                                                                                                                                                   |  |  |
| Domain                                          |                                      | Metric                                 | Rating            | Comments                                                                                                                                                                            |  |  |
| Domain 1: Substance                             |                                      |                                        | 8                 |                                                                                                                                                                                     |  |  |
|                                                 | Metric 1:                            | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                  |  |  |
|                                                 | Metric 2:                            | Appropriateness                        | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                |  |  |
|                                                 |                                      |                                        |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                                          |  |  |
|                                                 |                                      |                                        |                   | if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors.              |  |  |
|                                                 |                                      |                                        |                   |                                                                                                                                                                                     |  |  |
| Domain 2: Test Reliabil                         | ity                                  |                                        |                   |                                                                                                                                                                                     |  |  |
|                                                 | Metric 3:                            | (Method Objectivity)                   | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                       |  |  |
|                                                 | Metric 4:                            | Reliability/Analytical Method          | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a |  |  |
|                                                 |                                      |                                        |                   | peer-reviewed/recognized database or other secondary source.                                                                                                                        |  |  |
| Domain 3: Other                                 |                                      |                                        |                   |                                                                                                                                                                                     |  |  |
| Domain 5. Outer                                 | Metric 5:                            | Databases                              | High              | The information or data is from a recognized data collection/repository where data are                                                                                              |  |  |
|                                                 |                                      |                                        |                   | peer-reviewed by experts in the field, are broadly available to the public for review and                                                                                           |  |  |
|                                                 |                                      |                                        |                   | use OR includes references to the original sources.                                                                                                                                 |  |  |
|                                                 | Metric 6:                            | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                |  |  |
| Overall Qualif                                  | Overall Auglity Determination High   |                                        |                   |                                                                                                                                                                                     |  |  |
|                                                 |                                      |                                        |                   |                                                                                                                                                                                     |  |  |

1,3-Butadiene

| Study Citation:<br>OECD Harmonized        | Grub, J., Löser,<br>Vapor Pressure | E. (2011). Butadiene. :381-396.              |                   |                                                                                                                                                                                                                                                     |
|-------------------------------------------|------------------------------------|----------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                                 | 0402526                            |                                              |                   |                                                                                                                                                                                                                                                     |
| HERO ID:                                  | 9493526                            |                                              |                   |                                                                                                                                                                                                                                                     |
|                                           |                                    |                                              | EXTRACTIO         | N                                                                                                                                                                                                                                                   |
| Parameter                                 |                                    | Data                                         |                   |                                                                                                                                                                                                                                                     |
|                                           |                                    |                                              |                   |                                                                                                                                                                                                                                                     |
| Vapor Pressure                            |                                    | 273.6 - kPa                                  |                   |                                                                                                                                                                                                                                                     |
| CASRN and Test Material                   |                                    | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C              | Guideline                          | no; not specified; Not Reported              |                   |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage              | e, and Stability                   | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a              | and Purity                         | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                                                                                                                     |
| Temperature                               |                                    | 25 C                                         |                   |                                                                                                                                                                                                                                                     |
| System                                    |                                    | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| Standard Deviation Results                | 1                                  | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| Results Details                           |                                    | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
|                                           |                                    |                                              |                   | N                                                                                                                                                                                                                                                   |
| Domain                                    |                                    | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                       |                                    | Wette                                        | Runng             | connicity                                                                                                                                                                                                                                           |
| Domain 1. Substance                       | Metric 1:                          | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                           | Metric 2:                          | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |
|                                           |                                    |                                              |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.       |
| Domain 2: Test Reliabil                   | ity                                |                                              |                   |                                                                                                                                                                                                                                                     |
| 2. 100 100 100 100 100 100 100 100 100 10 | Metric 3:                          | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                           | Metric 4:                          | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                           |                                    |                                              |                   |                                                                                                                                                                                                                                                     |
| Bomain 5. Other                           | Metric 5:                          | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                           | Metric 6:                          | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| <b>Overall Qualit</b>                     | ty Determin                        | nation                                       | High              |                                                                                                                                                                                                                                                     |

1,3-Butadiene

| Study Citation:<br>OECD Harmonized<br>Template: | Grub, J., Löser, l<br>Vapor Pressure | E. (2011). Butadiene. :381-396.        |                   |                                                                                                                                                                                         |  |  |  |
|-------------------------------------------------|--------------------------------------|----------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| HERO ID:                                        | 9493526                              |                                        |                   |                                                                                                                                                                                         |  |  |  |
|                                                 | EXTRACTION                           |                                        |                   |                                                                                                                                                                                         |  |  |  |
| Parameter                                       |                                      | Data                                   |                   |                                                                                                                                                                                         |  |  |  |
|                                                 |                                      |                                        |                   |                                                                                                                                                                                         |  |  |  |
| Vapor Pressure                                  |                                      | 537.9 - kPa                            |                   |                                                                                                                                                                                         |  |  |  |
| CASRN and Test Material                         |                                      | 106-99-0; 1,3-Butadiene                |                   |                                                                                                                                                                                         |  |  |  |
| Confidentiality, Type, and C                    | Guideline                            | no; not specified; Not Reported        |                   |                                                                                                                                                                                         |  |  |  |
| Solvent, Reactivity, Storage                    | e, and Stability                     | Not Reported; Not Reported; Not Report | ted; Not Reported |                                                                                                                                                                                         |  |  |  |
| Radiolabel, Source, State, a                    | and Purity                           | Not Reported; Not Reported; Not Report | ted; Not Reported |                                                                                                                                                                                         |  |  |  |
| Temperature                                     |                                      | 50 C                                   |                   |                                                                                                                                                                                         |  |  |  |
| System                                          |                                      | Not Reported                           |                   |                                                                                                                                                                                         |  |  |  |
| Standard Deviation Results                      |                                      | Not Reported                           |                   |                                                                                                                                                                                         |  |  |  |
| Results Details                                 |                                      | Not Reported                           |                   |                                                                                                                                                                                         |  |  |  |
|                                                 |                                      |                                        | EVALUATIO         | N                                                                                                                                                                                       |  |  |  |
| Domain                                          |                                      | Metric                                 | Rating            | Comments                                                                                                                                                                                |  |  |  |
| Domain 1: Substance                             |                                      |                                        | 8                 |                                                                                                                                                                                         |  |  |  |
|                                                 | Metric 1:                            | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                      |  |  |  |
|                                                 | Metric 2:                            | Appropriateness                        | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                    |  |  |  |
|                                                 |                                      |                                        |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a melting point |  |  |  |
|                                                 |                                      |                                        |                   | below 25°C and a boiling point above 25°C) or behaviors.                                                                                                                                |  |  |  |
| Domain 2: Test Reliabil                         | ity                                  |                                        |                   |                                                                                                                                                                                         |  |  |  |
| Domain 2. Test Kelldull                         | Metric 3:                            | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                    |  |  |  |
|                                                 |                                      | (Method Objectivity)                   | 1110010111        | towards a particular product or outcome.                                                                                                                                                |  |  |  |
|                                                 | Metric 4:                            | Reliability/Analytical Method          | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                                                 |  |  |  |
|                                                 |                                      |                                        |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a                                                                                                |  |  |  |
|                                                 |                                      |                                        |                   | peer-reviewed/recognized database or other secondary source.                                                                                                                            |  |  |  |
| Domain 3: Other                                 |                                      |                                        |                   |                                                                                                                                                                                         |  |  |  |
| Domain J. Oulei                                 | Metric 5                             | Databases                              | High              | The information or data is from a recognized data collection/repository where data are                                                                                                  |  |  |  |
|                                                 | mente J.                             | Databases                              | ingn              | peer-reviewed by experts in the field, are broadly available to the public for review and                                                                                               |  |  |  |
|                                                 |                                      |                                        |                   | use OR includes references to the original sources.                                                                                                                                     |  |  |  |
|                                                 | Metric 6:                            | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                    |  |  |  |
| Overall Oneli                                   | v Dotormir                           | nation                                 | High              |                                                                                                                                                                                         |  |  |  |
|                                                 | y Determin                           | 1411011                                | Ingli             |                                                                                                                                                                                         |  |  |  |

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | Grub, J., Löser, H<br>Vapor Pressure | E. (2011). Butadiene. :381-396.              |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
|------------------------------------|--------------------------------------|----------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Template:                          | 0.402526                             |                                              |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| HERO ID:                           | 9493526                              |                                              |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| _                                  |                                      | _                                            | EXTRACTIO          | N                                                                                                                                                                                                                                                                                                                                                     |  |
| Parameter                          |                                      | Data                                         |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
|                                    |                                      |                                              |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| Vapor Pressure                     |                                      | 120.0 - kPa                                  |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| CASRN and Test Material            |                                      | 106-99-0; 1,3-Butadiene                      |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| Confidentiality, Type, and         | Guideline                            | no; not specified; Not Reported              |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| Solvent, Reactivity, Storage       | e, and Stability                     | Not Reported; Not Reported; Not Report       | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                                       |  |
| Radiolabel, Source, State, a       | and Purity                           | Not Reported; Not Reported; Not Report       | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                                       |  |
| Temperature                        |                                      | 0 C                                          |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| System                             |                                      | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| Standard Deviation Results         | 8                                    | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| Results Details                    |                                      | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
|                                    |                                      |                                              |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
|                                    |                                      |                                              | EVALUATIO          | N                                                                                                                                                                                                                                                                                                                                                     |  |
| Domain                             |                                      | Metric                                       | Rating             | Comments                                                                                                                                                                                                                                                                                                                                              |  |
| Domain 1: Substance                |                                      | - ·                                          |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
|                                    | Metric 1:                            | Representativeness                           | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                    |  |
|                                    | Metric 2:                            | Appropriateness                              | Hıgh               | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors |  |
|                                    |                                      |                                              |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| Domain 2: Test Reliabil            | ity                                  |                                              |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
|                                    | Metric 3:                            | Reliability/Unbiased<br>(Method Objectivity) | Medium             | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                         |  |
|                                    | Metric 4:                            | Reliability/Analytical Method                | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                   |  |
|                                    |                                      |                                              |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
| Domain 3: Other                    | Matria 5.                            | Detaharaa                                    | TT: -1             |                                                                                                                                                                                                                                                                                                                                                       |  |
|                                    | Metric 5:                            | Databases                                    | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                  |  |
|                                    | Metric 6:                            | Models                                       | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                  |  |
| <b>Overall Qualit</b>              | Overall Quality Determination High   |                                              |                    |                                                                                                                                                                                                                                                                                                                                                       |  |
1,3-Butadiene

| Study Citation:<br>OECD Harmonized | Grub, J., Löser, H<br>Vapor Pressure | E. (2011). Butadiene. :381-396.              |                   |                                                                                                                                                                                                                                                                           |  |  |
|------------------------------------|--------------------------------------|----------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                           | 9493526                              |                                              |                   |                                                                                                                                                                                                                                                                           |  |  |
|                                    | EXTRACTION                           |                                              |                   |                                                                                                                                                                                                                                                                           |  |  |
| Parameter                          | Parameter Data                       |                                              |                   |                                                                                                                                                                                                                                                                           |  |  |
|                                    |                                      |                                              |                   |                                                                                                                                                                                                                                                                           |  |  |
| Vapor Pressure                     |                                      | 1733 - kPa                                   |                   |                                                                                                                                                                                                                                                                           |  |  |
| CASRN and Test Material            |                                      | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                                                           |  |  |
| Confidentiality, Type, and C       | Guideline                            | no; not specified; Not Reported              |                   |                                                                                                                                                                                                                                                                           |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                     | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                                                                                                           |  |  |
| Radiolabel, Source, State, a       | und Purity                           | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                                                                                                           |  |  |
| Temperature                        |                                      | 100 C                                        |                   |                                                                                                                                                                                                                                                                           |  |  |
| System                             |                                      | Not Reported                                 |                   |                                                                                                                                                                                                                                                                           |  |  |
| Standard Deviation Results         |                                      | Not Reported                                 |                   |                                                                                                                                                                                                                                                                           |  |  |
| Results Details                    |                                      | Not Reported                                 |                   |                                                                                                                                                                                                                                                                           |  |  |
|                                    |                                      |                                              | EVALUATIO         | N                                                                                                                                                                                                                                                                         |  |  |
| Domain                             |                                      | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                                                  |  |  |
| Domain 1: Substance                |                                      |                                              |                   |                                                                                                                                                                                                                                                                           |  |  |
|                                    | Metric 1:                            | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                        |  |  |
|                                    | Metric 2:                            | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point |  |  |
|                                    |                                      |                                              |                   | below 25°C and a boiling point above 25°C) or behaviors.                                                                                                                                                                                                                  |  |  |
| Domain 2: Test Reliabil            | ity                                  |                                              |                   |                                                                                                                                                                                                                                                                           |  |  |
|                                    | Metric 3:                            | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                             |  |  |
|                                    | Metric 4:                            | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                       |  |  |
| Domain 3: Other                    |                                      |                                              |                   |                                                                                                                                                                                                                                                                           |  |  |
| Domain 5. Outer                    | Metric 5:                            | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                      |  |  |
|                                    | Metric 6:                            | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                      |  |  |
| <b>Overall Qualit</b>              | y Determir                           | nation                                       | High              |                                                                                                                                                                                                                                                                           |  |  |

\* Related References: cited from D. R. Lide: CRC Handbook of Chemistry and Physics, 79th edition, CRC Press, New York, 1998. (HERO ID: 5349247) and C. L. Yaws et al., Chem. Eng. 83 (1976) no. 17, 79 (HERO ID: 5706678)

| Study Citation:<br>OECD Harmonized | Grub, J., Löser,<br>Vapor Pressure | E. (2011). Butadiene. :381-396.              |                   |                                                                                                                                                                                                                                                     |  |  |  |
|------------------------------------|------------------------------------|----------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Template:                          |                                    |                                              |                   |                                                                                                                                                                                                                                                     |  |  |  |
| HERO ID:                           | 9493526                            |                                              |                   |                                                                                                                                                                                                                                                     |  |  |  |
|                                    | EXTRACTION                         |                                              |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Parameter                          |                                    | Data                                         |                   |                                                                                                                                                                                                                                                     |  |  |  |
|                                    |                                    |                                              |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Vapor Pressure                     |                                    | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |  |  |  |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Confidentiality, Type, and         | Guideline                          | no; not specified; Not Reported              |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                   | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                                                                                                                     |  |  |  |
| Radiolabel, Source, State, a       | and Purity                         | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                                                                                                                     |  |  |  |
| Temperature                        |                                    | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |  |  |  |
| System                             |                                    | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Standard Deviation Results         | 3                                  | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Results Details                    |                                    | Enthalpy of Vaporization: 22.47 kJ/mol       | at -4.4 C         |                                                                                                                                                                                                                                                     |  |  |  |
|                                    |                                    |                                              |                   |                                                                                                                                                                                                                                                     |  |  |  |
|                                    |                                    |                                              | EVALUATIO         | N                                                                                                                                                                                                                                                   |  |  |  |
| Domain                             |                                    | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                            |  |  |  |
| Domain 1: Substance                | Matria 1.                          | Dennegentativenege                           | Iliah             | Determined an estimated for the arbitrated and interview                                                                                                                                                                                            |  |  |  |
|                                    | Metric 1.                          | Appropriatoposo                              | High              | Data are measured of estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |  |
|                                    | Metric 2.                          | Appropriateness                              | nigii             | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,<br>if the physical state is described as a liquid, the substance should have a melting point<br>below 25°C and a boiling point above 25°C) or behaviors. |  |  |  |
| Domain 2: Test Reliabil            | ity                                |                                              |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Domain 2. Test Kendon              | Metric 3:                          | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |  |  |  |
|                                    | Metric 4:                          | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |  |
| Domain 3: Other                    |                                    |                                              |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Domain 5. Outer                    | Metric 5:                          | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |  |
|                                    | Metric 6:                          | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |  |
| <b>Overall Qualit</b>              | ty Determi                         | nation                                       | High              |                                                                                                                                                                                                                                                     |  |  |  |

\* Related References: cited from D. R. Lide: CRC Handbook of Chemistry and Physics, 79th edition, CRC Press, New York, 1998. (HERO ID: 5349247) and C. L. Yaws et al., Chem. Eng. 83 (1976) no. 17, 79 (HERO ID: 5706678)

1,3-Butadiene

| Study Citation:<br>OECD Harmonized        | Kerns, M., Hen<br>Vapor Pressure | ning, S., Rachita, M. (2002). Butadiene      | polymers. :317-35  | 56.                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------|----------------------------------|----------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                  | 9493542                          |                                              |                    |                                                                                                                                                                                                                                                                                                                                    |
|                                           |                                  |                                              | EXTRACTIO          | N                                                                                                                                                                                                                                                                                                                                  |
| Parameter                                 |                                  | Data                                         |                    |                                                                                                                                                                                                                                                                                                                                    |
| Vapor Pressure<br>CASRN and Test Material |                                  | Not Reported<br>106-99-0; 1,3-Butadiene      |                    |                                                                                                                                                                                                                                                                                                                                    |
| Confidentiality, Type, and C              | Guideline                        | no; not specified; Not Reported              |                    |                                                                                                                                                                                                                                                                                                                                    |
| Solvent, Reactivity, Storage              | e, and Stability                 | Not Reported; Not Reported; Not Report       | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |
| Radiolabel, Source, State, a              | and Purity                       | Not Reported; Not Reported; Not Report       | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |
| Temperature                               |                                  | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                    |
| System                                    |                                  | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                    |
| Standard Deviation Results                |                                  | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                    |
| Results Details                           |                                  | crucal pressure= 4.55 MPab                   |                    |                                                                                                                                                                                                                                                                                                                                    |
|                                           |                                  |                                              | EVALUATIO          | N                                                                                                                                                                                                                                                                                                                                  |
| Domain                                    |                                  | Metric                                       | Rating             | Comments                                                                                                                                                                                                                                                                                                                           |
| Domain 1: Substance                       |                                  |                                              |                    |                                                                                                                                                                                                                                                                                                                                    |
|                                           | Metric 1:                        | Representativeness                           | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |
|                                           | Metric 2:                        | Appropriateness                              | High               | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2: Test Reliabil                   | ity                              |                                              |                    |                                                                                                                                                                                                                                                                                                                                    |
| 2 0                                       | Metric 3:                        | Reliability/Unbiased<br>(Method Objectivity) | Medium             | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |
|                                           | Metric 4:                        | Reliability/Analytical Method                | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |
| Domain 3: Other                           |                                  |                                              |                    |                                                                                                                                                                                                                                                                                                                                    |
| Domain 5. Outer                           | Metric 5:                        | Databases                                    | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |
|                                           | Metric 6:                        | Models                                       | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |
| <b>Overall Qualit</b>                     | ty Determi                       | nation                                       | High               |                                                                                                                                                                                                                                                                                                                                    |

\* Related References: cited from F. O. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953.

| Study Citation:<br>OECD Harmonized | Kerns, M., Hen<br>Vapor Pressure | ning, S., Rachita, M. (2002). Butadiene p    | olymers. :317-3: | 56.                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------|----------------------------------|----------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 9493542                          |                                              |                  |                                                                                                                                                                                                                                                                                                                                                        |
|                                    |                                  |                                              | EXTRACTIO        | N                                                                                                                                                                                                                                                                                                                                                      |
| Parameter                          |                                  | Data                                         |                  |                                                                                                                                                                                                                                                                                                                                                        |
|                                    |                                  |                                              |                  |                                                                                                                                                                                                                                                                                                                                                        |
| Vapor Pressure                     |                                  | 24.5 - kPaa                                  |                  |                                                                                                                                                                                                                                                                                                                                                        |
| CASRN and Test Material            | S                                | 106-99-0; 1,3-Butadiene                      |                  |                                                                                                                                                                                                                                                                                                                                                        |
| Confidentiality, Type, and C       | Juideline                        | no; not specified; Not Reported              | ad. Not Donostad |                                                                                                                                                                                                                                                                                                                                                        |
| Badialabal Source State            | and Burity                       | Not Reported; Not Reported; Not Report       | Reported         |                                                                                                                                                                                                                                                                                                                                                        |
| Temperature                        | ind Fullty                       | 21 C                                         | Reported         |                                                                                                                                                                                                                                                                                                                                                        |
| System                             |                                  | Not Reported                                 |                  |                                                                                                                                                                                                                                                                                                                                                        |
| Standard Deviation Results         |                                  | Not Reported                                 |                  |                                                                                                                                                                                                                                                                                                                                                        |
| Results Details                    |                                  | Not Reported                                 |                  |                                                                                                                                                                                                                                                                                                                                                        |
|                                    |                                  | -                                            |                  |                                                                                                                                                                                                                                                                                                                                                        |
|                                    |                                  |                                              | EVALUATIO        | N                                                                                                                                                                                                                                                                                                                                                      |
| Domain                             |                                  | Metric                                       | Rating           | Comments                                                                                                                                                                                                                                                                                                                                               |
| Domain 1: Substance                |                                  |                                              |                  |                                                                                                                                                                                                                                                                                                                                                        |
|                                    | Metric 1:                        | Representativeness                           | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                     |
|                                    | Metric 2:                        | Appropriateness                              | High             | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors. |
| Domain 2: Test Reliabil            | itv                              |                                              |                  |                                                                                                                                                                                                                                                                                                                                                        |
|                                    | Metric 3:                        | Reliability/Unbiased<br>(Method Objectivity) | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                          |
|                                    | Metric 4:                        | Reliability/Analytical Method                | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                    |
| Domain 3: Other                    |                                  |                                              |                  |                                                                                                                                                                                                                                                                                                                                                        |
| Domain 5. Outer                    | Metric 5:                        | Databases                                    | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                   |
|                                    | Metric 6:                        | Models                                       | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                   |
| Overall Qualit                     | ty Determi                       | nation                                       | High             |                                                                                                                                                                                                                                                                                                                                                        |

\* Related References: cited from F. O. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953.

| Study Citation:<br>OECD Harmonized | Kerns, M., Hen<br>Vapor Pressure                                                                                                                             | ning, S., Rachita, M. (2002). Butadiene p    | oolymers. :317-3: | 56.                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | I I I I I I I I I I I I I I I I I I I                                                                                                                        |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
| HERO ID:                           | 9493542                                                                                                                                                      |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
|                                    |                                                                                                                                                              |                                              | EXTRACTIO         | N                                                                                                                                                                                                                                                                                                                                                      |
| Parameter                          |                                                                                                                                                              | Data                                         |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Vapor Pressure                     |                                                                                                                                                              | Not Deported                                 |                   |                                                                                                                                                                                                                                                                                                                                                        |
| CASEN and Test Material            |                                                                                                                                                              | 106-99-0: 1 3-Butadiene                      |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Confidentiality Type and (         | Juideline                                                                                                                                                    | no: not specified: Not Reported              |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Solvent Reactivity Storage         | and Stability                                                                                                                                                | Not Reported: Not Reported: Not Report       | ted. Not Reported |                                                                                                                                                                                                                                                                                                                                                        |
| Radiolabel Source State a          | and Purity                                                                                                                                                   | Not Reported: Not Reported: Not Report       | ted: Not Reported |                                                                                                                                                                                                                                                                                                                                                        |
| Temperature                        | and I unity                                                                                                                                                  | Not Reported                                 | ieu, not neponeu  |                                                                                                                                                                                                                                                                                                                                                        |
| System                             |                                                                                                                                                              | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Standard Deviation Results         |                                                                                                                                                              | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Results Details                    | s Antoine Equation Parameters for calculating vapor pressure in pascal $[log10(P) = A - (B / (T + C))]$ ; A=9.74022 (6.85941 for mm Hg), B=935.531 C=239.554 |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
| EVALUATION                         |                                                                                                                                                              |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Domain                             |                                                                                                                                                              | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                                                                                                                               |
| Domain 1: Substance                |                                                                                                                                                              |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
|                                    | Metric 1:                                                                                                                                                    | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                     |
|                                    | Metric 2:                                                                                                                                                    | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors. |
| Domain 2. Test Reliabil            | ity                                                                                                                                                          |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Domain 2. Test Renaon              | Metric 3:                                                                                                                                                    | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                          |
|                                    | Metric 4:                                                                                                                                                    | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                    |
| Domain 3 <sup>.</sup> Other        |                                                                                                                                                              |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
| 2 children of Other                | Metric 5:                                                                                                                                                    | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                   |
|                                    | Metric 6:                                                                                                                                                    | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                   |
| <b>Overall Qualit</b>              | ty Determi                                                                                                                                                   | nation                                       | High              |                                                                                                                                                                                                                                                                                                                                                        |

\* Related References: cited from . F. O. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953.

| Study Citation:                                                                                        | Laird, D. G., Howat, C. S. (1990). Vapor liquid-phase equilibria and molar volumes of the butadiene acetonitrile system from 300-K to 335-K. Fluid Phase Equilibria 60(1-2):173-190 |                                   |  |  |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--|--|
| <b>OECD Harmonized</b>                                                                                 | Vapor Pressure                                                                                                                                                                      |                                   |  |  |
| Template:                                                                                              |                                                                                                                                                                                     |                                   |  |  |
| HERO ID:                                                                                               | 5736675                                                                                                                                                                             |                                   |  |  |
|                                                                                                        | EXTRACTION                                                                                                                                                                          |                                   |  |  |
| Parameter                                                                                              | Data                                                                                                                                                                                |                                   |  |  |
|                                                                                                        |                                                                                                                                                                                     |                                   |  |  |
| Vapor Pressure                                                                                         | 297600 - 297900 Pa                                                                                                                                                                  |                                   |  |  |
| CASRN and Test Material                                                                                | 106-99-0; 1,3-Butadiene                                                                                                                                                             | 106-99-0; 1,3-Butadiene           |  |  |
| Confidentiality, Type, and                                                                             | uideline None; Experimental; Not Reported                                                                                                                                           | None; Experimental; Not Reported  |  |  |
| Solvent, Reactivity, Storag                                                                            | and Stability No; NR; NR; NR                                                                                                                                                        |                                   |  |  |
| Radiolabel, Source, State,                                                                             | nd Purity None; NR; NR; 99.5% by GC Notes: Primary impurities were light components; re                                                                                             | educed by degassing prior to use. |  |  |
| Temperature 300.05 K                                                                                   |                                                                                                                                                                                     |                                   |  |  |
| System ParoScientific Digiquartz transducer was used instead of the manometer for pressure measurement |                                                                                                                                                                                     | re measurement                    |  |  |
| Standard Deviation Result                                                                              | Experimental uncertainty = $0.1$ kPa                                                                                                                                                | Experimental uncertainty = 0.1kPa |  |  |
| Results Details                                                                                        | Two results reported at 300.05K = 297.9 kPa and 297.6 kPa                                                                                                                           |                                   |  |  |

|                                      |           |                                              | EVALUATIO | N                                                                                                                                                                                                                                    |
|--------------------------------------|-----------|----------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Domain                               |           | Metric                                       | Rating    | Comments                                                                                                                                                                                                                             |
| Domain 1: Substance                  |           |                                              |           |                                                                                                                                                                                                                                      |
|                                      | Metric 1: | Representativeness                           | High      | Data are measured for the subject chemical substance.                                                                                                                                                                                |
|                                      | Metric 2: | Appropriateness                              | High      | Measured data are consistent with the subject chemical substance structural features or other physical/chemical properties or behaviors.                                                                                             |
| Domain 2: Test Reliability           |           |                                              |           |                                                                                                                                                                                                                                      |
|                                      | Metric 3: | Reliability/Unbiased<br>(Method Objectivity) | High      | The methodology for producing the information is designed to answer a specific ques-<br>tion, and the methodology's objective is clear.                                                                                              |
|                                      | Metric 4: | Reliability/Analytical Method                | Medium    | The analytical method is non-standard but is expected to be appropriate.                                                                                                                                                             |
| Domain 3: Other                      |           |                                              |           |                                                                                                                                                                                                                                      |
|                                      | Metric 5: | Databases                                    | High      | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources. |
|                                      | Metric 6: | Models                                       | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                 |
| <b>Overall Quality Determination</b> |           | High                                         |           |                                                                                                                                                                                                                                      |

| Study Citation:<br>OECD Harmonized          | MAK-Commission, (2012). 1,3-Butadiene [MAK value documentation, 2001]. :51-70.<br>Vapor Pressure |                                               |                   |                                                                                                                                                                                                                                                                   |  |
|---------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Template:                                   | · • F • • • • • • • • • • • • • • • • •                                                          |                                               |                   |                                                                                                                                                                                                                                                                   |  |
| HERO ID:                                    | 9493518                                                                                          |                                               |                   |                                                                                                                                                                                                                                                                   |  |
|                                             |                                                                                                  |                                               | EXTRACTIO         | N                                                                                                                                                                                                                                                                 |  |
| Parameter                                   |                                                                                                  | Data                                          |                   |                                                                                                                                                                                                                                                                   |  |
|                                             |                                                                                                  |                                               |                   |                                                                                                                                                                                                                                                                   |  |
| Vapor Pressure                              |                                                                                                  | 2477 - hPa                                    |                   |                                                                                                                                                                                                                                                                   |  |
| CASRN and Test Material                     |                                                                                                  | 106-99-0; 1,3-Butadiene                       |                   |                                                                                                                                                                                                                                                                   |  |
| Confidentiality, Type, and C                | Juideline                                                                                        | no; not specified; Not Reported               |                   |                                                                                                                                                                                                                                                                   |  |
| Solvent, Reactivity, Storage                | e, and Stability                                                                                 | Not Reported; Not Reported; Not Repor         | ted; Not Reported |                                                                                                                                                                                                                                                                   |  |
| Radiolabel, Source, State, a<br>Temperature | nd Purity                                                                                        | Not Reported; Not Reported; Not Repor<br>20 C | ted; Not Reported |                                                                                                                                                                                                                                                                   |  |
| System                                      |                                                                                                  | Not Reported                                  |                   |                                                                                                                                                                                                                                                                   |  |
| Standard Deviation Results                  |                                                                                                  | Not Reported                                  |                   |                                                                                                                                                                                                                                                                   |  |
| Results Details                             |                                                                                                  | Not Reported                                  |                   |                                                                                                                                                                                                                                                                   |  |
|                                             |                                                                                                  |                                               | FVAL HATIO        | N                                                                                                                                                                                                                                                                 |  |
| Domain                                      |                                                                                                  | Metric                                        | Rating            | Comments                                                                                                                                                                                                                                                          |  |
| Domain 1: Substance                         |                                                                                                  |                                               |                   |                                                                                                                                                                                                                                                                   |  |
|                                             | Metric 1:                                                                                        | Representativeness                            | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                |  |
|                                             | Metric 2:                                                                                        | Appropriateness                               | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                              |  |
|                                             |                                                                                                  | II II III III                                 |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors. |  |
| Domain 2: Test Reliabili                    | itv                                                                                              |                                               |                   |                                                                                                                                                                                                                                                                   |  |
|                                             | Metric 3:                                                                                        | Reliability/Unbiased<br>(Method Objectivity)  | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                     |  |
|                                             | Metric 4:                                                                                        | Reliability/Analytical Method                 | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.               |  |
| Domain 3: Other                             |                                                                                                  |                                               |                   |                                                                                                                                                                                                                                                                   |  |
| Domain 5: Other                             | Metric 5:                                                                                        | Databases                                     | Medium            | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources.                                                                      |  |
|                                             | Metric 6:                                                                                        | Models                                        | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                              |  |
| <b>Overall Qualit</b>                       | y Determin                                                                                       | ation                                         | High              |                                                                                                                                                                                                                                                                   |  |

\* Related References: no references cited

| Study Citation:              | National Toxicolo                     | bgy Program (NTP), (1993). NTP technical    | report on th | e toxicology and carcinogenesis studies of 1,3-butadiene (CAS no. 106-99-0) in            |  |  |
|------------------------------|---------------------------------------|---------------------------------------------|--------------|-------------------------------------------------------------------------------------------|--|--|
| OECD Harmonized              | B6C3F1 mice (inl<br>Vapor Pressure    | nalation studies).                          |              |                                                                                           |  |  |
| Template:                    | · · · · · · · · · · · · · · · · · · · |                                             |              |                                                                                           |  |  |
| HERO ID:                     | 5160111                               |                                             |              |                                                                                           |  |  |
|                              |                                       | EX                                          | TRACTIO      | N                                                                                         |  |  |
| Parameter                    |                                       | Data                                        |              |                                                                                           |  |  |
|                              |                                       |                                             |              |                                                                                           |  |  |
| Vapor Pressure               |                                       | 1900 - mm Hg                                |              |                                                                                           |  |  |
| CASRN and Test Material      |                                       | 106-99-0; Not Reported                      |              |                                                                                           |  |  |
| Confidentiality, Type, and C | Buideline                             | Not Reported; Not Reported; Not Reported    |              |                                                                                           |  |  |
| Solvent, Reactivity, Storage | , and Stability                       | Not Reported; Not Reported; Not Reported; N | Not Reported |                                                                                           |  |  |
| Radiolabel, Source, State, a | nd Purity                             | Not Reported; Not Reported; Not Reported; N | Not Reported |                                                                                           |  |  |
| Temperature                  |                                       | 20 C                                        |              |                                                                                           |  |  |
| System                       |                                       | Not Reported                                |              |                                                                                           |  |  |
| Standard Deviation Results   |                                       | Not Reported                                |              |                                                                                           |  |  |
| Results Details              |                                       | Not Reported                                |              |                                                                                           |  |  |
|                              |                                       |                                             |              |                                                                                           |  |  |
|                              |                                       | E                                           | VALUATIO     | N                                                                                         |  |  |
| Domain                       |                                       | Metric                                      | Rating       | Comments                                                                                  |  |  |
| Domain 1: Substance          |                                       |                                             |              |                                                                                           |  |  |
|                              | Metric 1:                             | Representativeness                          | High         | Data are measured or estimated for the subject chemical substance.                        |  |  |
|                              | Metric 2:                             | Appropriateness                             | Medium       | Data measured for a structural analogue of the subject chemical substance are consistent  |  |  |
|                              |                                       |                                             |              | with what is expected for the subject chemical substance structural properties, features  |  |  |
|                              |                                       |                                             |              | of ochaviors.                                                                             |  |  |
| Domain 2: Test Reliabili     | ty                                    |                                             |              |                                                                                           |  |  |
|                              | Metric 3:                             | Reliability/Unbiased                        | Medium       | There is no indication that the methodology for producing the information was biased      |  |  |
|                              |                                       | (Method Objectivity)                        |              | towards a particular product or outcome.                                                  |  |  |
|                              | Metric 4:                             | Reliability/Analytical Method               | Medium       | The analytical method is non-standard but is expected to be appropriate OR the analyti-   |  |  |
|                              |                                       |                                             |              | cal method is unknown but is likely to be appropriate based on the data's inclusion in a  |  |  |
|                              |                                       |                                             |              | peer-reviewed/recognized database of other secondary source.                              |  |  |
| Domain 3. Other              |                                       |                                             |              |                                                                                           |  |  |
| Domain 5. Outer              | Metric 5:                             | Databases                                   | High         | The information or data is from a recognized data collection/repository where data are    |  |  |
|                              | moule 5.                              | Dunouses                                    | mgn          | peer-reviewed by experts in the field, are broadly available to the public for review and |  |  |
|                              |                                       |                                             |              | use OR includes references to the original sources.                                       |  |  |
|                              | Metric 6:                             | Models                                      | N/A          | Rating of this factor is not applicable to this kind of information.                      |  |  |
|                              | <b>D</b> / ·                          |                                             | <b>TT1 1</b> |                                                                                           |  |  |
| Overall Qualit               | y Determin                            | ation                                       | High         |                                                                                           |  |  |

\* Related References: Citing Kirshenbaum, I. (1978). Butadiene. In Kirk-Othmer Encyclopedia of Chemical Technology, Vol. 4, 3rd ed., pp. 313-337. John Wiley and Sons, New York.

| Study Citation:<br>OECD Harmonized        | NCBI, (2020). F<br>Vapor Pressure | PubChem Compound Summary for CID             | 7845 1,3 Butadie     | ne.                                                                                                                                                                                                                                                 |
|-------------------------------------------|-----------------------------------|----------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                  | 10171483                          |                                              |                      |                                                                                                                                                                                                                                                     |
|                                           |                                   |                                              | EXTRACTIO            | N                                                                                                                                                                                                                                                   |
| Parameter                                 |                                   | Data                                         |                      |                                                                                                                                                                                                                                                     |
| Vapor Pressure<br>CASRN and Test Material |                                   | Not Reported<br>106-99-0; 1,3-Butadiene      |                      |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C              | Guideline                         | no; not specified; Not Reported              | ta di Nat Davianta d |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage              | e, and Stability                  | Not Reported; Not Reported; Not Report       | ted; Not Reported    |                                                                                                                                                                                                                                                     |
| Temperature                               | and Fullity                       | Not Reported                                 | ieu, noi Repoileu    |                                                                                                                                                                                                                                                     |
| System                                    |                                   | Not Reported                                 |                      |                                                                                                                                                                                                                                                     |
| Standard Deviation Results                |                                   | Not Reported                                 |                      |                                                                                                                                                                                                                                                     |
| Results Details                           |                                   | Critical pressure 42.6 atm                   |                      |                                                                                                                                                                                                                                                     |
|                                           |                                   |                                              |                      |                                                                                                                                                                                                                                                     |
|                                           |                                   |                                              | EVALUATIO            | N                                                                                                                                                                                                                                                   |
| Domain                                    |                                   | Metric                                       | Rating               | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                       | Matria 1.                         | Demmagentativeness                           | Iliah                | Determined an estimated for the architect demined whether                                                                                                                                                                                           |
|                                           | Metric 1:<br>Metric 2:            | Appropriatopos                               | High                 | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                           | Metric 2.                         | Appropriateness                              | nigii                | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.       |
| Domain 2. Test Reliabil                   | ity                               |                                              |                      |                                                                                                                                                                                                                                                     |
|                                           | Metric 3:                         | Reliability/Unbiased<br>(Method Objectivity) | Medium               | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                           | Metric 4:                         | Reliability/Analytical Method                | Medium               | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                           |                                   |                                              |                      |                                                                                                                                                                                                                                                     |
| Somuli S. Ould                            | Metric 5:                         | Databases                                    | High                 | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources                 |
|                                           | Metric 6:                         | Models                                       | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| <b>Overall Qualit</b>                     | ty Determi                        | nation                                       | High                 |                                                                                                                                                                                                                                                     |

\* Related References: cited from O'Neil, M.J. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Cambridge, UK: Royal Society of Chemistry, 2013., p. 267 (HERO ID: 5926379)

| Study Citation:                      | NCBI, (2020). Pu<br>Vapor Pressure | bChem Compound Summary for CID               | 7845 1,3 Butadie      | ne.                                                                                                                                                                                                                                                                       |  |  |  |
|--------------------------------------|------------------------------------|----------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Template:                            | vapor i ressure                    |                                              |                       |                                                                                                                                                                                                                                                                           |  |  |  |
| HERO ID:                             | 10171483                           |                                              |                       |                                                                                                                                                                                                                                                                           |  |  |  |
|                                      |                                    |                                              | EXTRACTIO             | N                                                                                                                                                                                                                                                                         |  |  |  |
| Parameter                            |                                    | Data                                         |                       |                                                                                                                                                                                                                                                                           |  |  |  |
|                                      |                                    |                                              |                       |                                                                                                                                                                                                                                                                           |  |  |  |
| Vapor Pressure                       |                                    | Not Reported                                 |                       |                                                                                                                                                                                                                                                                           |  |  |  |
| CASKN and Test Material              |                                    | 100-99-0; 1,3-Butadiene                      |                       |                                                                                                                                                                                                                                                                           |  |  |  |
| Confidentiality, Type, and C         | Juideline                          | Not Reported: Not Reported                   | tadı Nat Danantad     |                                                                                                                                                                                                                                                                           |  |  |  |
| Bodiolohol Source Storage            | e, and Stability                   | Not Reported; Not Reported; Not Report       | ted; Not Reported     |                                                                                                                                                                                                                                                                           |  |  |  |
| Temperature                          | ind Fullty                         | Not Reported                                 | ieu, Noi Keponeu      |                                                                                                                                                                                                                                                                           |  |  |  |
| System                               |                                    | Not Reported                                 |                       |                                                                                                                                                                                                                                                                           |  |  |  |
| System<br>Standard Deviation Results |                                    | Not Reported                                 |                       |                                                                                                                                                                                                                                                                           |  |  |  |
| Results Details                      |                                    | Heat of Vaporization: 20.86 kI/mol at 24     | 5 C · 22 47 k I/mol a | t -4 41 C                                                                                                                                                                                                                                                                 |  |  |  |
| Results Doulls                       |                                    |                                              | , c, 22.17 ki/mor u   |                                                                                                                                                                                                                                                                           |  |  |  |
|                                      | EVALUATION                         |                                              |                       |                                                                                                                                                                                                                                                                           |  |  |  |
| Domain                               |                                    | Metric                                       | Rating                | Comments                                                                                                                                                                                                                                                                  |  |  |  |
| Domain 1: Substance                  |                                    |                                              |                       |                                                                                                                                                                                                                                                                           |  |  |  |
|                                      | Metric 1:                          | Representativeness                           | High                  | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                        |  |  |  |
|                                      | Metric 2:                          | Appropriateness                              | High                  | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point |  |  |  |
|                                      |                                    |                                              |                       | below 25°C and a boiling point above 25°C) or behaviors.                                                                                                                                                                                                                  |  |  |  |
| Domain 2: Test Reliabil              | itv                                |                                              |                       |                                                                                                                                                                                                                                                                           |  |  |  |
|                                      | Metric 3:                          | Reliability/Unbiased<br>(Method Objectivity) | Medium                | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                             |  |  |  |
|                                      | Metric 4:                          | Reliability/Analytical Method                | Medium                | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                       |  |  |  |
| Domain 3: Other                      |                                    |                                              |                       |                                                                                                                                                                                                                                                                           |  |  |  |
| Domain 5. Otter                      | Metric 5:                          | Databases                                    | High                  | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources                                       |  |  |  |
|                                      | Metric 6:                          | Models                                       | N/A                   | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                      |  |  |  |
| <b>Overall Qualit</b>                | ty Determin                        | ation                                        | High                  |                                                                                                                                                                                                                                                                           |  |  |  |

\* Related References: Cited from Cited from Haynes, W.M. (ed.). CRC Handbook of Chemistry and Physics. 95th Edition. CRC Press LLC, Boca Raton: FL 2014-2015, p. 3-76 (HERO ID: 2828348)

| Study Citation:              | NIOSH, (2007).  | NIOSH pocket guide to chemical haza | urds.      |                                                                                                           |
|------------------------------|-----------------|-------------------------------------|------------|-----------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Vapor Pressure  |                                     |            |                                                                                                           |
| Template:                    | 102177          |                                     |            |                                                                                                           |
|                              | 192177          |                                     |            |                                                                                                           |
| Demonster                    |                 | Data                                | EXTRACTIO  | N                                                                                                         |
| rarameter                    |                 | Data                                |            |                                                                                                           |
| Vanor Pressure               |                 | 24 - atm                            |            |                                                                                                           |
| CASRN and Test Material      |                 | 106-99-0: 1.3-Butadiene             |            |                                                                                                           |
| Confidentiality, Type, and C | Guideline       | None; Experimental; Not reported    |            |                                                                                                           |
| Solvent, Reactivity, Storage | , and Stability | NR; NR; NR; NR                      |            |                                                                                                           |
| Radiolabel, Source, State, a | nd Purity       | NR; NR; NR; NR Notes: NR            |            |                                                                                                           |
| Temperature                  |                 | NR                                  |            |                                                                                                           |
| System                       |                 | NR                                  |            |                                                                                                           |
| Standard Deviation Results   |                 | NR                                  |            |                                                                                                           |
| Results Details              |                 | Not Reported                        |            |                                                                                                           |
|                              |                 |                                     |            | AT                                                                                                        |
| Domain                       |                 | Metric                              | E VALUATIO | Comments                                                                                                  |
| Domain 1: Substance          |                 | Wettle                              | Kating     | connients                                                                                                 |
| Domain 1. Substance          | Metric 1:       | Representativeness                  | High       | Data are measured for the subject chemical substance.                                                     |
|                              | Metric 2:       | Appropriateness                     | High       | Measured data are consistent with the subject chemical substance structural features.                     |
| Domain 2: Tast Paliabili     |                 |                                     |            |                                                                                                           |
| Domain 2: Test Kenadin       | Metric 3.       | Reliability/Unbiased                | Medium     | There is no indication that the methodology for producing the information was biased                      |
|                              | Wette 5.        | (Method Objectivity)                | Wiedium    | towards a particular product or outcome.                                                                  |
|                              | Metric 4:       | Reliability/Analytical Method       | Medium     | The analytical method is unknown but is likely to be appropriate based on the data's                      |
|                              |                 |                                     |            | inclusion in a peer-reviewed/recognized database or other secondary source.                               |
| Domain 3 <sup>,</sup> Other  |                 |                                     |            |                                                                                                           |
|                              | Metric 5:       | Databases                           | Medium     | The data are from a source that is known but is missing elements required for High                        |
|                              |                 |                                     |            | designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                              | Metric 6:       | Models                              | N/A        | Rating of this factor is not applicable to this kind of information.                                      |
| <b>Overall Oualit</b>        | v Determir      | nation                              | High       |                                                                                                           |
|                              | J               |                                     | 8          |                                                                                                           |

| Study Citation:              | NIOSH, (1992). ( | Occupational safety and health guidelin      | e for butadiene ( | 1,3-butadiene).                                                                                                                                       |
|------------------------------|------------------|----------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized              | Vapor Pressure   |                                              |                   |                                                                                                                                                       |
| Template:<br>HFRO ID:        | 8408503          |                                              |                   |                                                                                                                                                       |
|                              | 0100303          |                                              | EVTRACTIO         | N                                                                                                                                                     |
| Parameter                    |                  | Data                                         | EATRACIIO         |                                                                                                                                                       |
|                              |                  |                                              |                   |                                                                                                                                                       |
| Vapor Pressure               |                  | 1840 - mm Hg                                 |                   |                                                                                                                                                       |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                       |
| Confidentiality, Type, and C | Guideline        | no; not specified; Not Reported              |                   |                                                                                                                                                       |
| Solvent, Reactivity, Storage | e, and Stability | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                       |
| Radiolabel, Source, State, a | nd Purity        | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                       |
| Temperature                  |                  | 21 C (69.8 F)                                |                   |                                                                                                                                                       |
| System                       |                  | Not Reported                                 |                   |                                                                                                                                                       |
| Standard Deviation Results   |                  | Not Reported                                 |                   |                                                                                                                                                       |
| Results Details              |                  | Not Reported                                 |                   |                                                                                                                                                       |
|                              |                  |                                              |                   | AT                                                                                                                                                    |
| Domain                       |                  | Metric                                       | Rating            | Comments                                                                                                                                              |
| Domain 1: Substance          |                  |                                              | 1111119           |                                                                                                                                                       |
|                              | Metric 1:        | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                    |
|                              | Metric 2:        | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features                                                                  |
|                              |                  |                                              | C                 | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                            |
|                              |                  |                                              |                   | if the physical state is described as a liquid, the substance should have a melting point                                                             |
|                              |                  |                                              |                   | below 25°C and a boiling point above 25°C) or behaviors.                                                                                              |
| Domain 2: Test Reliabili     | ity              |                                              |                   |                                                                                                                                                       |
|                              | Metric 3:        | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                         |
|                              | Metric 4:        | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                               |
|                              |                  |                                              |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |
|                              |                  |                                              |                   | 1                                                                                                                                                     |
| Domain 3: Other              |                  |                                              |                   |                                                                                                                                                       |
|                              | Metric 5:        | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are                                                                |
|                              |                  |                                              |                   | peer-reviewed by experts in the field, are broadly available to the public for review and                                                             |
|                              |                  |                                              |                   | use OR includes references to the original sources.                                                                                                   |
|                              | Metric 6:        | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                  |
| Overall Aualit               | v Determin       | ation                                        | Hiah              |                                                                                                                                                       |
|                              | J Detter mill    |                                              | Ingil             |                                                                                                                                                       |

\* Related References: no references cited

| Study Citation:<br>OECD Harmonized | NIST, (2022). NIS<br>Vapor Pressure | NIST, (2022). NIST Chemistry WebBook. 1,3-Butadiene (106-99-0). Standard Reference Database No. 69.<br>Vapor Pressure |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
|------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                           | 10225178                            |                                                                                                                       |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    |                                     |                                                                                                                       | EXTRACTIO         | N                                                                                                                                                                                                                                                                                                                                  |  |  |
| Parameter                          |                                     | Data                                                                                                                  |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    |                                     |                                                                                                                       |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Vapor Pressure                     |                                     | Not Reported                                                                                                          |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
| CASRN and Test Material            |                                     | 106-99-0; 1,3-Butadiene                                                                                               |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Confidentiality, Type, and C       | Juideline                           | No; Experimental; Not Reported                                                                                        |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                    | Not Reported; Not Reported; Not Reported                                                                              | ed; Not Reported  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Radiolabel, Source, State, a       | nd Purity                           | Not Reported; Not Reported; Not Reported                                                                              | ed; Not Reported  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Temperature                        |                                     | Not Reported                                                                                                          |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
| System                             |                                     | Not Reported                                                                                                          |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Standard Deviation Results         |                                     | Not Reported                                                                                                          |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Results Details                    |                                     | Enthalpy of vaporization: 22.9 kJ/mol at .                                                                            | 395 KCalculated f | rom the vapor pressure data reported by the method of least squares.                                                                                                                                                                                                                                                               |  |  |
|                                    |                                     |                                                                                                                       | EVALUATIO         | ٠                                                                                                                                                                                                                                                                                                                                  |  |  |
| Domain                             |                                     | Metric                                                                                                                | Rating            | Comments                                                                                                                                                                                                                                                                                                                           |  |  |
| Domain 1: Substance                |                                     |                                                                                                                       |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    | Metric 1:                           | Representativeness                                                                                                    | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |  |  |
|                                    | Metric 2:                           | Appropriateness                                                                                                       | High              | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |  |  |
| Domain 2: Test Reliabili           | itv                                 |                                                                                                                       |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    | Metric 3:                           | Reliability/Unbiased<br>(Method Objectivity)                                                                          | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |  |  |
|                                    | Metric 4:                           | Reliability/Analytical Method                                                                                         | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |  |  |
| Domain 3: Other                    |                                     |                                                                                                                       |                   |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Domain 5: Other                    | Metric 5:                           | Databases                                                                                                             | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |  |  |
|                                    | Metric 6:                           | Models                                                                                                                | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |  |  |
| <b>Overall Qualit</b>              | y Determin                          | ation                                                                                                                 | High              |                                                                                                                                                                                                                                                                                                                                    |  |  |

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Vapor Pressure | IST Chemistry WebBook. 1,3-Butadiene     | e (106-99-0). Sta | ndard Reference Database No. 69.                                                                                                                                      |
|------------------------------------|-----------------------------------|------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                   |                                          |                   |                                                                                                                                                                       |
| HERO ID:                           | 10225178                          |                                          |                   |                                                                                                                                                                       |
|                                    |                                   |                                          | EXTRACTIO         | N                                                                                                                                                                     |
| Parameter                          |                                   | Data                                     |                   |                                                                                                                                                                       |
|                                    |                                   |                                          |                   |                                                                                                                                                                       |
| Vapor Pressure                     |                                   | Not Reported                             |                   |                                                                                                                                                                       |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene                  |                   |                                                                                                                                                                       |
| Confidentiality, Type, and C       | Guideline                         | No; Experimental; Not Reported           |                   |                                                                                                                                                                       |
| Solvent, Reactivity, Storage       | e, and Stability                  | Not Reported; Not Reported; Not Report   | ed; Not Reported  |                                                                                                                                                                       |
| Radiolabel, Source, State, a       | nd Purity                         | Not Reported; Not Reported; Not Report   | ed; Not Reported  |                                                                                                                                                                       |
| Temperature                        |                                   | Not Reported                             |                   |                                                                                                                                                                       |
| System                             |                                   | Not Reported                             |                   |                                                                                                                                                                       |
| Standard Deviation Results         |                                   | Not Reported                             |                   |                                                                                                                                                                       |
| Results Details                    |                                   | Enthalpy of Vaporization: 24.7 kJ/mol at | 235 K             |                                                                                                                                                                       |
|                                    |                                   |                                          |                   |                                                                                                                                                                       |
|                                    |                                   |                                          | EVALUATIO         | N                                                                                                                                                                     |
| Domain                             |                                   | Metric                                   | Rating            | Comments                                                                                                                                                              |
| Domain 1: Substance                |                                   |                                          |                   |                                                                                                                                                                       |
|                                    | Metric 1:                         | Representativeness                       | High              | Data are measured or estimated for the subject chemical substance.                                                                                                    |
|                                    | Metric 2:                         | Appropriateness                          | High              | Measured data are consistent with the subject chemical substance structural features                                                                                  |
|                                    |                                   |                                          |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                            |
|                                    |                                   |                                          |                   | If the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a bailing point above $25^{\circ}$ C) or behaviors |
|                                    |                                   |                                          |                   | below 25 C and a bonning point above 25 C) of benaviors.                                                                                                              |
| Domain 2: Test Reliabili           | itv                               |                                          |                   |                                                                                                                                                                       |
|                                    | Metric 3:                         | Reliability/Unbiased                     | Medium            | There is no indication that the methodology for producing the information was biased                                                                                  |
|                                    |                                   | (Method Objectivity)                     |                   | towards a particular product or outcome.                                                                                                                              |
|                                    | Metric 4:                         | Reliability/Analytical Method            | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                               |
|                                    |                                   |                                          |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a                                                                              |
|                                    |                                   |                                          |                   | peer-reviewed/recognized database or other secondary source.                                                                                                          |
| Domain 3: Other                    |                                   |                                          |                   |                                                                                                                                                                       |
| Domain J. Outer                    | Metric 5                          | Databases                                | High              | The information or data is from a recognized data collection/repository where data are                                                                                |
|                                    | metric J.                         | Duuduses                                 | mgn               | peer-reviewed by experts in the field, are broadly available to the public for review and                                                                             |
|                                    |                                   |                                          |                   | use OR includes references to the original sources.                                                                                                                   |
|                                    | Metric 6:                         | Models                                   | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                  |
|                                    |                                   |                                          |                   |                                                                                                                                                                       |
| <b>Overall Qualit</b>              | y Determir                        | nation                                   | High              |                                                                                                                                                                       |

\* Related References: cited from Vaughan, William E., THE HOMOGENEOUS THERMAL POLYMERIZATION OF 1,3-BUTADIENE, J. Am. Chem. Soc., 1932, 54, 10, 3863-3876, https://doi.org/10.1021/ja01349a008.

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Vapor Pressure | IIST Chemistry WebBook. 1,3-Butadiene        | e (106-99-0). Sta | ndard Reference Database No. 69.                                                                                                                                                                                                                                                                                                                       |
|------------------------------------|-----------------------------------|----------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | -                                 |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
| HERO ID:                           | 10225178                          |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
|                                    |                                   |                                              | EXTRACTIO         | N                                                                                                                                                                                                                                                                                                                                                      |
| Parameter                          |                                   | Data                                         |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Vapor Pressure                     |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                                        |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Confidentiality, Type, and G       | luideline                         | No; Experimental; Not Reported               |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Solvent, Reactivity, Storage       | , and Stability                   | Not Reported; Not Reported; Not Report       | ed; Not Reported  |                                                                                                                                                                                                                                                                                                                                                        |
| Radiolabel, Source, State, and     | nd Purity                         | Not Reported; Not Reported; Not Report       | ed; Not Reported  |                                                                                                                                                                                                                                                                                                                                                        |
| Temperature                        |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                                        |
| System                             |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Standard Deviation Results         |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                                                                                                                        |
| Results Details                    |                                   | Enthalpy of Vaporization: 21.1 kJ/mol        |                   |                                                                                                                                                                                                                                                                                                                                                        |
|                                    |                                   |                                              | EVALUATIO         | N                                                                                                                                                                                                                                                                                                                                                      |
| Domain                             |                                   | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                                                                                                                               |
| Domain 1: Substance                |                                   |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
|                                    | Metric 1:                         | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                     |
|                                    | Metric 2:                         | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors. |
| Domain 2: Test Reliabili           | ty                                |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
|                                    | Metric 3:                         | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                          |
|                                    | Metric 4:                         | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                    |
| Domain 3: Other                    |                                   |                                              |                   |                                                                                                                                                                                                                                                                                                                                                        |
|                                    | Metric 5:                         | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                   |
|                                    | Metric 6:                         | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                   |
| Overall Oualit                     | v Determi                         | nation                                       | High              |                                                                                                                                                                                                                                                                                                                                                        |

\* Related References: cited from Reid, Robert C., Handbook on vapor pressure and heats of vaporization of hydrocarbons and related compounds, R. C. Wilhort and B. J. Zwolinski, Texas A Research Foundation. College Station, Texas(1971). 329 pages.\$10.00, AIChE J., 1972, 18, 6, 1278-1278, https://doi.org/10.1002/aic.690180637.

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Vapor Pressure | NIST Chemistry WebBook. 1,3-Butadiene        | e (106-99-0). Sta | ndard Reference Database No. 69.                                                                                                                                                                                                                    |
|------------------------------------|-----------------------------------|----------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                   |                                              |                   |                                                                                                                                                                                                                                                     |
| HERO ID:                           | 10225178                          |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    |                                   |                                              | EXTRACTIO         | N                                                                                                                                                                                                                                                   |
| Parameter                          |                                   | Data                                         |                   |                                                                                                                                                                                                                                                     |
|                                    |                                   |                                              |                   |                                                                                                                                                                                                                                                     |
| Vapor Pressure                     |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C       | Guideline                         | No; Experimental; Not Reported               |                   |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability                  | Not Reported; Not Reported; Not Report       | ed; Not Reported  |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | and Purity                        | Not Reported; Not Reported; Not Report       | ed; Not Reported  |                                                                                                                                                                                                                                                     |
| Temperature                        |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| System                             |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| Results Details                    |                                   | Enthalpy of Vaporization: 22.47 kJ/mol a     | at 268.7 K        |                                                                                                                                                                                                                                                     |
|                                    |                                   |                                              | EVALUATIO         | N                                                                                                                                                                                                                                                   |
| Domain                             |                                   | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                                   |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                         | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                         | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |
|                                    |                                   |                                              |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.       |
| Domain 2: Test Reliabil            | itv                               |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    | Metric 3:                         | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                    | Metric 4:                         | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3 <sup>.</sup> Other        |                                   |                                              |                   |                                                                                                                                                                                                                                                     |
| Domain 5. Ouler                    | Metric 5:                         | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                         | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Qualit                     | y Determi                         | nation                                       | High              |                                                                                                                                                                                                                                                     |

\* Related References: cited from Majer, V.; Svoboda, V., Enthalpies of Vaporization of Organic Compounds: A Critical Review and Data Compilation, Blackwell ScientificPublications, Oxford, 1985, 300.

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Vapor Pressure | IIST Chemistry WebBook. 1,3-Butadiene        | e (106-99-0). Sta | ndard Reference Database No. 69.                                                                                                                                                                                                                    |
|------------------------------------|-----------------------------------|----------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | 1                                 |                                              |                   |                                                                                                                                                                                                                                                     |
| HERO ID:                           | 10225178                          |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    |                                   |                                              | EXTRACTIO         | N                                                                                                                                                                                                                                                   |
| Parameter                          |                                   | Data                                         |                   |                                                                                                                                                                                                                                                     |
|                                    |                                   |                                              |                   |                                                                                                                                                                                                                                                     |
| Vapor Pressure                     |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C       | Guideline                         | No; Experimental; Not Reported               |                   |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability                  | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | nd Purity                         | Not Reported; Not Reported; Not Report       | ted; Not Reported |                                                                                                                                                                                                                                                     |
| Temperature                        |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| System                             |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         |                                   | Not Reported                                 |                   |                                                                                                                                                                                                                                                     |
| Results Details                    |                                   | 0.08141 kJ/mol at 273.15 K, P=119.95 k       | Ра                |                                                                                                                                                                                                                                                     |
|                                    |                                   |                                              | EVALUATIO         | N                                                                                                                                                                                                                                                   |
| Domain                             |                                   | Metric                                       | Rating            | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                                   |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    | Metric 1:                         | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                         | Appropriateness                              | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |
|                                    |                                   |                                              |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.       |
| Domain 2: Test Reliabili           | ity                               |                                              |                   |                                                                                                                                                                                                                                                     |
|                                    | Metric 3:                         | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                    | Metric 4:                         | Reliability/Analytical Method                | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                                   |                                              |                   |                                                                                                                                                                                                                                                     |
| Domain 5. Outer                    | Metric 5:                         | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                         | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Qualit                     | y Determi                         | nation                                       | High              |                                                                                                                                                                                                                                                     |

\* Related References: cited from Scott, R.B.; Meyers, C.H.; Rands, R.D., Jr.; Brickwedde, F.G.; Bekkedahl, N., Thermodynamic properties of 1,3-butadiene in the solid, liquid, andvapor states, J. Res. NBS, 1945, 35, 39-85.

| Study Citation:<br>OECD Harmonized | NIST, (2022). NIST Chemistry WebBook. 1,3-Butadiene (106-99-0). Standard Reference Database No. 69. Vapor Pressure |                                                |              | ndard Reference Database No. 69.                                                                                                                                                                                                                                                                                                   |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                                                                                                    |                                                |              |                                                                                                                                                                                                                                                                                                                                    |
| HERO ID:                           | 10225178                                                                                                           |                                                |              |                                                                                                                                                                                                                                                                                                                                    |
|                                    |                                                                                                                    | EX                                             | FRACTIO      | Ň                                                                                                                                                                                                                                                                                                                                  |
| Parameter                          |                                                                                                                    | Data                                           |              |                                                                                                                                                                                                                                                                                                                                    |
| Van an Disanan                     |                                                                                                                    | Net Devented                                   |              |                                                                                                                                                                                                                                                                                                                                    |
| CASPN and Test Material            |                                                                                                                    | Not Reported                                   |              |                                                                                                                                                                                                                                                                                                                                    |
| Confidentiality Type and C         | uidalina                                                                                                           | No: Experimental: Not Peported                 |              |                                                                                                                                                                                                                                                                                                                                    |
| Solvent Peoctivity Storage         | and Stability                                                                                                      | Not Reported: Not Reported: Not Reported: Not  | t Penorted   |                                                                                                                                                                                                                                                                                                                                    |
| Padialabel Source State a          | nd Purity                                                                                                          | Not Reported: Not Reported: Not Reported: Not  | t Reported   |                                                                                                                                                                                                                                                                                                                                    |
| Temperature                        | na i unity                                                                                                         | Not Reported                                   | n Reported   |                                                                                                                                                                                                                                                                                                                                    |
| System                             |                                                                                                                    | Not Reported                                   |              |                                                                                                                                                                                                                                                                                                                                    |
| Standard Deviation Results         |                                                                                                                    | Not Reported                                   |              |                                                                                                                                                                                                                                                                                                                                    |
| Results Details                    |                                                                                                                    | Enthalpy of vaporization: 23.0 kI/mol at 285 K | Calculated f | om the vanor pressure data reported by the method of least squares                                                                                                                                                                                                                                                                 |
|                                    |                                                                                                                    |                                                |              |                                                                                                                                                                                                                                                                                                                                    |
|                                    |                                                                                                                    | EV                                             | ALUATION     | ٨                                                                                                                                                                                                                                                                                                                                  |
| Domain                             |                                                                                                                    | Metric                                         | Rating       | Comments                                                                                                                                                                                                                                                                                                                           |
| Domain 1: Substance                |                                                                                                                    |                                                |              |                                                                                                                                                                                                                                                                                                                                    |
|                                    | Metric 1:                                                                                                          | Representativeness                             | High         | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |
|                                    | Metric 2:                                                                                                          | Appropriateness                                | High         | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2. Test Reliabili           | tv                                                                                                                 |                                                |              |                                                                                                                                                                                                                                                                                                                                    |
| Domain 2. Test Kendom              | Metric 3:                                                                                                          | Reliability/Unbiased<br>(Method Objectivity)   | Medium       | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |
|                                    | Metric 4:                                                                                                          | Reliability/Analytical Method                  | Medium       | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |
| Domain 2: Other                    |                                                                                                                    |                                                |              |                                                                                                                                                                                                                                                                                                                                    |
| Domain 5: Other                    | Metric 5:                                                                                                          | Databases                                      | High         | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |
|                                    | Metric 6:                                                                                                          | Models                                         | N/A          | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |
| <b>Overall Qualit</b>              | y Determina                                                                                                        | ation                                          | High         |                                                                                                                                                                                                                                                                                                                                    |

| Study Citation:<br>OECD Harmonized | NIST, (2022). NI<br>Vapor Pressure | ST Chemistry WebBook. 1,3-Butadiene          | (106-99-0). Sta  | ndard Reference Database No. 69.                                                                                                                                                                                                                    |
|------------------------------------|------------------------------------|----------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 10225178                           |                                              |                  |                                                                                                                                                                                                                                                     |
|                                    |                                    |                                              | EXTRACTIO        | N                                                                                                                                                                                                                                                   |
| Parameter                          |                                    | Data                                         |                  |                                                                                                                                                                                                                                                     |
|                                    |                                    |                                              |                  |                                                                                                                                                                                                                                                     |
| Vapor Pressure                     |                                    | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene                      |                  |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C       | Juideline                          | No; Experimental; Not Reported               |                  |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage       | e, and Stability                   | Not Reported; Not Reported; Not Reported     | ed; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a       | nd Purity                          | Not Reported; Not Reported; Not Reported     | ed; Not Reported |                                                                                                                                                                                                                                                     |
| Temperature                        |                                    | 203 К                                        |                  |                                                                                                                                                                                                                                                     |
| System                             |                                    | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |
| Standard Deviation Results         |                                    | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |
| Results Details                    |                                    | Enthalpy of Vaporization: 25.7 kJ/mol at     | 203 KCalculated  | rom the vapor pressure data reported by the method of least squares.                                                                                                                                                                                |
|                                    |                                    |                                              | EVALUATIO        | NT .                                                                                                                                                                                                                                                |
| Domain                             |                                    | Metric                                       | Rating           | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |                                    | Wiette                                       | Rating           | connients                                                                                                                                                                                                                                           |
| Domain 1. Substance                | Metric 1:                          | Representativeness                           | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2:                          | Appropriateness                              | High             | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |
|                                    |                                    |                                              |                  | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.       |
| Domain 2: Test Reliabil            | itv                                |                                              |                  |                                                                                                                                                                                                                                                     |
| 2 0                                | Metric 3:                          | Reliability/Unbiased<br>(Method Objectivity) | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                    | Metric 4:                          | Reliability/Analytical Method                | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                                    |                                              |                  |                                                                                                                                                                                                                                                     |
| Domain 5. Outer                    | Metric 5:                          | Databases                                    | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                    | Metric 6:                          | Models                                       | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| <b>Overall Qualit</b>              | y Determin                         | ation                                        | High             |                                                                                                                                                                                                                                                     |

| Study Citation:<br>OECD Harmonized   | NIST, (2022). NI<br>Vapor Pressure | NIST, (2022). NIST Chemistry WebBook. 1,3-Butadiene (106-99-0). Standard Reference Database No. 69. Vapor Pressure |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
|--------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                             | 10225178                           |                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                      |                                    |                                                                                                                    | EXTRACTIO        | N                                                                                                                                                                                                                                                                                                                                  |  |  |
| Parameter                            |                                    | Data                                                                                                               |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                      |                                    |                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Vapor Pressure                       |                                    | Not Reported                                                                                                       |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| CASRN and Test Material              | ~                                  | 106-99-0; 1,3-Butadiene                                                                                            |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Confidentiality, Type, and C         |                                    | No; Experimental; Not Reported                                                                                     | 1.11.0           |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Solvent, Reactivity, Storage         | e, and Stability                   | Not Reported; Not Reported; Not Reported                                                                           | ed; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Radiolabel, Source, State, a         | ind Purity                         | Not Reported; Not Reported; Not Reported                                                                           | ed; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Sector                               |                                    | Not Reported                                                                                                       |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| System<br>Standard Daviation Paculta |                                    | Not Reported                                                                                                       |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Pasulte Dataile                      |                                    | Enthalpy of Vaporization: 23.6 kI/mol at                                                                           | 261 K Calculated | from the vapor pressure data reported by the method of least squares                                                                                                                                                                                                                                                               |  |  |
| Results Details                      |                                    | Enthalpy of vaporization. 25.0 Kirnior at                                                                          | 201 K.Calculateu | nom the vapor pressure data reported by the method of reast squares.                                                                                                                                                                                                                                                               |  |  |
|                                      |                                    |                                                                                                                    | EVALUATIO        | <br>N                                                                                                                                                                                                                                                                                                                              |  |  |
| Domain                               |                                    | Metric                                                                                                             | Rating           | Comments                                                                                                                                                                                                                                                                                                                           |  |  |
| Domain 1: Substance                  |                                    |                                                                                                                    | -                |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                      | Metric 1:                          | Representativeness                                                                                                 | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |  |  |
|                                      | Metric 2:                          | Appropriateness                                                                                                    | High             | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |  |  |
| Domain 2: Test Reliabil              | ity                                |                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                      | Metric 3:                          | Reliability/Unbiased<br>(Method Objectivity)                                                                       | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |  |  |
|                                      | Metric 4:                          | Reliability/Analytical Method                                                                                      | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |  |  |
| Domain 3: Other                      |                                    |                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Domain 5. Other                      | Metric 5:                          | Databases                                                                                                          | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |  |  |
|                                      | Metric 6:                          | Models                                                                                                             | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |  |  |
| <b>Overall Qualit</b>                | ty Determin                        | ation                                                                                                              | High             |                                                                                                                                                                                                                                                                                                                                    |  |  |

| Study Citation:<br>OECD Harmonized | NIST, (2022). NI<br>Vapor Pressure | NIST, (2022). NIST Chemistry WebBook. 1,3-Butadiene (106-99-0). Standard Reference Database No. 69. Vapor Pressure |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
|------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                           | 10225178                           |                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    |                                    |                                                                                                                    | EXTRACTIO        | N                                                                                                                                                                                                                                                                                                                                  |  |  |
| Parameter                          |                                    | Data                                                                                                               |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    |                                    |                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Vapor Pressure                     |                                    | Not Reported                                                                                                       |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene                                                                                            |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Confidentiality, Type, and C       | Guideline                          | No; Experimental; Not Reported                                                                                     |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                   | Not Reported; Not Reported; Not Report                                                                             | ed; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Radiolabel, Source, State, a       | nd Purity                          | Not Reported; Not Reported; Not Report                                                                             | ed; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Temperature                        |                                    | Not Reported                                                                                                       |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| System                             |                                    | Not Reported                                                                                                       |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Standard Deviation Results         |                                    | Not Reported                                                                                                       |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Results Details                    |                                    | Enthalpy of Vaporization: 22.4 kJ/mol at                                                                           | 330 KCalculated  | rom the vapor pressure data reported by the method of least squares.                                                                                                                                                                                                                                                               |  |  |
|                                    |                                    |                                                                                                                    | EVALUATIO        | N                                                                                                                                                                                                                                                                                                                                  |  |  |
| Domain                             |                                    | Metric                                                                                                             | Rating           | Comments                                                                                                                                                                                                                                                                                                                           |  |  |
| Domain 1: Substance                |                                    |                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    | Metric 1:                          | Representativeness                                                                                                 | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |  |  |
|                                    | Metric 2:                          | Appropriateness                                                                                                    | High             | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |  |  |
| Domain 2: Test Reliabil            | itv                                |                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| 2                                  | Metric 3:                          | Reliability/Unbiased<br>(Method Objectivity)                                                                       | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |  |  |
|                                    | Metric 4:                          | Reliability/Analytical Method                                                                                      | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |  |  |
| Domain 3: Other                    |                                    |                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Domain 5. Other                    | Metric 5:                          | Databases                                                                                                          | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |  |  |
|                                    | Metric 6:                          | Models                                                                                                             | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |  |  |
| <b>Overall Qualit</b>              | y Determin                         | ation                                                                                                              | High             |                                                                                                                                                                                                                                                                                                                                    |  |  |

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Vapor Pressure | IST Chemistry WebBook. 1,3-Butadien    | e (106-99-0). Sta | ndard Reference Database No. 69.                                                                                                                                      |
|------------------------------------|-----------------------------------|----------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                   |                                        |                   |                                                                                                                                                                       |
| HERO ID:                           | 10225178                          |                                        |                   |                                                                                                                                                                       |
|                                    |                                   |                                        | EXTRACTIO         | N                                                                                                                                                                     |
| Parameter                          |                                   | Data                                   |                   |                                                                                                                                                                       |
|                                    |                                   |                                        |                   |                                                                                                                                                                       |
| Vapor Pressure                     |                                   | Not Reported                           |                   |                                                                                                                                                                       |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene                |                   |                                                                                                                                                                       |
| Confidentiality, Type, and C       | Juideline                         | No; Experimental; Not Reported         |                   |                                                                                                                                                                       |
| Solvent, Reactivity, Storage       | , and Stability                   | Not Reported; Not Reported; Not Report | ted; Not Reported |                                                                                                                                                                       |
| Radiolabel, Source, State, a       | nd Purity                         | Not Reported; Not Reported; Not Report | ted; Not Reported |                                                                                                                                                                       |
| Temperature                        |                                   | Not Reported                           |                   |                                                                                                                                                                       |
| System                             |                                   | Not Reported                           |                   |                                                                                                                                                                       |
| Standard Deviation Results         |                                   | Not Reported                           |                   |                                                                                                                                                                       |
| Results Details                    |                                   | Enthalpy of vaporization: 21.47 kJ/mol |                   |                                                                                                                                                                       |
|                                    |                                   |                                        |                   |                                                                                                                                                                       |
|                                    |                                   |                                        | EVALUATIO         | N                                                                                                                                                                     |
| Domain                             |                                   | Metric                                 | Rating            | Comments                                                                                                                                                              |
| Domain 1: Substance                |                                   |                                        |                   |                                                                                                                                                                       |
|                                    | Metric 1:                         | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance.                                                                                                    |
|                                    | Metric 2:                         | Appropriateness                        | High              | Measured data are consistent with the subject chemical substance structural features                                                                                  |
|                                    |                                   |                                        |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                            |
|                                    |                                   |                                        |                   | if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a bailing point above $25^{\circ}$ C) or behaviors |
|                                    |                                   |                                        |                   | below 25 C and a bonning point above 25 C) of benaviors.                                                                                                              |
| Domain 2: Test Reliabili           | itv                               |                                        |                   |                                                                                                                                                                       |
| Domain 2. Test Renabili            | Metric 3:                         | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased                                                                                  |
|                                    | 11100110 01                       | (Method Objectivity)                   |                   | towards a particular product or outcome.                                                                                                                              |
|                                    | Metric 4:                         | Reliability/Analytical Method          | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                               |
|                                    |                                   |                                        |                   | cal method is unknown but is likely to be appropriate based on the data's inclusion in a                                                                              |
|                                    |                                   |                                        |                   | peer-reviewed/recognized database or other secondary source.                                                                                                          |
| Demain 2. Other                    |                                   |                                        |                   |                                                                                                                                                                       |
| Domain 3: Other                    | Matria 5.                         | Databasas                              | Illah             | The information on data is from a managized data and the time for a site manhament.                                                                                   |
|                                    | Metric 5:                         | Databases                              | пign              | ne mornation or data is from a recognized data conection/repository where data are                                                                                    |
|                                    |                                   |                                        |                   | use OR includes references to the original sources.                                                                                                                   |
|                                    | Metric 6:                         | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                  |
|                                    |                                   |                                        |                   |                                                                                                                                                                       |
| <b>Overall Qualit</b>              | y Determin                        | nation                                 | High              |                                                                                                                                                                       |

\* Related References: cited from Majer, V.; Svoboda, V., Enthalpies of Vaporization of Organic Compounds: A Critical Review and Data Compilation, Blackwell ScientificPublications, Oxford, 1985, 300.

| Study Citation:<br>OECD Harmonized | NIST, (2022). NI<br>Vapor Pressure    | IST Chemistry WebBook. 1,3-Butadien          | e (106-99-0). Sta  | ndard Reference Database No. 69.                                                                                                                                                                                                                                                                                                                        |
|------------------------------------|---------------------------------------|----------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | · · · · · · · · · · · · · · · · · · · |                                              |                    |                                                                                                                                                                                                                                                                                                                                                         |
| HERO ID:                           | 10225178                              |                                              |                    |                                                                                                                                                                                                                                                                                                                                                         |
|                                    |                                       |                                              | EXTRACTIO          | N                                                                                                                                                                                                                                                                                                                                                       |
| Parameter                          |                                       | Data                                         |                    |                                                                                                                                                                                                                                                                                                                                                         |
|                                    |                                       |                                              |                    |                                                                                                                                                                                                                                                                                                                                                         |
| Vapor Pressure                     |                                       | 43.2 - bar                                   |                    |                                                                                                                                                                                                                                                                                                                                                         |
| CASRN and Test Material            |                                       | 106-99-0; 1,3-Butadiene                      |                    |                                                                                                                                                                                                                                                                                                                                                         |
| Confidentiality, Type, and C       | Guideline                             | No; Experimental; Not Reported               |                    |                                                                                                                                                                                                                                                                                                                                                         |
| Solvent, Reactivity, Storage       | , and Stability                       | Not Reported; Not Reported; Not Report       | ted; Not Reported  |                                                                                                                                                                                                                                                                                                                                                         |
| Radiolabel, Source, State, a       | nd Purity                             | Not Reported; Not Reported; Not Report       | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                                         |
| Temperature                        |                                       | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                                         |
| System                             |                                       | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                                         |
| Standard Deviation Results         |                                       | 1.0 bar                                      |                    |                                                                                                                                                                                                                                                                                                                                                         |
| Results Details                    |                                       | reported as critical vapor pressure.         |                    |                                                                                                                                                                                                                                                                                                                                                         |
|                                    |                                       |                                              | EVALUATIO          | N                                                                                                                                                                                                                                                                                                                                                       |
| Domain                             |                                       | Metric                                       | Rating             | Comments                                                                                                                                                                                                                                                                                                                                                |
| Domain 1: Substance                |                                       |                                              |                    |                                                                                                                                                                                                                                                                                                                                                         |
|                                    | Metric 1:                             | Representativeness                           | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                      |
|                                    | Metric 2:                             | Appropriateness                              | High               | Measured data are consistent with the subject chemical substance structural features $(e_{\alpha}, presence_{\alpha})$ or other physical/chemical properties (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., presence of certain functional groups) or other physical chemical substance structural features |
|                                    |                                       |                                              |                    | if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.                                                                                                                                                                                                      |
| Domain 2: Test Reliabili           | ty                                    |                                              |                    |                                                                                                                                                                                                                                                                                                                                                         |
|                                    | Metric 3:                             | Reliability/Unbiased<br>(Method Objectivity) | Medium             | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                           |
|                                    | Metric 4:                             | Reliability/Analytical Method                | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                     |
| Domain 3: Other                    |                                       |                                              |                    |                                                                                                                                                                                                                                                                                                                                                         |
| Soman 5. Ouer                      | Metric 5:                             | Databases                                    | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                    |
|                                    | Metric 6:                             | Models                                       | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                    |
| <b>Overall Qualit</b>              | y Determin                            | ation                                        | High               |                                                                                                                                                                                                                                                                                                                                                         |

\* Related References: cited from Tsonopoulos, C.; Ambrose, D., Vapor-Liquid Critical Properties of Elements and Compounds. 6. Unsaturated Aliphatic Hydrocarbons, J. Chem.Eng. Data, 1996, 41, 645-656.

| Study Citation:<br>OECD Harmonized | NIST, (2022). N<br>Vapor Pressure | IIST Chemistry WebBook. 1,3-Butadien    | e (106-99-0). Sta | ndard Reference Database No. 69.                                                                                                                                                                                                                    |  |  |  |
|------------------------------------|-----------------------------------|-----------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Template:                          | vapor i ressure                   |                                         |                   |                                                                                                                                                                                                                                                     |  |  |  |
| HERO ID:                           | 10225178                          |                                         |                   |                                                                                                                                                                                                                                                     |  |  |  |
|                                    | EXTRACTION                        |                                         |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Parameter                          |                                   | Data                                    |                   |                                                                                                                                                                                                                                                     |  |  |  |
|                                    |                                   |                                         |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Vapor Pressure                     |                                   | Not Reported                            |                   |                                                                                                                                                                                                                                                     |  |  |  |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-Butadiene                 |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Confidentiality, Type, and C       | Guideline                         | No; Experimental; Not Reported          |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                  | Not Reported; Not Reported; Not Repor   | ted; Not Reported |                                                                                                                                                                                                                                                     |  |  |  |
| Radiolabel, Source, State, a       | and Purity                        | Not Reported; Not Reported; Not Repor   | ted; Not Reported |                                                                                                                                                                                                                                                     |  |  |  |
| Temperature                        |                                   | Not Reported                            |                   |                                                                                                                                                                                                                                                     |  |  |  |
| System                             |                                   | Not Reported                            |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Standard Deviation Results         |                                   | Not Reported                            |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Results Details                    |                                   | Enthalpy of Vaporization: 23.7 kJ/mol a | t 256 K           |                                                                                                                                                                                                                                                     |  |  |  |
|                                    | FVALUATION                        |                                         |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Domain                             |                                   | Metric                                  | Rating            | Comments                                                                                                                                                                                                                                            |  |  |  |
| Domain 1: Substance                |                                   |                                         |                   |                                                                                                                                                                                                                                                     |  |  |  |
|                                    | Metric 1:                         | Representativeness                      | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |  |
|                                    | Metric 2:                         | Appropriateness                         | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |  |  |  |
|                                    |                                   |                                         |                   | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                                                                                                          |  |  |  |
|                                    |                                   |                                         |                   | below 25°C and a boiling point above 25°C) or behaviors.                                                                                                                                                                                            |  |  |  |
| Domain 2: Test Reliabili           | itv                               |                                         |                   |                                                                                                                                                                                                                                                     |  |  |  |
|                                    | Metric 3:                         | Reliability/Unbiased                    | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                                                                                |  |  |  |
|                                    |                                   | (Method Objectivity)                    |                   | towards a particular product or outcome.                                                                                                                                                                                                            |  |  |  |
|                                    | Metric 4:                         | Reliability/Analytical Method           | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |  |
|                                    |                                   |                                         |                   |                                                                                                                                                                                                                                                     |  |  |  |
| Domain 3: Other                    | 36.1.5                            |                                         |                   |                                                                                                                                                                                                                                                     |  |  |  |
|                                    | Metric 5:                         | Databases                               | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |  |
|                                    | Metric 6:                         | Models                                  | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |  |
| <b>Overall Qualit</b>              | ty Determi                        | nation                                  | High              |                                                                                                                                                                                                                                                     |  |  |  |

\* Related References: cited from Boublik, T.; Fried, V.; Hala, E., The Vapour Pressures of Pure Substances: Selected Values of the Temperature Dependence of the VapourPressures of Some Pure Substances in the Normal and Low Pressure Region, 2nd ed., Elsevier, New York, 1984, 972.

| Study Citation:<br>OECD Harmonized        | NLM, (2003). Pr<br>Vapor Pressure | ubChem: Hazardous Substance Data B           | ank: 1,3-Butadien | e, 106-99-0.                                                                                                                                                      |
|-------------------------------------------|-----------------------------------|----------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                  | 5926134                           |                                              |                   |                                                                                                                                                                   |
|                                           |                                   |                                              | EXTRACTIO         | N                                                                                                                                                                 |
| Parameter                                 |                                   | Data                                         |                   |                                                                                                                                                                   |
| Vapor Pressure<br>CASRN and Test Material | Guideline                         | 2052 mm Hg<br>106-99-0; 1,3-Butadiene        |                   |                                                                                                                                                                   |
| Solvent, Reactivity, Storage              | e. and Stability                  | NR: NR: NR                                   |                   |                                                                                                                                                                   |
| Radiolabel, Source, State, a              | and Purity                        | NR; NR; NR; NR                               |                   |                                                                                                                                                                   |
| Temperature                               | ·                                 | 25 C                                         |                   |                                                                                                                                                                   |
| System                                    |                                   | Not Reported                                 |                   |                                                                                                                                                                   |
| Standard Deviation Results                |                                   | Not Reported                                 |                   |                                                                                                                                                                   |
| Results Details                           |                                   | Not Reported                                 |                   |                                                                                                                                                                   |
|                                           |                                   |                                              |                   |                                                                                                                                                                   |
|                                           |                                   |                                              | EVALUATIO         | N                                                                                                                                                                 |
| Domain                                    |                                   | Metric                                       | Rating            | Comments                                                                                                                                                          |
| Domain 1: Substance                       | Matria 1.                         | Depresentativeness                           | Uiah              | Data are managined as actimated for the subject chamical substance                                                                                                |
|                                           | Metric 2:                         | Appropriateness                              | High              | Data are measured of estimated for the subject chemical substance.                                                                                                |
|                                           | Metric 2.                         | Appropriateness                              | Ingn              | weasured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabil                   | ity                               |                                              |                   |                                                                                                                                                                   |
|                                           | Metric 3:                         | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                           | Metric 4:                         | Reliability/Analytical Method                | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                           |                                   |                                              |                   |                                                                                                                                                                   |
| Domain 5. Other                           | Metric 5:                         | Databases                                    | High              | Data is from a publicly available, peer-reviewed database that provides references to original sources.                                                           |
|                                           | Metric 6:                         | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Qualit                            | ty Determin                       | nation                                       | High              |                                                                                                                                                                   |

\* Related References: Grub, J., Loser, E. 2011. Ullmann's Encyclopedia of Industrial Chemistry. 7th Edition. New York, NY: John Wiley & Sons.

1,3-Butadiene

| Study Citation:              | RSC, (2019). Ch    | emSpider: 1,3-Butadiene.         |           |                                                                                         |
|------------------------------|--------------------|----------------------------------|-----------|-----------------------------------------------------------------------------------------|
| <b>OECD Harmonized</b>       | Vapor Pressure     |                                  |           |                                                                                         |
| Template:                    |                    |                                  |           |                                                                                         |
| HERO ID:                     | 5926255            |                                  |           |                                                                                         |
|                              |                    |                                  | FYTRACTIO | N                                                                                       |
| Parameter                    |                    | Data                             | EXTRACTIO | 1                                                                                       |
|                              |                    | Dum                              |           |                                                                                         |
| Von on Brocourse             |                    | 1924 mm Ha                       |           |                                                                                         |
| CASDN and Test Material      |                    | 1024 IIIII ng                    |           |                                                                                         |
|                              |                    | 100-99-0; 1,3-Butachene          |           |                                                                                         |
| Confidentiality, Type, and C |                    | None; Experimental; Not reported |           |                                                                                         |
| Solvent, Reactivity, Storage |                    | NR; NR; NR; NR                   |           |                                                                                         |
| Kadiolabel, Source, State, a | ind Purity         | NK; NK; NK; NK                   |           |                                                                                         |
|                              |                    | Not Reported                     |           |                                                                                         |
| System                       |                    | Not Reported                     |           |                                                                                         |
| Standard Deviation Results   |                    | Not Reported                     |           |                                                                                         |
| Results Details              |                    | 2.4 atm                          |           |                                                                                         |
|                              |                    |                                  |           | A. T                                                                                    |
| D .                          |                    |                                  | EVALUATIO | N                                                                                       |
| Domain                       |                    | Metric                           | Rating    | Comments                                                                                |
| Domain 1: Substance          |                    |                                  | TT' 1     |                                                                                         |
|                              | Metric 1:          | Representativeness               | High      | Data are measured or estimated for the subject chemical substance.                      |
|                              | Metric 2:          | Appropriateness                  | High      | Measured data are consistent with the subject chemical's physical/chemical properties.  |
| Domain 2. Test Reliabil      | ity                |                                  |           |                                                                                         |
| Domain 2. Test Rendom        | Metric 3.          | Reliability/Unbiased             | Medium    | There is no indication that the methodology for producing the information was biased    |
|                              | filedie 5.         | (Method Objectivity)             | meanum    | towards a particular product or outcome.                                                |
|                              | Metric 4:          | Reliability/Analytical Method    | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu- |
|                              |                    |                                  |           | sion in a peer-reviewed/recognized database or other secondary source.                  |
| Damain 2. Od                 |                    |                                  |           |                                                                                         |
| Domain 3: Other              | M ( <sup>1</sup> 5 |                                  | TT' 1     |                                                                                         |
|                              | Metric 5:          | Databases                        | High      | Data is from a publicly available database that references a peer-reviewed source.      |
|                              | Metric 6:          | Models                           | N/A       | Rating of this factor is not applicable to this kind of information.                    |
|                              | w Dotomes          | action                           | Hich      |                                                                                         |
|                              | y Determin         |                                  | пign      |                                                                                         |

\* Related References: NIOSH

| Study Citation:<br>OECD Harmonized | RSC, (2019). Che<br>Vapor Pressure | emSpider: 1,3-Butadiene.         |            |                                                                                                  |
|------------------------------------|------------------------------------|----------------------------------|------------|--------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5926255                            |                                  |            |                                                                                                  |
|                                    |                                    |                                  | EXTRACTION |                                                                                                  |
| Parameter                          |                                    | Data                             |            |                                                                                                  |
|                                    |                                    |                                  |            |                                                                                                  |
| Vapor Pressure                     |                                    | 1863 mm Hg                       |            |                                                                                                  |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene          |            |                                                                                                  |
| Confidentiality, Type, and C       | Guideline                          | None; Experimental; Not reported |            |                                                                                                  |
| Solvent, Reactivity, Storage       | e, and Stability                   | NR; NR; NR; NR                   |            |                                                                                                  |
| Radiolabel, Source, State, a       | nd Purity                          | NR; NR; NR; NR                   |            |                                                                                                  |
| Temperature                        |                                    | Not Reported                     |            |                                                                                                  |
| System                             |                                    | Not Reported                     |            |                                                                                                  |
| Standard Deviation Results         |                                    | Not Reported                     |            |                                                                                                  |
| Results Details                    |                                    | Not Reported                     |            |                                                                                                  |
|                                    |                                    |                                  |            |                                                                                                  |
|                                    |                                    |                                  | EVALUATION | _                                                                                                |
| Domain                             |                                    | Metric                           | Rating     | Comments                                                                                         |
| Domain 1: Substance                |                                    |                                  |            |                                                                                                  |
|                                    | Metric 1:                          | Representativeness               | High       | Data are measured or estimated for the subject chemical substance.                               |
|                                    | Metric 2:                          | Appropriateness                  | High       | Measured data are consistent with the subject chemical's physical/chemical properties.           |
| Domain 2: Test Reliabili           | itv                                |                                  |            |                                                                                                  |
|                                    | Metric 3:                          | Reliability/Unbiased             | Medium     | There is no indication that the methodology for producing the information was biased             |
|                                    |                                    | (Method Objectivity)             |            | towards a particular product or outcome.                                                         |
|                                    | Metric 4:                          | Reliability/Analytical Method    | Low        | The analytical method is unknown and there is no indication that a reliable method was used.     |
| Domain 3. Other                    |                                    |                                  |            |                                                                                                  |
| Domain J. Oulo                     | Metric 5:                          | Databases                        | Medium     | Data is from a publicly available secondary source with references to non-peer reviewed sources. |
|                                    | Metric 6:                          | Models                           | N/A        | Rating of this factor is not applicable to this kind of information.                             |
| Overall Qualit                     | y Determin                         | ation                            | Medium     |                                                                                                  |

\* Related References: SynQuest

| Study Citation:<br>OECD Harmonized | Rumble, J. R., (<br>Vapor Pressure | (Ed.) (2018). 1,3-Butadiene. :3-8. |           |                                                                                                                                                                    |
|------------------------------------|------------------------------------|------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | 5240186                            |                                    |           |                                                                                                                                                                    |
| HERO ID:                           | 3349180                            |                                    |           | N                                                                                                                                                                  |
| Parameter                          |                                    | Data                               | EXTRACTIO | N                                                                                                                                                                  |
|                                    |                                    | Data                               |           |                                                                                                                                                                    |
| Vapor Pressure                     |                                    | 1912 mm Hg                         |           |                                                                                                                                                                    |
| CASRN and Test Material            |                                    | 106-99-0; 1,3-Butadiene            |           |                                                                                                                                                                    |
| Confidentiality, Type, and         | Guideline                          | None; Experimental; Not reported   |           |                                                                                                                                                                    |
| Solvent, Reactivity, Storag        | e, and Stability                   | NR; NR; NR; NR                     |           |                                                                                                                                                                    |
| Radiolabel, Source, State,         | and Purity                         | NR; NR; NR; NR                     |           |                                                                                                                                                                    |
| Temperature                        |                                    | 295 К                              |           |                                                                                                                                                                    |
| System                             |                                    | Not Reported                       |           |                                                                                                                                                                    |
| Standard Deviation Results         | 8                                  | Not Reported                       |           |                                                                                                                                                                    |
| Results Details                    |                                    | 255 kPa at 295 K                   |           |                                                                                                                                                                    |
|                                    |                                    |                                    | EVALUATIO | N                                                                                                                                                                  |
| Domain                             |                                    | Metric                             | Rating    | Comments                                                                                                                                                           |
| Domain 1: Substance                |                                    |                                    |           |                                                                                                                                                                    |
|                                    | Metric 1:                          | Representativeness                 | High      | Data are measured or estimated for the subject chemical substance.                                                                                                 |
|                                    | Metric 2:                          | Appropriateness                    | High      | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                             |
| Domain 2: Test Reliabil            | lity                               |                                    |           |                                                                                                                                                                    |
|                                    | Metric 3:                          | Reliability/Unbiased               | Medium    | There is no indication that the methodology for producing the information was biased                                                                               |
|                                    |                                    | (Method Objectivity)               |           | towards a particular product or outcome.                                                                                                                           |
|                                    | Metric 4:                          | Reliability/Analytical Method      | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer- reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                                    |                                    |           |                                                                                                                                                                    |
|                                    | Metric 5:                          | Databases                          | High      | Data is from a recognized, peer- reviewed data collection.                                                                                                         |
|                                    | Metric 6:                          | Models                             | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                               |
| <b>Overall Quali</b>               | ty Determi                         | nation                             | High      |                                                                                                                                                                    |

| Study Citation:<br>OECD Harmonized | U.S. EPA, (1989<br>Vapor Pressure | ). Health and environmental effects docu | ment for 1,3-butadier | ne.                                                                                                                                                                                          |
|------------------------------------|-----------------------------------|------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 3454                              |                                          |                       |                                                                                                                                                                                              |
|                                    |                                   |                                          | EXTRACTION            |                                                                                                                                                                                              |
| Parameter                          |                                   | Data                                     |                       |                                                                                                                                                                                              |
| Vapor Prossura                     |                                   | 1 otm                                    |                       |                                                                                                                                                                                              |
| CASEN and Test Material            |                                   | 1 - aun<br>106-00-0: 1 3-butadiene       |                       |                                                                                                                                                                                              |
| Confidentiality Type and (         | Guideline                         | No: Not specified: Not reported          |                       |                                                                                                                                                                                              |
| Solvent Reactivity Storage         | and Stability                     | Not Reported: Not Reported: Not Report   | ed: Not Reported      |                                                                                                                                                                                              |
| Radiolabel. Source. State, a       | and Purity                        | Not Reported: Not Reported: Not Report   | ed: Not Reported      |                                                                                                                                                                                              |
| Temperature                        |                                   | -4.5°C                                   |                       |                                                                                                                                                                                              |
| System                             |                                   | Not Reported                             |                       |                                                                                                                                                                                              |
| Standard Deviation Results         |                                   | Not Reported                             |                       |                                                                                                                                                                                              |
| Results Details                    |                                   | Not Reported                             |                       |                                                                                                                                                                                              |
|                                    |                                   |                                          | EVALUATION            |                                                                                                                                                                                              |
| Domain                             |                                   | Metric                                   | Rating                | Comments                                                                                                                                                                                     |
| Domain 1: Substance                |                                   |                                          |                       |                                                                                                                                                                                              |
|                                    | Metric 1:                         | Representativeness                       | High                  | Data are measured or estimated for the subject chemical substance.                                                                                                                           |
|                                    | Metric 2:                         | Appropriateness                          | High                  | Measured data are consistent with the subject chemical substance structural features.                                                                                                        |
| Domain 2: Test Reliabili           | ity                               |                                          |                       |                                                                                                                                                                                              |
|                                    | Metric 3:                         | Reliability/Unbiased                     | Medium                | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                |
|                                    | Metric 4:                         | Reliability/Analytical Method            | Low                   | The analytical method is unknown and there is no indication that a reliable method was used.                                                                                                 |
| Domain 3: Other                    |                                   |                                          |                       |                                                                                                                                                                                              |
|                                    | Metric 5:                         | Databases                                | Medium                | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                                    | Metric 6:                         | Models                                   | N/A                   | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| Overall Qualit                     | ty Determi                        | nation                                   | Medium                |                                                                                                                                                                                              |

\* Related References: Citing Perry, R.H. and D. Green. 1984. Perry's Chemical Handbook. Physical and Chemical Data. 6th ed. McGraw-Hill Book Co., New York. p. 3-62, HERO ID: 6302806.

| Study Citation:<br>OECD Harmonized | U.S. EPA, (198)<br>Vapor Pressure | 9). Health and environmental effects doct | ument for 1,3-but | tadiene.                                                                                                                                                                                                                             |
|------------------------------------|-----------------------------------|-------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | 1                                 |                                           |                   |                                                                                                                                                                                                                                      |
| HERO ID:                           | 3454                              |                                           |                   |                                                                                                                                                                                                                                      |
|                                    |                                   |                                           | EXTRACTIO         | N                                                                                                                                                                                                                                    |
| Parameter                          |                                   | Data                                      |                   |                                                                                                                                                                                                                                      |
| Vapor Pressure                     |                                   | 2 - atm                                   |                   |                                                                                                                                                                                                                                      |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-butadiene                   |                   |                                                                                                                                                                                                                                      |
| Confidentiality, Type, and C       | Guideline                         | No; Not specified; Not reported           |                   |                                                                                                                                                                                                                                      |
| Solvent, Reactivity, Storage       | e, and Stability                  | Not Reported; Not Reported; Not Report    | ted; Not Reported |                                                                                                                                                                                                                                      |
| Radiolabel, Source, State, a       | and Purity                        | Not Reported; Not Reported; Not Report    | ted; Not Reported |                                                                                                                                                                                                                                      |
| Temperature                        | •                                 | 14.5°C                                    | Ĩ                 |                                                                                                                                                                                                                                      |
| System                             |                                   | Not Reported                              |                   |                                                                                                                                                                                                                                      |
| Standard Deviation Results         |                                   | Not Reported                              |                   |                                                                                                                                                                                                                                      |
| Results Details                    |                                   | Not Reported                              |                   |                                                                                                                                                                                                                                      |
|                                    |                                   |                                           | EVALUATIO         | N                                                                                                                                                                                                                                    |
| Domain                             |                                   | Metric                                    | Rating            | Comments                                                                                                                                                                                                                             |
| Domain 1: Substance                |                                   |                                           |                   |                                                                                                                                                                                                                                      |
|                                    | Metric 1:                         | Representativeness                        | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                   |
|                                    | Metric 2:                         | Appropriateness                           | High              | Measured data are consistent with the subject chemical substance structural features.                                                                                                                                                |
| Domain 2: Test Reliabil            | ity                               |                                           |                   |                                                                                                                                                                                                                                      |
|                                    | Metric 3:                         | Reliability/Unbiased                      | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                        |
|                                    | Metric 4:                         | Reliability/Analytical Method             | Low               | The analytical method is unknown and there is no indication that a reliable method was used.                                                                                                                                         |
| Domain 3: Other                    |                                   |                                           |                   |                                                                                                                                                                                                                                      |
|                                    | Metric 5:                         | Databases                                 | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources. |
|                                    | Metric 6:                         | Models                                    | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                 |
| Overall Qualit                     | ty Determi                        | nation                                    | High              |                                                                                                                                                                                                                                      |

\* Related References: Citing Perry, R.H. and D. Green. 1984. Perry's Chemical Handbook. Physical and Chemical Data. 6th ed. McGraw-Hill Book Co., New York. p. 3-62, HERO ID: 6302806.

| Study Citation:<br>OECD Harmonized | U.S. EPA, (198<br>Vapor Pressure | 9). Health and environmental effects doct | ument for 1,3-bu  | tadiene.                                                                                                                                                                                                                             |
|------------------------------------|----------------------------------|-------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          | (upor 1 1000 uro                 |                                           |                   |                                                                                                                                                                                                                                      |
| HERO ID:                           | 3454                             |                                           |                   |                                                                                                                                                                                                                                      |
|                                    |                                  |                                           | EXTRACTIO         | N                                                                                                                                                                                                                                    |
| Parameter                          |                                  | Data                                      |                   |                                                                                                                                                                                                                                      |
| Vapor Pressure                     |                                  | 5 - atm                                   |                   |                                                                                                                                                                                                                                      |
| CASRN and Test Material            |                                  | 106-99-0; 1,3-butadiene                   |                   |                                                                                                                                                                                                                                      |
| Confidentiality, Type, and C       | Guideline                        | No; Not specified; Not reported           |                   |                                                                                                                                                                                                                                      |
| Solvent, Reactivity, Storage       | e, and Stability                 | Not Reported; Not Reported; Not Report    | ted; Not Reported |                                                                                                                                                                                                                                      |
| Radiolabel, Source, State, a       | and Purity                       | Not Reported; Not Reported; Not Report    | ted; Not Reported |                                                                                                                                                                                                                                      |
| Temperature                        |                                  | 47.0°C                                    |                   |                                                                                                                                                                                                                                      |
| System                             |                                  | Not Reported                              |                   |                                                                                                                                                                                                                                      |
| Standard Deviation Results         | 5                                | Not Reported                              |                   |                                                                                                                                                                                                                                      |
| Results Details                    |                                  | Not Reported                              |                   |                                                                                                                                                                                                                                      |
|                                    |                                  |                                           | EVALUATIO         | N                                                                                                                                                                                                                                    |
| Domain                             |                                  | Metric                                    | Rating            | Comments                                                                                                                                                                                                                             |
| Domain 1: Substance                |                                  |                                           |                   |                                                                                                                                                                                                                                      |
|                                    | Metric 1:                        | Representativeness                        | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                   |
|                                    | Metric 2:                        | Appropriateness                           | High              | Measured data are consistent with the subject chemical substance structural features.                                                                                                                                                |
| Domain 2: Test Reliabil            | ity                              |                                           |                   |                                                                                                                                                                                                                                      |
|                                    | Metric 3:                        | Reliability/Unbiased                      | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                        |
|                                    | Metric 4:                        | Reliability/Analytical Method             | Low               | The analytical method is unknown and there is no indication that a reliable method was used.                                                                                                                                         |
| Domain 3: Other                    |                                  |                                           |                   |                                                                                                                                                                                                                                      |
|                                    | Metric 5:                        | Databases                                 | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources. |
|                                    | Metric 6:                        | Models                                    | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                 |
| Overall Qualit                     | ty Determi                       | nation                                    | High              |                                                                                                                                                                                                                                      |

\* Related References: Citing Perry, R.H. and D. Green. 1984. Perry's Chemical Handbook. Physical and Chemical Data. 6th ed. McGraw-Hill Book Co., New York. p. 3-62, HERO ID: 6302806.

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | U.S. EPA, (2002<br>Vapor Pressure | 2). Health assessment of 1,3-butadiene. |            |                                                                                                                                                                                              |
|------------------------------------|-----------------------------------|-----------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 52153                             |                                         |            |                                                                                                                                                                                              |
|                                    |                                   |                                         | EXTRACTION |                                                                                                                                                                                              |
| Parameter                          |                                   | Data                                    |            |                                                                                                                                                                                              |
| Vapor Pressure                     |                                   | 1790 mm Hg                              |            |                                                                                                                                                                                              |
| CASRN and Test Material            |                                   | 106-99-0; 1,3-butadiene                 |            |                                                                                                                                                                                              |
| Confidentiality, Type, and C       | Guideline                         | none; not specified; NA                 |            |                                                                                                                                                                                              |
| Solvent, Reactivity, Storage       | e, and Stability                  | NA; NA; NA; NA                          |            |                                                                                                                                                                                              |
| Radiolabel, Source, State, a       | and Purity                        | NA; NA; gas; NA                         |            |                                                                                                                                                                                              |
| Temperature                        |                                   | 20°C                                    |            |                                                                                                                                                                                              |
| System                             |                                   | Not Reported                            |            |                                                                                                                                                                                              |
| Standard Deviation Results         |                                   | Not Reported                            |            |                                                                                                                                                                                              |
| Results Details                    |                                   | 239 kPa                                 |            |                                                                                                                                                                                              |
|                                    |                                   |                                         | EVALUATION |                                                                                                                                                                                              |
| Domain                             |                                   | Metric                                  | Rating     | Comments                                                                                                                                                                                     |
| Domain 1: Substance                |                                   |                                         |            |                                                                                                                                                                                              |
|                                    | Metric 1:                         | Representativeness                      | High       | Data are measured or estimated for the subject chemical substance.                                                                                                                           |
|                                    | Metric 2:                         | Appropriateness                         | High       | Measured data are consistent with the subject chemical substance structural features or other physical/chemical properties or behaviors.                                                     |
| Domain 2: Test Reliabil            | ity                               |                                         |            |                                                                                                                                                                                              |
|                                    | Metric 3:                         | Reliability/Unbiased                    | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
|                                    | Metric 4:                         | Reliability/Analytical Method           | Low        | The analytical method is unknown and there is no indication that a reliable method was used.                                                                                                 |
| Domain 3: Other                    |                                   |                                         |            |                                                                                                                                                                                              |
|                                    | Metric 5:                         | Databases                               | Medium     | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                                    | Metric 6:                         | Models                                  | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| Overall Qualit                     | ty Determi                        | nation                                  | Medium     |                                                                                                                                                                                              |

\* Related References: Secondary source referencing: Santodonato, J. (1985) Monograph on human exposure to chemicals in the workplace: 1,3-butadiene (PB86-147261). Washington, DC: U.S. National Technical Information Service.

| Study Citation:               | U.S. EPA, (2019 | ). Chemistry Dashboard Information f | or 1,3-Butadiene. | 106-99-0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------|-----------------|--------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized               | Vapor Pressure  |                                      |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Template:                     |                 |                                      |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| HERO ID:                      | 5926160         |                                      |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                               |                 |                                      | EXTRACTIO         | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Parameter                     |                 | Data                                 |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                               |                 |                                      |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Vapor Pressure                |                 | 2110 mm Hg                           |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| CASRN and Test Material       |                 | 106-99-0; 1,3-Butadiene              |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Confidentiality, Type, and C  | Juideline       | None; Experimental; Not reported     |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Solvent, Reactivity, Storage  | , and Stability | NR; NR; NR; NR                       |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Radiolabel, Source, State, a  | nd Purity       | NR; NR; NR; NR                       |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Temperature                   |                 | Not Reported                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| System                        |                 | Not Reported                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Standard Deviation Results    |                 | Not Reported                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Results Details               |                 | Not Reported                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                               |                 |                                      |                   | NT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Demein                        |                 | Matria                               | EVALUATIO         | N Community                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Domain<br>Domain              |                 | Metric                               | Rating            | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Domain 1: Substance           | Matula 1.       | D                                    | TT: -1-           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                               | Metric 1:       |                                      | пigii<br>II:-h    | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                               | Metric 2:       | Appropriateness                      | High              | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Domain 2: Test Reliabili      | ty              |                                      |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                               | Metric 3:       | Reliability/Unbiased                 | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                               |                 | (Method Objectivity)                 |                   | towards a particular product or outcome.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                               | Metric 4:       | Reliability/Analytical Method        | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                               |                 |                                      |                   | sion in a peer-reviewed/recognized database or other secondary source.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Domain 3 <sup>.</sup> Other   |                 |                                      |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2 Sinum 5. Oulor              | Metric 5:       | Databases                            | High              | Data is from a publicly available database that provides references to original sources                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                               | Metric 6:       | Models                               | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                               |                 |                                      |                   | Gradient and Trender an |
| Overall Quality Determination |                 |                                      | High              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

\* Related References: PhysProp. Daubert, TE and Danner, RP 1985

| Study Citation:<br>OECD Harmonized | U.S. EPA, (199<br>Vapor Pressure | 6). Locating and estimating air emission     | s from sources of  | 1,3-butadiene.                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------|----------------------------------|----------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 6389860                          |                                              |                    |                                                                                                                                                                                                                                                                                                                                                        |
|                                    | 0507000                          |                                              | FYTRACTIO          | N                                                                                                                                                                                                                                                                                                                                                      |
| Parameter                          |                                  | Data                                         | EATRACIIO          | 14                                                                                                                                                                                                                                                                                                                                                     |
|                                    |                                  |                                              |                    |                                                                                                                                                                                                                                                                                                                                                        |
| Vapor Pressure                     |                                  | 2.0 - atm                                    |                    |                                                                                                                                                                                                                                                                                                                                                        |
| CASRN and Test Material            |                                  | 106-99-0; 1,3-butadiene                      |                    |                                                                                                                                                                                                                                                                                                                                                        |
| Confidentiality, Type, and C       | Guideline                        | no; not specified; Not Reported              |                    |                                                                                                                                                                                                                                                                                                                                                        |
| Solvent, Reactivity, Storage       | e, and Stability                 | Not Reported; Not Reported; Not Report       | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                                        |
| Radiolabel, Source, State, a       | and Purity                       | Not Reported; Not Reported; Not Report       | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                                        |
| Temperature                        |                                  | 15.3 C                                       |                    |                                                                                                                                                                                                                                                                                                                                                        |
| System                             |                                  | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                                        |
| Standard Deviation Results         | 5                                | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                                        |
| Results Details                    |                                  | Not Reported                                 |                    |                                                                                                                                                                                                                                                                                                                                                        |
|                                    |                                  |                                              | EVALUATIO          | N                                                                                                                                                                                                                                                                                                                                                      |
| Domain                             |                                  | Metric                                       | Rating             | Comments                                                                                                                                                                                                                                                                                                                                               |
| Domain 1: Substance                |                                  |                                              |                    |                                                                                                                                                                                                                                                                                                                                                        |
|                                    | Metric 1:                        | Representativeness                           | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                     |
|                                    | Metric 2:                        | Appropriateness                              | High               | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors. |
| Domain 2: Test Reliabil            | itv                              |                                              |                    |                                                                                                                                                                                                                                                                                                                                                        |
|                                    | Metric 3:                        | Reliability/Unbiased<br>(Method Objectivity) | Medium             | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                                          |
|                                    | Metric 4:                        | Reliability/Analytical Method                | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                                    |
| Domain 3: Other                    |                                  |                                              |                    |                                                                                                                                                                                                                                                                                                                                                        |
| 2 children of Other                | Metric 5:                        | Databases                                    | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                   |
|                                    | Metric 6:                        | Models                                       | N/A                | Rating of this factor is not applicable to this kind of information                                                                                                                                                                                                                                                                                    |
| <b>Overall Qualit</b>              | ty Determi                       | nation                                       | High               |                                                                                                                                                                                                                                                                                                                                                        |

\* Related References: source vaguely references both Kirshenbaum, I. Butadiene. In: Kirk-Othmer Encyclopedia of Chemical Technology, 3rd ed, Volume 4. New York, New York: John Wiley and Sons, 1978. (HERO ID 594584 ) and Hawley, G.G. 1, 3-Butadiene. In: The Condensed Chemical Dictionary, 10th ed., New York, New York: Van Nostrand Reinhold Company, Inc., 1981. p. 177. (HERO ID HERO ID: 69425)

|                                    |                                   |                                          |                    | 121.4 P                                                                                   |
|------------------------------------|-----------------------------------|------------------------------------------|--------------------|-------------------------------------------------------------------------------------------|
| Study Citation:<br>OFCD Harmonized | U.S. EPA, (1996<br>Vapor Pressure | b). Locating and estimating air emission | s from sources of  | 1,3-butadiene.                                                                            |
| Template:                          | vapor i ressure                   |                                          |                    |                                                                                           |
| HERO ID:                           | 6389860                           |                                          |                    |                                                                                           |
|                                    |                                   |                                          | EXTRACTIO          | N                                                                                         |
| Parameter                          |                                   | Data                                     | Linkieno           | 1                                                                                         |
|                                    |                                   |                                          |                    |                                                                                           |
| Vapor Pressure                     |                                   | Not Reported                             |                    |                                                                                           |
| CASRN and Test Material            |                                   | 106-99-0; 1.3-butadiene                  |                    |                                                                                           |
| Confidentiality, Type, and C       | Guideline                         | no; not specified; Not Reported          |                    |                                                                                           |
| Solvent, Reactivity, Storage       | e, and Stability                  | Not Reported; Not Reported; Not Report   | rted; Not Reported |                                                                                           |
| Radiolabel, Source, State, a       | nd Purity                         | Not Reported; Not Reported; Not Report   | rted; Not Reported |                                                                                           |
| Temperature                        |                                   | Not Reported                             |                    |                                                                                           |
| System                             |                                   | Not Reported                             |                    |                                                                                           |
| Standard Deviation Results         |                                   | Not Reported                             |                    |                                                                                           |
| Results Details                    |                                   | critical pressure: 4.32 MPa (626 psi)    |                    |                                                                                           |
|                                    |                                   |                                          |                    |                                                                                           |
| ~ .                                |                                   |                                          | EVALUATIO          | N                                                                                         |
| Domain                             |                                   | Metric                                   | Rating             | Comments                                                                                  |
| Domain 1: Substance                | Matria 1.                         | Democratic                               | II: -h             |                                                                                           |
|                                    | Metric 1:                         | A manufacture and                        | High               | Data are measured or estimated for the subject chemical substance.                        |
|                                    | Metric 2:                         | Appropriateness                          | пign               | (e.g. presence of certain functional groups) or other physical/chemical properties (e.g.  |
|                                    |                                   |                                          |                    | if the physical state is described as a liquid, the substance should have a melting point |
|                                    |                                   |                                          |                    | below 25°C and a boiling point above 25°C) or behaviors.                                  |
| Domain 2. Tost Dalishil            | <b></b>                           |                                          |                    |                                                                                           |
| Domain 2: Test Kellabil            | Metric 3.                         | Reliability/Unbiased                     | Medium             | There is no indication that the methodology for producing the information was biased      |
|                                    | Metric 5.                         | (Method Objectivity)                     | Wiedium            | towards a particular product or outcome.                                                  |
|                                    | Metric 4:                         | Reliability/Analytical Method            | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-   |
|                                    |                                   |                                          |                    | cal method is unknown but is likely to be appropriate based on the data's inclusion in a  |
|                                    |                                   |                                          |                    | peer-reviewed/recognized database or other secondary source.                              |
| Domain 3: Other                    |                                   |                                          |                    |                                                                                           |
| Domain 5. Outer                    | Metric 5                          | Databases                                | High               | The information or data is from a recognized data collection/repository where data are    |
|                                    | Metric 5.                         | Databases                                | Ingn               | peer-reviewed by experts in the field, are broadly available to the public for review and |
|                                    |                                   |                                          |                    | use OR includes references to the original sources.                                       |
|                                    | Metric 6:                         | Models                                   | N/A                | Rating of this factor is not applicable to this kind of information                       |
|                                    | D-4                               | <b>4</b> •                               | TT• 1              |                                                                                           |
| Overall Qualit                     | y Determin                        | nation                                   | High               |                                                                                           |

\* Related References: source vaguely references both Kirshenbaum, I. Butadiene. In: Kirk-Othmer Encyclopedia of Chemical Technology, 3rd ed, Volume 4. New York, New York: John Wiley and Sons, 1978. (HERO ID 594584 )and Hawley, G.G. 1, 3-Butadiene. In: The Condensed Chemical Dictionary, 10th ed., New York, New York: Van Nostrand Reinhold Company, Inc., 1981. p. 177. (HERO ID HERO ID: 69425)

| Study Citation:                             | U.S. EPA, (1996 | .S. EPA, (1996). Locating and estimating air emissions from sources of 1,3-butadiene. |        |                                                                                                                                                                                                                                                     |  |
|---------------------------------------------|-----------------|---------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| OECD Harmonized                             | Vapor Pressure  |                                                                                       |        |                                                                                                                                                                                                                                                     |  |
| Template:                                   | (2000/0         |                                                                                       |        |                                                                                                                                                                                                                                                     |  |
| HERO ID:                                    | 6389860         |                                                                                       |        |                                                                                                                                                                                                                                                     |  |
| EXTRACTION                                  |                 |                                                                                       |        |                                                                                                                                                                                                                                                     |  |
| Parameter                                   |                 | Data                                                                                  |        |                                                                                                                                                                                                                                                     |  |
| Vapor Pressure                              |                 | Not Reported                                                                          |        |                                                                                                                                                                                                                                                     |  |
| CASRN and Test Material                     |                 | 106-99-0; 1,3-butadiene                                                               |        |                                                                                                                                                                                                                                                     |  |
| Confidentiality, Type, and Guideline        |                 | no; not specified; Not Reported                                                       |        |                                                                                                                                                                                                                                                     |  |
| Solvent, Reactivity, Storage, and Stability |                 | Not Reported; Not Reported; Not Reported; Not Reported                                |        |                                                                                                                                                                                                                                                     |  |
| Radiolabel, Source, State, and Purity       |                 | Not Reported; Not Reported; Not Reported; Not Reported                                |        |                                                                                                                                                                                                                                                     |  |
| Temperature                                 |                 | Not Reported                                                                          |        |                                                                                                                                                                                                                                                     |  |
| System                                      |                 | Not Reported                                                                          |        |                                                                                                                                                                                                                                                     |  |
| Standard Deviation Results                  |                 | Not Reported                                                                          |        |                                                                                                                                                                                                                                                     |  |
| Results Details                             |                 | Heat of vaporization389 J/g (93 cal/g) at 25 C418 J/g (100 cal/g) at bp               |        |                                                                                                                                                                                                                                                     |  |
| EVALUATION                                  |                 |                                                                                       |        |                                                                                                                                                                                                                                                     |  |
| Domain                                      |                 | Metric                                                                                | Rating | Comments                                                                                                                                                                                                                                            |  |
| Domain 1: Substance                         |                 |                                                                                       |        |                                                                                                                                                                                                                                                     |  |
|                                             | Metric 1:       | Representativeness                                                                    | High   | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |
|                                             | Metric 2:       | Appropriateness                                                                       | High   | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                                |  |
|                                             |                 |                                                                                       |        | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.       |  |
| Domain 2: Test Reliability                  |                 |                                                                                       |        |                                                                                                                                                                                                                                                     |  |
|                                             | Metric 3:       | Reliability/Unbiased<br>(Method Objectivity)                                          | Medium | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |  |
|                                             | Metric 4:       | Reliability/Analytical Method                                                         | Medium | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |
| Domain 3. Other                             |                 |                                                                                       |        |                                                                                                                                                                                                                                                     |  |
| Bomain 5. Outer                             | Metric 5:       | Databases                                                                             | High   | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |
|                                             | Metric 6:       | Models                                                                                | N/A    | Rating of this factor is not applicable to this kind of information                                                                                                                                                                                 |  |
| Overall Quality Determination High          |                 |                                                                                       |        |                                                                                                                                                                                                                                                     |  |

\* Related References: source vaguely references both Kirshenbaum, I. Butadiene. In: Kirk-Othmer Encyclopedia of Chemical Technology,3rd ed, Volume 4. New York, New York: John Wiley and Sons, 1978. (HERO ID 594584 )and Hawley, G.G. 1,3-Butadiene. In: The Condensed Chemical Dictionary, 10th ed., New York, New York: Van Nostrand Reinhold Company, Inc., 1981. p. 177. (HERO ID HERO ID: 69425)
| Study Citation:                      | U.S. EPA, (199  | 6). Locating and estimating air emissions    | from sources of  | 1,3-butadiene.                                                                                                                                                                                                                                      |
|--------------------------------------|-----------------|----------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OECD Harmonized                      | vapor Pressure  |                                              |                  |                                                                                                                                                                                                                                                     |
| HERO ID:                             | 6389860         |                                              |                  |                                                                                                                                                                                                                                                     |
|                                      |                 |                                              | EXTRACTIO        | N                                                                                                                                                                                                                                                   |
| Parameter                            |                 | Data                                         |                  |                                                                                                                                                                                                                                                     |
| Vapor Pressure                       |                 | 5.0 - atm                                    |                  |                                                                                                                                                                                                                                                     |
| CASRN and Test Material              |                 | 106-99-0; 1,3-butadiene                      |                  |                                                                                                                                                                                                                                                     |
| Confidentiality, Type, and C         | Guideline       | no; not specified; Not Reported              |                  |                                                                                                                                                                                                                                                     |
| Solvent, Reactivity, Storage         | , and Stability | Not Reported; Not Reported; Not Report       | ed; Not Reported |                                                                                                                                                                                                                                                     |
| Radiolabel, Source, State, a         | nd Purity       | Not Reported; Not Reported; Not Report       | ed; Not Reported |                                                                                                                                                                                                                                                     |
| Temperature                          |                 | 47.0 C                                       |                  |                                                                                                                                                                                                                                                     |
| System<br>Standard Deviation Deculta |                 | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |
| Results Details                      |                 | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |
| Results Details                      |                 | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |
|                                      |                 |                                              | EVALUATIO        | N                                                                                                                                                                                                                                                   |
| Domain                               |                 | Metric                                       | Rating           | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                  | Matria 1.       | Demonstration                                | II: -h           |                                                                                                                                                                                                                                                     |
|                                      | Metric 1:       | Appropriateness                              | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                      | Metric 2:       | Appropriateness                              | rigii            | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors.       |
| Domain 2: Test Reliabil              | ity             |                                              |                  |                                                                                                                                                                                                                                                     |
|                                      | Metric 3:       | Reliability/Unbiased<br>(Method Objectivity) | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                      | Metric 4:       | Reliability/Analytical Method                | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                      |                 |                                              |                  |                                                                                                                                                                                                                                                     |
|                                      | Metric 5:       | Databases                                    | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                      | Metric 6:       | Models                                       | N/A              | Rating of this factor is not applicable to this kind of information                                                                                                                                                                                 |
| Overall Qualit                       | y Determi       | nation                                       | High             |                                                                                                                                                                                                                                                     |

\* Related References: source vaguely references both Kirshenbaum, I. Butadiene. In: Kirk-Othmer Encyclopedia of Chemical Technology,3rd ed, Volume 4. New York, New York: John Wiley and Sons, 1978. (HERO ID 594584 )and Hawley, G.G. 1,3-Butadiene. In: The Condensed Chemical Dictionary, 10th ed., New York, New York: Van Nostrand Reinhold Company, Inc., 1981. p. 177. (HERO ID HERO ID: 69425)

| Study Citation:               | California Office o        | f Environmental Health Hazard Asses    | sment :: OEHHA   | A (2014). Appendix D: Individual acute, 8-hour, and chronic reference exposure                                                                                       |  |  |  |
|-------------------------------|----------------------------|----------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| OECD Harmonized               | level summaries.<br>logKow |                                        |                  |                                                                                                                                                                      |  |  |  |
| Template:                     |                            |                                        |                  |                                                                                                                                                                      |  |  |  |
| HERO ID:                      | 5155603                    |                                        |                  |                                                                                                                                                                      |  |  |  |
|                               |                            |                                        | EXTRACTIO        | N                                                                                                                                                                    |  |  |  |
| Parameter                     |                            | Data                                   |                  |                                                                                                                                                                      |  |  |  |
|                               |                            |                                        |                  |                                                                                                                                                                      |  |  |  |
| log k <sub>ow</sub>           |                            | 1.99                                   |                  |                                                                                                                                                                      |  |  |  |
| CASRN and Test Material       |                            | 106-99-0; 1,3-Butadiene                |                  |                                                                                                                                                                      |  |  |  |
| Confidentiality, Type, and G  | Buideline                  | No; Not specified; Not Reported        | d; Not Reported  |                                                                                                                                                                      |  |  |  |
| Solvent, Reactivity, Storage, | , and Stability            | Not Reported; Not Reported; Not Report | ed; Not Reported |                                                                                                                                                                      |  |  |  |
| Radiolabel, Source, State, an | nd Purity                  | Not Reported; Not Reported; Not Report | ed; Not Reported |                                                                                                                                                                      |  |  |  |
| Temperature                   |                            | Not Reported                           |                  |                                                                                                                                                                      |  |  |  |
| System                        |                            | Not Reported                           |                  |                                                                                                                                                                      |  |  |  |
| рН                            |                            | Not Reported                           |                  |                                                                                                                                                                      |  |  |  |
| Results Details Method        |                            | Not Reported                           |                  |                                                                                                                                                                      |  |  |  |
| Standard Deviation Results    |                            | Not Reported                           |                  |                                                                                                                                                                      |  |  |  |
| Results Details               |                            | Not Reported                           |                  |                                                                                                                                                                      |  |  |  |
|                               |                            |                                        |                  |                                                                                                                                                                      |  |  |  |
|                               |                            |                                        | EVALUATION       | N                                                                                                                                                                    |  |  |  |
| Domain                        |                            | Metric                                 | Rating           | Comments                                                                                                                                                             |  |  |  |
| Domain 1: Substance           |                            |                                        |                  |                                                                                                                                                                      |  |  |  |
|                               | Metric 1:                  | Representativeness                     | High             | Data are measured or estimated for the subject chemical substance.                                                                                                   |  |  |  |
|                               | Metric 2:                  | Appropriateness                        | High             | Measured data are consistent with the subject chemical substance structural features                                                                                 |  |  |  |
|                               |                            |                                        |                  | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                           |  |  |  |
|                               |                            |                                        |                  | If the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C or behaviors |  |  |  |
|                               |                            |                                        |                  | below 25 C and a bonning point above 25 C) of benaviors.                                                                                                             |  |  |  |
| Domain 2: Test Reliabili      | ty                         |                                        |                  |                                                                                                                                                                      |  |  |  |
|                               | Metric 3:                  | Reliability/Unbiased                   | Medium           | There is no indication that the methodology for producing the information was biased                                                                                 |  |  |  |
|                               |                            | (Method Objectivity)                   |                  | towards a particular product or outcome.                                                                                                                             |  |  |  |
|                               | Metric 4:                  | Reliability/Analytical Method          | Medium           | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source      |  |  |  |
|                               |                            |                                        |                  | network in a poor restored recognized database of ourse secondary source.                                                                                            |  |  |  |
| Domain 3: Other               |                            |                                        |                  |                                                                                                                                                                      |  |  |  |
|                               | Metric 5:                  | Databases                              | High             | The information or data is from a recognized data collection/repository where data are                                                                               |  |  |  |
|                               |                            |                                        | 8                | peer-reviewed by experts in the field, are broadly available to the public for review and                                                                            |  |  |  |
|                               |                            |                                        |                  | use OR includes references to the original sources.                                                                                                                  |  |  |  |
|                               | Metric 6:                  | Models                                 | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                 |  |  |  |
|                               |                            | 4                                      | TT!~ŀ            |                                                                                                                                                                      |  |  |  |
| Overall Qualit                |                            |                                        |                  |                                                                                                                                                                      |  |  |  |
|                               | Continued on next page     |                                        |                  |                                                                                                                                                                      |  |  |  |

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## PUBLIC RELEASE DRAFT November 2024

logKow

|                              |                                              | continued from previous page           |                                                                  |  |  |
|------------------------------|----------------------------------------------|----------------------------------------|------------------------------------------------------------------|--|--|
| Study Citation:              | California Office of Environmental Health Ha | zard Assessment :: OEHHA (2014). Appen | ndix D: Individual acute, 8-hour, and chronic reference exposure |  |  |
| OECD Harmonized<br>Template: | level summaries.<br>logKow                   |                                        |                                                                  |  |  |
| HERO ID:                     | 5155603                                      |                                        |                                                                  |  |  |
|                              |                                              | EVALUATION                             |                                                                  |  |  |
| Domain                       | Metric                                       | Rating                                 | Comments                                                         |  |  |

 $^{\star}$  Related References: No source cited; extracted gray lit

1,3-Butadiene

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                       | EC, (2000). Priority Substances List Assessment Report: 1,3-Butadiene.<br>logKow |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                                                                                                                                                                                                                                 | 5160048                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                          |                                                                                  | Ε                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | XTRACTIO                     | N                                                                                                                                                                                                                                                   |
| Parameter                                                                                                                                                                                                                                                |                                                                                  | Data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                              |                                                                                                                                                                                                                                                     |
| log k <sub>ow</sub><br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Temperature<br>System<br>pH<br>Results Details Method<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>and Purity                                      | <ul> <li>1.99</li> <li>106-99-0; 1,3-Butadiene</li> <li>no; experimental; Not Reported</li> <li>Not Reported; Not Reported; Not Reported;</li> <li>Not Reported; Not Reported;</li> <li>Not Reported</li> </ul> | Not Reported<br>Not Reported |                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                          |                                                                                  | E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | VALUATIO                     | Ň                                                                                                                                                                                                                                                   |
| Domain                                                                                                                                                                                                                                                   |                                                                                  | Metric                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rating                       | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                                                                                                                                                                                                                                      |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                          | Metric 1:                                                                        | Representativeness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | High                         | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                          | Metric 2:                                                                        | Appropriateness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Medium                       | Data measured for a structural analogue of the subject chemical substance are consistent<br>with what is expected for the subject chemical substance structural properties, features<br>or behaviors.                                               |
| Domain 2: Test Reliabil                                                                                                                                                                                                                                  | itv                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                          | Metric 3:                                                                        | Reliability/Unbiased                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Medium                       | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                                                                                                                                                                                                                                          | Metric 4:                                                                        | Reliability/Analytical Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Medium                       | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                                                                                                                                                                                                                                          |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                                                                                                                                                                                                                                                     |
| 2 Shinin 5. Outer                                                                                                                                                                                                                                        | Metric 5:                                                                        | Databases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | High                         | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |
|                                                                                                                                                                                                                                                          | Metric 6:                                                                        | Models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | N/A                          | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Qualit                                                                                                                                                                                                                                           | ty Determin                                                                      | ation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | High                         |                                                                                                                                                                                                                                                     |

\* Related References: cited from Leo, A., P.Y.C. Jow, C. Silipo and C. Hansch. 1975. Calculation of hydrophobic constant(log P) from constants. J. Med. Chem. 18: 865–868

1,3-Butadiene

| Study Citation:<br>OECD Harmonized                                                                                                                            | ECB, (2002). European Union risk assessment report: 1,3-butadiene.<br>logKow |                                                                                                                                                                  |                                  |                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                                                                                                                                      | 5155560                                                                      |                                                                                                                                                                  |                                  |                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                               |                                                                              | F                                                                                                                                                                | EXTRACTIO                        | <br>N                                                                                                                                                                                                                                                                                                                                                                                   |
| Parameter                                                                                                                                                     |                                                                              | Data                                                                                                                                                             |                                  |                                                                                                                                                                                                                                                                                                                                                                                         |
| log k <sub>ow</sub><br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Temperature | Guideline<br>e, and Stability<br>ind Purity                                  | 1.99 -<br>106-99-0; 1,3-Butadiene<br>No; not specified; Not Reported<br>Not Reported; Not Reported; Not Reported;<br>Not Reported; Not Reported;<br>Not Reported | ; Not Reported<br>; Not Reported |                                                                                                                                                                                                                                                                                                                                                                                         |
| System<br>pH<br>Results Details Method<br>Standard Deviation Results<br>Results Details                                                                       |                                                                              | Not Reported<br>Not Reported<br>Not Reported<br>0.1<br>Not Reported                                                                                              |                                  |                                                                                                                                                                                                                                                                                                                                                                                         |
| Results Details                                                                                                                                               |                                                                              | Not Reported                                                                                                                                                     |                                  |                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                               |                                                                              | I                                                                                                                                                                | EVALUATIO                        | N                                                                                                                                                                                                                                                                                                                                                                                       |
| Domain                                                                                                                                                        |                                                                              | Metric                                                                                                                                                           | Rating                           | Comments                                                                                                                                                                                                                                                                                                                                                                                |
| Domain 1: Substance                                                                                                                                           | Metric 1:<br>Metric 2:                                                       | Representativeness<br>Appropriateness                                                                                                                            | High<br>Medium                   | Data are measured or estimated for the subject chemical substance.<br>Data measured for a structural analogue of the subject chemical substance are consistent<br>with what is expected for the subject chemical substance structural properties, features<br>or behaviors.                                                                                                             |
| Domain 2: Test Reliabili                                                                                                                                      | ity                                                                          |                                                                                                                                                                  |                                  |                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                               | Metric 3:<br>Metric 4:                                                       | Reliability/Unbiased<br>(Method Objectivity)<br>Reliability/Analytical Method                                                                                    | Medium<br>Medium                 | There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.<br>The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                                                                                                                                               | Metric 5:                                                                    | Databases                                                                                                                                                        | High                             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                                                    |
|                                                                                                                                                               | Metric 6:                                                                    | Models                                                                                                                                                           | N/A                              | Kating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                    |
| <b>Overall Qualit</b>                                                                                                                                         | y Determin                                                                   | ation                                                                                                                                                            | High                             |                                                                                                                                                                                                                                                                                                                                                                                         |

\* Related References: cited from Sangster J (1989). Partition coefficients of simple organic compounds. J Phys Chem Ref Data. 18; 1111-1229.

| Study Citation:<br>OECD Harmonized | ECB, (2002). Eu<br>logKow | uropean Union risk assessment report: 1,3 | 3-butadiene.     |                                                                                             |  |  |
|------------------------------------|---------------------------|-------------------------------------------|------------------|---------------------------------------------------------------------------------------------|--|--|
| HERO ID:                           | 5155560                   |                                           |                  |                                                                                             |  |  |
|                                    |                           |                                           | EXTRACTION       |                                                                                             |  |  |
| Parameter                          |                           | Data                                      |                  |                                                                                             |  |  |
|                                    |                           |                                           |                  |                                                                                             |  |  |
| log k <sub>ow</sub>                |                           | 1.85 -                                    |                  |                                                                                             |  |  |
| CASRN and Test Material            |                           | 106-99-0; 1,3-Butadiene                   |                  |                                                                                             |  |  |
| Confidentiality, Type, and C       | Guideline                 | No; Not specified; Not Reported           |                  |                                                                                             |  |  |
| Solvent, Reactivity, Storage       | e, and Stability          | Not Reported; Not Reported; Not Reported  | ed; Not Reported |                                                                                             |  |  |
| Radiolabel, Source, State, a       | nd Purity                 | Not Reported; Not Reported; Not Reported  | ed; Not Reported |                                                                                             |  |  |
| Temperature                        |                           | Not Reported                              |                  |                                                                                             |  |  |
| System                             |                           | Not Reported                              |                  |                                                                                             |  |  |
| рН                                 |                           | Not Reported                              |                  |                                                                                             |  |  |
| Results Details Method             |                           | Not Reported                              |                  |                                                                                             |  |  |
| Standard Deviation Results         |                           | Not Reported                              | Not Reported     |                                                                                             |  |  |
| Results Details                    |                           | Not Reported                              |                  |                                                                                             |  |  |
|                                    |                           |                                           | FVALUATION       |                                                                                             |  |  |
| Domain                             |                           | Metric                                    | Rating           | Comments                                                                                    |  |  |
| Domain 1: Substance                |                           |                                           |                  |                                                                                             |  |  |
|                                    | Metric 1:                 | Representativeness                        | High             | Data are measured or estimated for the subject chemical substance.                          |  |  |
|                                    | Metric 2:                 | Appropriateness                           | High             | Measured data are consistent with the subject chemical substance structural features        |  |  |
|                                    |                           |                                           |                  | (e.g., presence of certain functional groups) or other physical/chemical properties         |  |  |
| Domain 2: Test Reliabil            | ity                       |                                           |                  |                                                                                             |  |  |
|                                    | Metric 3:                 | Reliability/Unbiased                      | Medium           | There is no indication that the methodology for producing the information was biased        |  |  |
|                                    |                           | (Method Objectivity)                      |                  | towards a particular product or outcome.                                                    |  |  |
|                                    | Metric 4:                 | Reliability/Analytical Method             | Low              | The analytical method is unknown and there is no indication that a reliable method was used |  |  |
| Domain 2. Other                    |                           |                                           |                  |                                                                                             |  |  |
| Domain 3: Other                    | Matria 5.                 | Detabases                                 | Low              | The data are from a minimum course without avecation and avian or ar without avec           |  |  |
|                                    | wieuric 5:                | Databases                                 | LOW              | ondary source without peer-review and references to the original sources.                   |  |  |
|                                    | Metric 6:                 | Models                                    | N/A              | Rating of this factor is not applicable to this kind of information.                        |  |  |
| Overall Qualit                     | y Determi                 | nation                                    | Medium           |                                                                                             |  |  |

\* Related References: Cites "Company data unpublished (Huls, 1989)"

| Template:                                                                                     |                         |                                                                                                                                                                                                                                      |  |  |  |  |
|-----------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| - <b>I</b>                                                                                    |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| <b>HERO ID:</b> 5155560                                                                       |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| F                                                                                             | XTRACTIO                | N                                                                                                                                                                                                                                    |  |  |  |  |
| Parameter Data                                                                                |                         |                                                                                                                                                                                                                                      |  |  |  |  |
|                                                                                               |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| log k <sub>ow</sub> 2.22 -                                                                    |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| CASRN and Test Material 106-99-0; 1,3-Butadiene                                               | 106-99-0; 1,3-Butadiene |                                                                                                                                                                                                                                      |  |  |  |  |
| Confidentiality, Type, and Guideline No; calculated; Not Reported                             |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| Solvent, Reactivity, Storage, and Stability Not Reported; Not Reported; Not Reported;         | Not Reported            |                                                                                                                                                                                                                                      |  |  |  |  |
| Radiolabel, Source, State, and Purity Not Reported; Not Reported; Not Reported; Not Reported; | Not Reported            |                                                                                                                                                                                                                                      |  |  |  |  |
| Temperature Not Reported                                                                      |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| System Not Reported                                                                           |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| pH Not Reported                                                                               |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| Results Details Method Not Reported                                                           |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| Standard Deviation Results Not Reported                                                       | Not Reported            |                                                                                                                                                                                                                                      |  |  |  |  |
| Results Details obtained results by utilizing the UNIFAC-de                                   | erived activity c       | coefficients, to which a simple correction regression was applied                                                                                                                                                                    |  |  |  |  |
|                                                                                               |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| I                                                                                             | EVALUATIO               | N                                                                                                                                                                                                                                    |  |  |  |  |
| Domain Metric                                                                                 | Rating                  | Comments                                                                                                                                                                                                                             |  |  |  |  |
| Domain 1: Substance                                                                           |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| Metric 1: Representativeness                                                                  | High                    | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                   |  |  |  |  |
| Metric 2: Appropriateness                                                                     | N/A                     | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                 |  |  |  |  |
| Domain 2: Test Reliability                                                                    |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| Metric 3: Reliability/Unbiased                                                                | N/A                     | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                 |  |  |  |  |
| (Method Objectivity)                                                                          |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| Metric 4: Reliability/Analytical Method                                                       | N/A                     | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                 |  |  |  |  |
|                                                                                               |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| Domain 3: Other                                                                               |                         |                                                                                                                                                                                                                                      |  |  |  |  |
| Metric 5: Databases                                                                           | High                    | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources. |  |  |  |  |
| Metric 6: Models                                                                              | Low                     | The algorithm is not publicly available to verify or reproduce the predictions AND/OR statistics on the external validation set are unavailabl                                                                                       |  |  |  |  |
| <b>Overall Quality Determination</b>                                                          | High                    |                                                                                                                                                                                                                                      |  |  |  |  |

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | ECB, (2002). European Union risk assessment report: 1,3-butadiene.<br>logKow |                                        |                   |                                                                                             |  |  |  |
|------------------------------------|------------------------------------------------------------------------------|----------------------------------------|-------------------|---------------------------------------------------------------------------------------------|--|--|--|
| Template:<br>HERO ID:              | 5155560                                                                      | 5155560                                |                   |                                                                                             |  |  |  |
|                                    | 0100000                                                                      |                                        | EXTRACTION        |                                                                                             |  |  |  |
| Parameter                          |                                                                              | Data                                   | EATRACTION        |                                                                                             |  |  |  |
|                                    |                                                                              | 2                                      |                   |                                                                                             |  |  |  |
| log k                              |                                                                              | 1 902                                  |                   |                                                                                             |  |  |  |
| CASRN and Test Material            |                                                                              | 106-99-0: 1 3-Butadiene                |                   |                                                                                             |  |  |  |
| Confidentiality Type, and (        | Guideline                                                                    | No: calculated: Not Reported           |                   |                                                                                             |  |  |  |
| Solvent, Reactivity, Storage       | e. and Stability                                                             | Not Reported: Not Reported: Not Report | ted: Not Reported |                                                                                             |  |  |  |
| Radiolabel, Source, State, a       | and Purity                                                                   | Not Reported; Not Reported; Not Report | ted; Not Reported |                                                                                             |  |  |  |
| Temperature                        | ,                                                                            | Not Reported                           | , I               |                                                                                             |  |  |  |
| System                             |                                                                              | Not Reported                           |                   |                                                                                             |  |  |  |
| pH                                 |                                                                              | Not Reported                           |                   |                                                                                             |  |  |  |
| Results Details Method             |                                                                              | Not Reported                           |                   |                                                                                             |  |  |  |
| Standard Deviation Results         |                                                                              | Not Reported                           |                   |                                                                                             |  |  |  |
| Results Details                    |                                                                              | Not Reported                           |                   |                                                                                             |  |  |  |
|                                    |                                                                              |                                        |                   |                                                                                             |  |  |  |
|                                    |                                                                              |                                        | EVALUATION        |                                                                                             |  |  |  |
| Domain                             |                                                                              | Metric                                 | Rating            | Comments                                                                                    |  |  |  |
| Domain 1: Substance                |                                                                              |                                        |                   |                                                                                             |  |  |  |
|                                    | Metric 1:                                                                    | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance.                          |  |  |  |
|                                    | Metric 2:                                                                    | Appropriateness                        | N/A               | Rating of this factor is not applicable to this kind of information.                        |  |  |  |
| Domain 2. Test Reliabil            | ity                                                                          |                                        |                   |                                                                                             |  |  |  |
| Bollain 2. Test Kellabil           | Metric 3:                                                                    | Reliability/Unbiased                   | Medium            | There is no indication that the methodology for producing the information was biased        |  |  |  |
|                                    |                                                                              | (Method Objectivity)                   | 11100110111       | towards a particular product or outcome.                                                    |  |  |  |
|                                    | Metric 4:                                                                    | Reliability/Analytical Method          | Low               | The analytical method is unknown and there is no indication that a reliable method was used |  |  |  |
| Demain 2. Other                    |                                                                              |                                        |                   |                                                                                             |  |  |  |
| Domain 5: Other                    | Matric 5.                                                                    | Databasas                              | Low               | The date are from a primary course without expert peer review or an websering see           |  |  |  |
|                                    | wieute 5.                                                                    | Databases                              | LUW               | ondary source without peer-review and references to the original sources                    |  |  |  |
|                                    | Metric 6:                                                                    | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                        |  |  |  |
| <b>Overall Qualit</b>              | ty Determin                                                                  | nation                                 | Medium            |                                                                                             |  |  |  |

\* Related References: Cites "Company data unpublished (Huls, 1989)"

| Study Citation:<br>OECD Harmonized | Elsevier, (2019).<br>logKow | Reaxys: physical-chemical property da                 | ta for 1,3-butadie | ne. CAS Registry Number: 106-99-0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------|-----------------------------|-------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5926412                     |                                                       |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                    |                             |                                                       | EXTRACTIO          | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Parameter                          |                             | Data                                                  |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                    |                             |                                                       |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| log k <sub>ow</sub>                |                             | 1.902                                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| CASRN and Test Material            |                             | 106-99-0; 1,3-Butadiene                               |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Confidentiality, Type, and C       | Guideline                   | None; Experimental; Not Reported                      |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Solvent, Reactivity, Storage       | e, and Stability            | NR; NR; NR; NR                                        |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Radiolabel, Source, State, a       | and Purity                  | NR; NR; NR; NR                                        |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Temperature                        |                             | Not Reported                                          |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| System                             |                             | Not Reported                                          |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| pH                                 |                             | Not Reported                                          |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Results Details Method             |                             | Not Reported                                          |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Standard Deviation Results         |                             | Not Reported                                          |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Results Details                    |                             | 1 data point was reported in Reaxys.                  |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                    |                             |                                                       |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                    |                             |                                                       | EVALUATIO          | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Domain                             |                             | Metric                                                | Rating             | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Domain 1: Substance                |                             |                                                       |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                    | Metric 1:                   | Representativeness                                    | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                    | Metric 2:                   | Appropriateness                                       | High               | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| р : от (р.:                        | •,                          |                                                       |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Domain 2: Test Reliabili           | Ily<br>Matria 2:            | Daliability/IIabi                                     | M - 1:             | There is no indication does do no do do to see for the first of the second s |
|                                    | Metric 5:                   | (Mathad Objectivity)                                  | Medium             | There is no indication that the methodology for producing the information was biased                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                    | Metric 4.                   | (Method Objectivity)<br>Reliability/Analytical Method | Medium             | Analytical method is unknown but is likely to be appropriate based on the data's inclu-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                    | Methe 1.                    | Kendenky// mary tear Wethod                           | Wiedium            | sion in a peer-reviewed/recognized database or other secondary source.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                    |                             |                                                       |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Domain 3: Other                    |                             |                                                       |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                    | Metric 5:                   | Databases                                             | High               | Data is from a secondary database with a references to the peer-reviewed original source.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                    | Metric 6:                   | Models                                                | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Overall Qualit</b>              | ty Determin                 | ation                                                 | High               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

\* Related References: Smith; Perfetti; Garg; Hansch; Food and Chemical Toxicology; vol. 41; nb. 6; (2003); p. 807 - 817

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | Mueller, M., Kl<br>logKow | lein, W. (1992). Comparative evaluation      | of methods predic | cting water solubility for organic compounds. Chemosphere 25(6):769-782.            |  |
|------------------------------------|---------------------------|----------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--|
| Template:                          |                           |                                              |                   |                                                                                     |  |
| HERO ID:                           | 654554                    |                                              |                   |                                                                                     |  |
|                                    |                           |                                              | EXTRACTIO         | N                                                                                   |  |
| Parameter                          |                           | Data                                         |                   |                                                                                     |  |
|                                    |                           |                                              |                   |                                                                                     |  |
| log k <sub>ow</sub>                |                           | 1.9                                          |                   |                                                                                     |  |
| CASRN and Test Material            |                           | 106-99-0; 1,3-Butadiene                      |                   |                                                                                     |  |
| Confidentiality, Type, and         | Guideline                 | None; Calculation; Not Reported              |                   |                                                                                     |  |
| Solvent, Reactivity, Storage       | e, and Stability          | NR; NR; NR; NR                               |                   |                                                                                     |  |
| Radiolabel, Source, State, a       | and Purity                | NR; NR; NR; NR                               |                   |                                                                                     |  |
| Temperature                        |                           | Not reported                                 |                   |                                                                                     |  |
| System                             |                           | Not reported                                 |                   |                                                                                     |  |
| рН                                 |                           | Not reported                                 |                   |                                                                                     |  |
| Results Details Method             |                           | Not reported                                 |                   |                                                                                     |  |
| Standard Deviation Results         | 5                         | Not reported                                 |                   |                                                                                     |  |
| Results Details                    |                           | calculated Pow-values -MedChem-Software 1989 |                   |                                                                                     |  |
|                                    |                           |                                              |                   |                                                                                     |  |
|                                    |                           |                                              | EVALUATIO         | N                                                                                   |  |
| Domain                             |                           | Metric                                       | Rating            | Comments                                                                            |  |
| Domain 1: Substance                |                           |                                              |                   |                                                                                     |  |
|                                    | Metric 1:                 | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                  |  |
|                                    | Metric 2:                 | Appropriateness                              | Medium            | Calculated data consistent with the subject chemical substance structural features. |  |
| Domain 2. Tast Dalishil            | :                         |                                              |                   |                                                                                     |  |
| Domain 2. Test Kenabii             | Metric 3:                 | Paliability/Unbiased                         | High              | The methodology for producing the information is designed to answer a specific ques |  |
|                                    | Metric 5.                 | (Method Objectivity)                         | riigii            | tion and the methodology's objective is clear                                       |  |
|                                    | Metric 4:                 | Reliability/Analytical Method                | N/A               | This matrix is not applicable to this calculated data.                              |  |
|                                    |                           |                                              |                   |                                                                                     |  |
| Domain 3: Other                    |                           |                                              |                   |                                                                                     |  |
|                                    | Metric 5:                 | Databases                                    | N/A               | This matrix is not applicable to this calculated data.                              |  |
|                                    | Metric 6:                 | Models                                       | High              | The model had a defined, unambiguous endpoint and the model performance was         |  |
|                                    |                           |                                              | -                 | known.                                                                              |  |
|                                    | w Dotow                   | nation                                       | IIIah             |                                                                                     |  |
| Overall Quality                    | ly Determi                |                                              | High              |                                                                                     |  |
|                                    |                           |                                              |                   |                                                                                     |  |

1,3-Butadiene

| Study Citation:<br>OECD Harmonized             | NLM, (2003). P<br>logKow | ubChem: Hazardous Substance Data Ba | ank: 1,3-Butadien | e, 106-99-0.                                                                                                                                                      |
|------------------------------------------------|--------------------------|-------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                       | 5926134                  |                                     |                   |                                                                                                                                                                   |
|                                                |                          |                                     | EXTRACTIO         | N                                                                                                                                                                 |
| Parameter                                      |                          | Data                                |                   |                                                                                                                                                                   |
|                                                |                          |                                     |                   |                                                                                                                                                                   |
| log k <sub>ow</sub><br>CASBN and Test Material |                          | 1.99<br>106-99-0: 1 3-Butadiene     |                   |                                                                                                                                                                   |
| Confidentiality Type, and C                    | Guideline                | None: Experimental: Not Reported    |                   |                                                                                                                                                                   |
| Solvent Reactivity Storage                     | and Stability            | NR: NR: NR                          |                   |                                                                                                                                                                   |
| Radiolabel, Source, State, a                   | and Purity               | NR; NR; NR; NR                      |                   |                                                                                                                                                                   |
| Temperature                                    | 2                        | Not Reported                        |                   |                                                                                                                                                                   |
| System                                         |                          | Not Reported                        |                   |                                                                                                                                                                   |
| pH                                             |                          | Not Reported                        |                   |                                                                                                                                                                   |
| Results Details Method                         |                          | Not Reported                        |                   |                                                                                                                                                                   |
| Standard Deviation Results                     |                          | Not Reported                        |                   |                                                                                                                                                                   |
| Results Details                                |                          | Not Reported                        |                   |                                                                                                                                                                   |
|                                                |                          |                                     | EVALUATIO         |                                                                                                                                                                   |
| Domain                                         |                          | Metric                              | Rating            | Comments                                                                                                                                                          |
| Domain 1: Substance                            |                          |                                     | 6                 |                                                                                                                                                                   |
|                                                | Metric 1:                | Representativeness                  | High              | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                                | Metric 2:                | Appropriateness                     | High              | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Paliabili                       | <b>1</b> 37              |                                     |                   |                                                                                                                                                                   |
| Domain 2. Test Kellauli                        | Metric 3.                | Reliability/Unbiased                | Medium            | There is no indication that the methodology for producing the information was biased                                                                              |
|                                                | Metric 5.                | (Method Objectivity)                | Wiedium           | towards a particular product or outcome.                                                                                                                          |
|                                                | Metric 4:                | Reliability/Analytical Method       | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Damain 2. Other                                |                          |                                     |                   |                                                                                                                                                                   |
| Domain 3: Other                                | Matria 5.                | Databasas                           | High              | Date is from a multiply available detabase that manifest references to a more service of                                                                          |
|                                                | wieure 5:                | Databases                           | nigii             | source.                                                                                                                                                           |
|                                                | Metric 6:                | Models                              | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Qualit</b>                          | y Determi                | nation                              | High              |                                                                                                                                                                   |

\* Related References: Hansch, C. Leo, A., Hoekman, D. 1995. Exploring QSAR - Hydrophobic, Electronic, and Steric Constants. Washington, DC: American Chemical Society, p. 8.

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                       | Rumble, J. R., L<br>logKow                  | ide, D. R., Bruno, T. J. (2018). Octano.                                                                                                                                                                        | l-water partition co | Defficients. :5-148-5-187.                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                                                                                                                                                                                                                                 | 5932746                                     |                                                                                                                                                                                                                 |                      |                                                                                                                                                                   |
|                                                                                                                                                                                                                                                          |                                             |                                                                                                                                                                                                                 | EXTRACTIO            | N                                                                                                                                                                 |
| Parameter                                                                                                                                                                                                                                                |                                             | Data                                                                                                                                                                                                            |                      |                                                                                                                                                                   |
| log k <sub>ow</sub><br>CASRN and Test Material<br>Confidentiality, Type, and G<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Temperature<br>System<br>pH<br>Results Details Method<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>and Purity | 1.99<br>106-99-0; 1,3-Butadiene<br>None; Experimental; Not Reported<br>NR; NR; NR; NR<br>NR; NR; NR; NR<br>25°C<br>Not Reported<br>Not Reported<br>Not Reported<br>Not Reported<br>Not Reported<br>Not Reported |                      |                                                                                                                                                                   |
|                                                                                                                                                                                                                                                          |                                             |                                                                                                                                                                                                                 | EVALUATIO            |                                                                                                                                                                   |
| Domain                                                                                                                                                                                                                                                   |                                             | Metric                                                                                                                                                                                                          | Rating               | Comments                                                                                                                                                          |
| Domain 1: Substance                                                                                                                                                                                                                                      |                                             |                                                                                                                                                                                                                 |                      |                                                                                                                                                                   |
|                                                                                                                                                                                                                                                          | Metric 1:                                   | Representativeness                                                                                                                                                                                              | High                 | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                                                                                                                                                                                                                                          | Metric 2:                                   | Appropriateness                                                                                                                                                                                                 | High                 | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2. Test Reliabil                                                                                                                                                                                                                                  | ity                                         |                                                                                                                                                                                                                 |                      |                                                                                                                                                                   |
| Domain 2. Test Rehabit                                                                                                                                                                                                                                   | Metric 3:                                   | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                                    | Medium               | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                                                                                                                                                                                                                                          | Metric 4:                                   | Reliability/Analytical Method                                                                                                                                                                                   | Medium               | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3. Other                                                                                                                                                                                                                                          |                                             |                                                                                                                                                                                                                 |                      |                                                                                                                                                                   |
| Domain 5. Ouler                                                                                                                                                                                                                                          | Metric 5:                                   | Databases                                                                                                                                                                                                       | High                 | Data is from a recognized, peer-reviewed data collection.                                                                                                         |
|                                                                                                                                                                                                                                                          | Metric 6:                                   | Models                                                                                                                                                                                                          | N/A                  | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Qualit                                                                                                                                                                                                                                           | ty Determi                                  | nation                                                                                                                                                                                                          | High                 |                                                                                                                                                                   |

| Study Citation:<br>OECD Harmonized             | U.S. EPA, (2019)<br>logKow | . Chemistry Dashboard Information for     | 1,3-Butadiene. | 106-99-0                                                                                                                                                          |
|------------------------------------------------|----------------------------|-------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:                          | 5926160                    |                                           |                |                                                                                                                                                                   |
|                                                |                            |                                           | EXTRACTIO      | Ň                                                                                                                                                                 |
| Parameter                                      |                            | Data                                      |                |                                                                                                                                                                   |
|                                                |                            |                                           |                |                                                                                                                                                                   |
| log k <sub>ow</sub><br>CASRN and Test Material |                            | 1.99<br>106-99-0; 1,3-Butadiene           |                |                                                                                                                                                                   |
| Confidentiality, Type, and C                   | Guideline                  | None; Experimental; Not Reported          |                |                                                                                                                                                                   |
| Solvent, Reactivity, Storage                   | e, and Stability           | NR; NR; NR; NR                            |                |                                                                                                                                                                   |
| Radiolabel, Source, State, a                   | nd Purity                  | NR; NR; NR; NR                            |                |                                                                                                                                                                   |
| Temperature                                    |                            | Not Reported                              |                |                                                                                                                                                                   |
| System                                         |                            | Not Reported                              |                |                                                                                                                                                                   |
| pH                                             |                            | Not Reported                              |                |                                                                                                                                                                   |
| Results Details Method                         |                            | Not Reported                              |                |                                                                                                                                                                   |
| Standard Deviation Results                     |                            | Not Reported                              |                |                                                                                                                                                                   |
| Results Details                                |                            | Not Reported                              |                |                                                                                                                                                                   |
|                                                |                            |                                           | EVALUATIO      | Ň                                                                                                                                                                 |
| Domain                                         |                            | Metric                                    | Rating         | Comments                                                                                                                                                          |
| Domain 1: Substance                            |                            |                                           |                |                                                                                                                                                                   |
|                                                | Metric 1:                  | Representativeness                        | High           | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                                | Metric 2:                  | Appropriateness                           | High           | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Domain 2: Test Reliabili                       | itv                        |                                           |                |                                                                                                                                                                   |
|                                                | Metric 3:                  | Reliability/Unbiased (Method Objectivity) | Medium         | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                                | Metric 4:                  | Reliability/Analytical Method             | Medium         | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 2: Other                                |                            |                                           |                |                                                                                                                                                                   |
| Domain J. Oulor                                | Metric 5:                  | Databases                                 | High           | Data is from a publicly available database that references peer-reviewed original sources.                                                                        |
|                                                | Metric 6:                  | Models                                    | N/A            | Rating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Quality Determination</b>           |                            | High                                      |                |                                                                                                                                                                   |

\* Related References: PhysProp. Hansch, C et al. 1995

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                       | U.S. EPA, (2019<br>logKow                   | ). Chemistry Dashboard Information for                                                                                                                                                                              | or 1,3-Butadiene. | 106-99-0                                                                                                                                                                                                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| HERO ID:                                                                                                                                                                                                                                                 | 5926160                                     |                                                                                                                                                                                                                     |                   |                                                                                                                                                                                                               |  |
|                                                                                                                                                                                                                                                          |                                             |                                                                                                                                                                                                                     | EXTRACTIO         | N                                                                                                                                                                                                             |  |
| Parameter                                                                                                                                                                                                                                                |                                             | Data                                                                                                                                                                                                                |                   |                                                                                                                                                                                                               |  |
| log k <sub>ow</sub><br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Temperature<br>System<br>pH<br>Results Details Method<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>and Purity | 1.99<br>106-99-0; 1,3-Butadiene<br>None; Experimental; Not Reported<br>NR; NR; NR; NR<br>NR; NR; NR<br>Not Reported<br>Not Reported<br>Not Reported<br>Not Reported<br>Not Reported<br>Not Reported<br>Not Reported |                   |                                                                                                                                                                                                               |  |
|                                                                                                                                                                                                                                                          |                                             |                                                                                                                                                                                                                     |                   | N                                                                                                                                                                                                             |  |
| Domain                                                                                                                                                                                                                                                   |                                             | Metric                                                                                                                                                                                                              | EVALUATIO         | Comments                                                                                                                                                                                                      |  |
| Domain 1: Substance                                                                                                                                                                                                                                      |                                             | Wettle                                                                                                                                                                                                              | Rating            | Comments                                                                                                                                                                                                      |  |
| Domain 1. Substance                                                                                                                                                                                                                                      | Metric 1:                                   | Representativeness                                                                                                                                                                                                  | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                            |  |
|                                                                                                                                                                                                                                                          | Metric 2:                                   | Appropriateness                                                                                                                                                                                                     | High              | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                                                                        |  |
| Domain 2: Test Reliabili                                                                                                                                                                                                                                 | ity<br>Metric 3:                            | Reliability/Unbiased                                                                                                                                                                                                | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                                          |  |
|                                                                                                                                                                                                                                                          | Metric 4:                                   | (Method Objectivity)<br>Reliability/Analytical Method                                                                                                                                                               | Medium            | towards a particular product or outcome.<br>Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |  |
| Domain 3: Other                                                                                                                                                                                                                                          |                                             |                                                                                                                                                                                                                     |                   |                                                                                                                                                                                                               |  |
|                                                                                                                                                                                                                                                          | Metric 5:                                   | Databases                                                                                                                                                                                                           | High              | Data is from a publicly available database that references peer-reviewed original sources.                                                                                                                    |  |
|                                                                                                                                                                                                                                                          | Metric 6:                                   | Models                                                                                                                                                                                                              | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                          |  |
| Overall Quality Determination                                                                                                                                                                                                                            |                                             |                                                                                                                                                                                                                     | High              |                                                                                                                                                                                                               |  |

\* Related References: PhysProp. Egon Willighagen

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1,3-Butadiene

| Study Citation:<br>OECD Harmonized | EC, (2000). Price<br>Water Solubility | prity Substances List Assessment Report: | : 1,3-Butadiene.  |                                                                                                                                                       |
|------------------------------------|---------------------------------------|------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                       |                                          |                   |                                                                                                                                                       |
| HERO ID:                           | 5160048                               |                                          |                   |                                                                                                                                                       |
|                                    |                                       |                                          | EXTRACTIO         | N                                                                                                                                                     |
| Parameter                          |                                       | Data                                     |                   |                                                                                                                                                       |
|                                    |                                       |                                          |                   |                                                                                                                                                       |
| Water Solubility                   |                                       | 735 - mg/L                               |                   |                                                                                                                                                       |
| CASRN and Test Material            |                                       | 106-99-0; Not Reported                   |                   |                                                                                                                                                       |
| Confidentiality, Type, and C       | Guideline                             | no; experimental; Not Reported           |                   |                                                                                                                                                       |
| Solvent, Reactivity, Storage       | e, and Stability                      | Not Reported; Not Reported; Not Report   | ted; Not Reported |                                                                                                                                                       |
| Radiolabel, Source, State, a       | and Purity                            | Not Reported; Not Reported; Not Report   | ted; Not Reported |                                                                                                                                                       |
| Temperature                        |                                       | 25 C                                     |                   |                                                                                                                                                       |
| System                             |                                       | Not Reported                             |                   |                                                                                                                                                       |
| pН                                 |                                       | Not Reported                             |                   |                                                                                                                                                       |
| Results Details Method             |                                       | Not Reported                             |                   |                                                                                                                                                       |
| Standard Deviation Results         |                                       | Not Reported                             |                   |                                                                                                                                                       |
| Results Details                    |                                       | experimental at 25 C and 101.325 kPa     |                   |                                                                                                                                                       |
|                                    |                                       |                                          |                   |                                                                                                                                                       |
| Domain                             |                                       | Matric                                   | EVALUATIO         | N<br>Comments                                                                                                                                         |
| Domain 1, Substance                |                                       | Meute                                    | Katilig           | Comments                                                                                                                                              |
| Domain 1. Substance                | Metric 1                              | Representativeness                       | High              | Data are measured or estimated for the subject chemical substance                                                                                     |
|                                    | Metric 2:                             | Appropriateness                          | Medium            | Data measured for a structural analogue of the subject chemical substance are consistent                                                              |
|                                    | Weute 2.                              | Appropriateness                          | Weddulli          | with what is expected for the subject chemical substance structural properties, features<br>or behaviors.                                             |
| Domain 2. Test Daliabil            | :4                                    |                                          |                   |                                                                                                                                                       |
| Domain 2: Test Kellabil            | Metric 2:                             | Paliability/Unbiased                     | Madium            | There is no indication that the methodology for mechanics the information was hims d                                                                  |
|                                    | mente J.                              | (Method Objectivity)                     | wieuruill         | towards a particular product or outcome                                                                                                               |
|                                    | Metric 4:                             | Reliability/Analytical Method            | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                               |
|                                    | incure i.                             | Terraonity, Thialy deal Mediod           | meanum            | cal method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |
| Damain 2. Other                    |                                       |                                          |                   |                                                                                                                                                       |
| Domain 5: Other                    | Matria 5.                             | Detahagaa                                | High              | The information on data is former and and the settle standard from the set                                                                            |
|                                    | Metric 5:                             | Databases                                | High              | peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes reformers to the original generation.       |
|                                    | Metric 6:                             | Models                                   | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                  |
|                                    |                                       |                                          |                   | • •                                                                                                                                                   |
| <b>Overall Qualit</b>              | ty Determi                            | nation                                   | High              |                                                                                                                                                       |

\* Related References: cited from McAuliffe, C. 1966. Solubility in water ofparaffin, cycloparaffin, olefin, acetylene, cycloolefin and aromatic hydrocarbons. J.Phys. Chem. 76: 1267–1275.

PUBLIC RELEASE DRAFT November 2024 Water Solubility

1,3-Butadiene

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                    | ECB, (2002). Eu<br>Water Solubility         | ropean Union risk assessment report: 1,                                                                                                                                                                                                                     | ,3-butadiene.                          |                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                                                                                                                                                                                                                              | 5155560                                     |                                                                                                                                                                                                                                                             |                                        |                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                       |                                             |                                                                                                                                                                                                                                                             | EXTRACTIO                              | N                                                                                                                                                                                                                                    |
| Parameter                                                                                                                                                                                                                                             |                                             | Data                                                                                                                                                                                                                                                        |                                        |                                                                                                                                                                                                                                      |
| Water Solubility<br>CASRN and Test Material<br>Confidentiality, Type, and G<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Temperature<br>System<br>pH<br>Results Details Method<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>and Purity | 0.735 - g/l<br>106-99-0; 1,2-Butadiene<br>no; experimental; Not Reported<br>Not Reported; Not Reported; Not Repor<br>Not Reported; Not Reported; Not Repor<br>Not Reported<br>Not Reported<br>gas-liquid chromatography<br>Not Reported<br>(McAuliffe 1966) | ted; Not Reported<br>ted; Not Reported |                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                       |                                             |                                                                                                                                                                                                                                                             |                                        |                                                                                                                                                                                                                                      |
| Domain                                                                                                                                                                                                                                                |                                             | Matric                                                                                                                                                                                                                                                      | EVALUATIO                              | N<br>Comments                                                                                                                                                                                                                        |
| Domain 1: Substance                                                                                                                                                                                                                                   |                                             | Metric                                                                                                                                                                                                                                                      | Katilig                                | Comments                                                                                                                                                                                                                             |
|                                                                                                                                                                                                                                                       | Metric 1:                                   | Representativeness                                                                                                                                                                                                                                          | High                                   | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                   |
|                                                                                                                                                                                                                                                       | Metric 2:                                   | Appropriateness                                                                                                                                                                                                                                             | High                                   | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties                                                             |
| Domain 2: Test Reliabil                                                                                                                                                                                                                               | ity                                         |                                                                                                                                                                                                                                                             |                                        |                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                       | Metric 3:                                   | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                                                                                | High                                   | The methodology for producing the information is designed to answer a specific ques-<br>tion, and the methodology's objective is clear.                                                                                              |
|                                                                                                                                                                                                                                                       | Metric 4:                                   | Reliability/Analytical Method                                                                                                                                                                                                                               | Medium                                 | The analytical method is non-standard but is expected to be appropriate                                                                                                                                                              |
|                                                                                                                                                                                                                                                       |                                             |                                                                                                                                                                                                                                                             |                                        |                                                                                                                                                                                                                                      |
| Domain 5: Other                                                                                                                                                                                                                                       | Metric 5:                                   | Databases                                                                                                                                                                                                                                                   | High                                   | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources. |
|                                                                                                                                                                                                                                                       | Metric 6:                                   | Models                                                                                                                                                                                                                                                      | N/A                                    | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                 |
| Overall Qualit                                                                                                                                                                                                                                        | ty Determir                                 | nation                                                                                                                                                                                                                                                      | High                                   |                                                                                                                                                                                                                                      |

\* Related References: cited from McAuliffe C (1966). Solubility in water of paraffin, cycloparaffin, oldfin, acetylene, cyclo-olefin and aromatichydrocarbons. J Phys Chem. 70; 1267-1275. (HERO ID: 5348315)

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                    | Mueller, M., Klein, W. (1992). Comparative evaluation of methods predicting water solubility for organic compounds. Chemosphere 25(6):769-782. Water Solubility |                                                                                                                                                                                                                                                       |                  |                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                                                                                                                                                                                                                              | 654554                                                                                                                                                          |                                                                                                                                                                                                                                                       |                  |                                                                                                                                                           |
|                                                                                                                                                                                                                                                       |                                                                                                                                                                 |                                                                                                                                                                                                                                                       | EXTRACTIO        | N                                                                                                                                                         |
| Parameter                                                                                                                                                                                                                                             |                                                                                                                                                                 | Data                                                                                                                                                                                                                                                  |                  |                                                                                                                                                           |
| Water Solubility<br>CASRN and Test Material<br>Confidentiality, Type, and G<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>Temperature<br>System<br>pH<br>Results Details Method<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>and Purity                                                                                                                     | 736 mg/L<br>106-99-0; 1,3-Butadiene<br>None; Calculation; Not reported<br>NR; NR; NR; NR<br>NR; NR; NR<br>Not reported<br>Statistical estimation in relation to partitic<br>Not reported<br>Not Reported<br>Not Reported<br>Reported as 1.36E-2 mol/L | on coefficients. |                                                                                                                                                           |
|                                                                                                                                                                                                                                                       |                                                                                                                                                                 |                                                                                                                                                                                                                                                       | EVALUATIO        |                                                                                                                                                           |
| Domain                                                                                                                                                                                                                                                |                                                                                                                                                                 | Metric                                                                                                                                                                                                                                                | Rating           | Comments                                                                                                                                                  |
| Domain 1: Substance                                                                                                                                                                                                                                   |                                                                                                                                                                 |                                                                                                                                                                                                                                                       |                  |                                                                                                                                                           |
|                                                                                                                                                                                                                                                       | Metric 1:<br>Metric 2:                                                                                                                                          | Representativeness<br>Appropriateness                                                                                                                                                                                                                 | High<br>Medium   | Data are measured or estimated for the subject chemical substance.<br>Calculated data consistent with the subject chemical substance structural features. |
| Domain 2: Test Reliabil                                                                                                                                                                                                                               | ity                                                                                                                                                             |                                                                                                                                                                                                                                                       |                  |                                                                                                                                                           |
| Domain 2. Test Rendom                                                                                                                                                                                                                                 | Metric 3:                                                                                                                                                       | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                                                                          | High             | The methodology for producing the information is designed to answer a specific ques-<br>tion, and the methodology's objective is clear.                   |
|                                                                                                                                                                                                                                                       | Metric 4:                                                                                                                                                       | Reliability/Analytical Method                                                                                                                                                                                                                         | N/A              | This matrix is not applicable to this calculated data.                                                                                                    |
| Domain 3: Other                                                                                                                                                                                                                                       |                                                                                                                                                                 |                                                                                                                                                                                                                                                       |                  |                                                                                                                                                           |
|                                                                                                                                                                                                                                                       | Metric 5:                                                                                                                                                       | Databases                                                                                                                                                                                                                                             | N/A              | This matrix is not applicable to this calculated data.                                                                                                    |
|                                                                                                                                                                                                                                                       | Metric 6:                                                                                                                                                       | Models                                                                                                                                                                                                                                                | High             | The model had a defined, unambiguous endpoint and the model performance was known.                                                                        |
| <b>Overall Qualit</b>                                                                                                                                                                                                                                 | Overall Quality Determination High                                                                                                                              |                                                                                                                                                                                                                                                       |                  |                                                                                                                                                           |

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1,3-Butadiene

| Study Citation:<br>OECD Harmonized | NLM, (2003). PubChem: Hazardous Substance Data Bank: 1,3-Butadiene, 106-99-0.<br>Water Solubility |                                  |            |                                                                                                                                                                   |
|------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5926134                                                                                           |                                  |            |                                                                                                                                                                   |
|                                    |                                                                                                   |                                  | EXTRACTIO  | N                                                                                                                                                                 |
| Parameter                          |                                                                                                   | Data                             |            |                                                                                                                                                                   |
|                                    |                                                                                                   |                                  |            |                                                                                                                                                                   |
| Water Solubility                   |                                                                                                   | 735 mg/L                         |            |                                                                                                                                                                   |
| CASRN and Test Material            |                                                                                                   | 106-99-0; 1,3-Butadiene          |            |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Guideline                                                                                         | None; Experimental; Not reported |            |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | , and Stability                                                                                   | NR; NR; NR; NR                   |            |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | nd Purity                                                                                         | NR; NR; NR; NR                   |            |                                                                                                                                                                   |
| Temperature                        |                                                                                                   | 20°C                             |            |                                                                                                                                                                   |
| System                             |                                                                                                   | Not Reported                     |            |                                                                                                                                                                   |
| pH                                 |                                                                                                   | Not reported                     |            |                                                                                                                                                                   |
| Results Details Method             |                                                                                                   | Not Reported                     |            |                                                                                                                                                                   |
| Standard Deviation Results         |                                                                                                   | Not Reported                     |            |                                                                                                                                                                   |
| Results Details                    |                                                                                                   | Not Reported                     |            |                                                                                                                                                                   |
|                                    |                                                                                                   |                                  |            |                                                                                                                                                                   |
| Domain                             |                                                                                                   | Matria                           | EVALUATION | Comments                                                                                                                                                          |
| Domain 1: Substance                |                                                                                                   | Wieu ic                          | Katilig    | Comments                                                                                                                                                          |
| Domain 1. Substance                | Metric 1:                                                                                         | Representativeness               | High       | Data are measured or estimated for the subject chemical substance                                                                                                 |
|                                    | Metric 2:                                                                                         | Appropriateness                  | High       | Measured data are consistent with the subject chemical's physical/chemical properties                                                                             |
|                                    | Methe 2.                                                                                          | Appropriateness                  | Ingn       | weasured data are consistent with the subject encinear s physical/encinear properties.                                                                            |
| Domain 2: Test Reliabili           | ty                                                                                                |                                  |            |                                                                                                                                                                   |
|                                    | Metric 3:                                                                                         | Reliability/Unbiased             | Medium     | There is no indication that the methodology for producing the information was biased                                                                              |
|                                    |                                                                                                   | (Method Objectivity)             |            | towards a particular product or outcome.                                                                                                                          |
|                                    | Metric 4:                                                                                         | Reliability/Analytical Method    | Medium     | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                                    |                                                                                                   |                                  |            | - • • •                                                                                                                                                           |
| Domain 3: Other                    |                                                                                                   |                                  |            |                                                                                                                                                                   |
|                                    | Metric 5:                                                                                         | Databases                        | High       | Data is from a publicly available database that provides references to original sources.                                                                          |
|                                    | Metric 6:                                                                                         | Models                           | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Quality Determination H    |                                                                                                   |                                  | High       |                                                                                                                                                                   |

\* Related References: McAuliffe, C. 1966. J Phys Chem 70: 1267-75.

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| Study Citation:<br>OECD Harmonized | RSC, (2019). Che<br>Water Solubility | emSpider: 1,3-Butadiene.                     |               |                                                                                                                                                                   |
|------------------------------------|--------------------------------------|----------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 5926255                              |                                              |               |                                                                                                                                                                   |
|                                    |                                      |                                              | EXTRACTION    |                                                                                                                                                                   |
| Parameter                          |                                      | Data                                         |               |                                                                                                                                                                   |
|                                    |                                      |                                              |               |                                                                                                                                                                   |
| Water Solubility                   |                                      | insoluble                                    |               |                                                                                                                                                                   |
| CASRN and Test Material            |                                      | 106-99-0; 1,3-Butadiene                      |               |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Juideline                            | None; Experimental; Not reported             |               |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability                     | NR; NR; NR; NR                               |               |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | nd Purity                            | NR; NR; NR; NR                               |               |                                                                                                                                                                   |
| Temperature                        |                                      | Not Reported                                 |               |                                                                                                                                                                   |
| System                             |                                      | Not Reported                                 |               |                                                                                                                                                                   |
| pН                                 |                                      | Not reported                                 |               |                                                                                                                                                                   |
| Results Details Method             |                                      | Not Reported                                 |               |                                                                                                                                                                   |
| Standard Deviation Results         |                                      | Not Reported                                 |               |                                                                                                                                                                   |
| Results Details                    |                                      | Not Reported                                 |               |                                                                                                                                                                   |
|                                    |                                      |                                              |               |                                                                                                                                                                   |
|                                    |                                      |                                              | EVALUATION    |                                                                                                                                                                   |
| Domain                             |                                      | Metric                                       | Rating        | Comments                                                                                                                                                          |
| Domain 1: Substance                |                                      |                                              |               |                                                                                                                                                                   |
|                                    | Metric 1:                            | Representativeness                           | High          | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                    | Metric 2:                            | Appropriateness                              | Uninformative | The information is not consistent with measured data for the chemical and this is a qual-<br>itative result.                                                      |
| Domain 2: Test Reliabili           | ity                                  |                                              |               |                                                                                                                                                                   |
|                                    | Metric 3:                            | Reliability/Unbiased<br>(Method Objectivity) | Medium        | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                    | Metric 4:                            | Reliability/Analytical Method                | Medium        | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Damain 2. Other                    |                                      |                                              |               |                                                                                                                                                                   |
| Domain 5: Other                    | Matria 5.                            | Detabasas                                    | High          | Data is from a multiply available database that asforements a many ranging distance                                                                               |
|                                    | Metric 5:                            | Models                                       | riign<br>N/A  | Data is from a publicity available database that references a peer-reviewed source.                                                                               |
|                                    | wieuric o.                           | WIOUCIS                                      | IN/A          | Rating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Qualit</b>              | y Determin                           | ation                                        | Uninformative |                                                                                                                                                                   |

\* Related References: NIOSH

1,3-Butadiene

| Template:<br>HERO ID:       5932745         Parameter       Data         Water Solubility       733 mg/L.         CASRN and Test Material       106-99-0; 1,3-Butadiene         Confidentiality, Type, and Guideline       None: Experimental: Not reported         Solvent, Reactivity, Storage, and Stability       NR; NR; NR; NR         Radiobel, Source, State, and Purity       NR; NR; NR; NR         Temperature       25°C         System       Not reported         PH       Not reported         Results Details Method       Value of solubility for a gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, converted using CRC handbook's reported water density at 25 C.         Standard Deviation Results       Not Reported         Domain 1: Substance       Metric 1:         Metric 1:       Representativeness         Metric 2:       Appropriateness         High       Data are measured or estimated data are consistent with the subject chemical substance.         Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium         Metric 4:       Reliability/Analytical Method       Medium         Domain 3: Other       Data is from a per-reviewed data collection.         Metric 5:       Databases       High       Data is from a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Study Citation:<br>OECD Harmonized | Rumble, J. R. (2<br>Water Solubility | 2018). Aqueous solubility and Henry's law                                               | w constants of or                          | ganic compounds. :5-148 - 5-177.                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:       5932745         EXTRACTION         Parameter       Data         Water Solubility       733 mg/L         CASRN and Test Material       106-99-0; 1.3-Butalene         Condentiality, Type, and Guideline       None: Experimental: Not reported         Solvent, Rescrivery, Storage, and Subility       NR: NR: NR: NR         Radiolabel, Source, State, and Purity       NR: NR: NR: NR         Results Details       Not Reported         PH       Not Reported         PH       Not Reported         PH       Not Reported         Value of solubility of ra gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20.         Commain Results       Not Reported         Pomain       Metric         Metric 1:       Representativeness         Not Reported       High         Domain 1: Substance       Metric 2:         Metric 2:       Appropriateness         Metric 3:       Reliability/Unbiased<br>(Method Objectivity)         Metric 4:       Reliability/Analytical Method       Medium         There is no indication that the methodology for producing the information was biased<br>(Method Objectivity)       Medium         Metric 5:       Databases <th>Template:</th> <th></th> <th></th> <th></th> <th></th>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Template:                          |                                      |                                                                                         |                                            |                                                                                                                                                                   |
| Parameter         Data           Water Solubility<br>CASRN and Test Material         106-99-0; 1,3-Butadiene<br>Confidentiality, Type, and Citideline<br>Solvent, Reactivity, Storage, and Stability         733 mg/L           Confidentiality, Type, and Citideline<br>Solvent, Reactivity, Storage, and Stability         None; Experimental: Not reported<br>Solvent, Reactivity, Storage, and Stability         New; NR; NR; NR<br>Temperature<br>25°C           System         Not Reported<br>PH         Not reported<br>Not reported         Not Reported<br>Value of solubility for ages at a partial pressure of 101.325 kPa (1 am) in equilibrium with the solution. Originally reported as 0.735 g/kg H20,<br>converted using (CRC handbook's reported water density at 25 C.           Standard Deviation Results<br>Results Details         Not Reported<br>Not Reported         Comments           Domain         Metric 1:<br>Metric 2:<br>Apportatences         Refreesentativeness<br>High<br>Metric 2:<br>Metric 2:<br>Metric 3:<br>Metric 4:         High<br>Reliability/Unbiased<br>(Method Objectivity)<br>Metric 4:         Medium<br>Reliability/Analytical Method<br>Medium<br>Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed data collection.<br>Matric 5:<br>Databasees         Medium<br>Medium<br>Analytical is from a peer-reviewed data collection.<br>Matric 6 this Models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HERO ID:                           | 5932745                              |                                                                                         |                                            |                                                                                                                                                                   |
| Parameter     Data       Water Solubility     733 mg/L.       CASRN and Test Material     106-99-0; 1, 3-Butadiene       Confidentiality, Type, and Guideline     None; Experimental; Not reported       Solvent, Reactivity, Storage, and Stability     NR; NR; NR; NR       Radiolabel, Source, State, and Purity     NR; NR; NR; NR       Radiolabel, Source, State, and Purity     NR; NR; NR; NR       Regenter     25°C       System     Not Reported       PH     Not reported       Value of solubility for ags as a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, converted using CRC handbook's reported water density at 25 C.       Standard Deviation Results     Not Reported       Not Reported     Not Reported       Metric 1:     Representativeness     High       Domain 1: Substance     High     Data are measured or estimated for the subject chemical substance.       Metric 2:     Appropriateness     High     Measured data are consistent with the subject chemical's physical/chemical properties.       Domain 2: Test Reliability     Metric 3:     Reliability/Analytical Method <t< th=""><th></th><th></th><th></th><th>EXTRACTIO</th><th>N</th></t<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    |                                      |                                                                                         | EXTRACTIO                                  | N                                                                                                                                                                 |
| Water Solubility       733 mg/L         CASRN and Test Material       106-99-0; 1,3-Butadiene         Confidentiality, Type, and Guideline       None; Experimental; Not reported         Solvent, Reactivity, Storage, and Stability       NR: NR: NR         Radiolabel, Source, State, and Purity       NR: NR; NR         Temperature       25°C         System       Not Reported         pH       Not reported         Value of solubility for a gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, converted using CRC handbook's reported water density at 25 C.         Standard Deviation Results       Not Reported         Not Reported       Not Reported         Value of solubility for a gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, converted using CRC handbook's reported water density at 25 C.         Standard Deviation Results       Not Reported         Results Details       Not Reported         Domain 1: Substance       Metric 1:         Metric 2:       Appropriateness         High       Data are measured or estimated for the subject chemical substance.         Metric 3:       Reliability/Unbiased         (Metric 4:       Reliability/Unbiased         (Metric 4:       Reliability/Analytical Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Parameter                          |                                      | Data                                                                                    |                                            |                                                                                                                                                                   |
| Water Solubility     733 mg/L       CASRN and Test Material     106-90-0; 1.3-Butadiene       Confidentiality, Type, and Guideline     None: Experimental, Not reported       Solvent, Reactivity, Storage, and Stability     NR; NR; NR       Radiolabel, Source, State, and Purity     NR; NR; NR       Temperature     25°C       System     Not Reported       PH     Not Reported       PH     Not Reported       Value of solubility for a gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, converted using CRC handbook's reported water density at 25 C.       Standard Deviation Results     Not Reported       Not Reported     Not Reported       Metric C:     Not Reported       Metric 1:     Representativeness       Metric 2:     Appropriateness       Metric 2:     Appropriateness       Metric 3:     Reliability/Unbiased (Method Objectivity)       Metric 4:     Reliability/Unbiased (Method Objectivity)       Metric 4:     Reliability/Analytical Method       Metric 5:     Databases       Metric 5:     Databases       Metric 5:     Databases       Metric 5:     Databases       Metric 6:     Medium       There is no indication that the methodology for producing the information was biased towards a particular productor out                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                    |                                      |                                                                                         |                                            |                                                                                                                                                                   |
| CASRN and Test Material 106-99-0; 1.3-Butadiene Confidentiality, Type, and Guideline Solvent, Reactivity, Storage, and Stability NR; NR; NR; NR; NR Radiolabel, Source, State, and Purity Radiolabel, Source, State, and Purity NR; NR; NR; NR; NR Temperature 25°C System Not Reported PH Not reported PH Not reported Not R | Water Solubility                   |                                      | 733 mg/L                                                                                |                                            |                                                                                                                                                                   |
| Confidentiality, Type, and Guideline None: Experimental: Not reported Solvent, Reactivity, Storage, and Stability NR; NR; NR; NR Radiolabel, Source, State, and Purity NR; NR; NR, NR Radiolabel, Source, State, and Purity NR; NR; NR, NR Temperature 25°C System Not Reported Not reported Not reported Not reported Not reported Not reported using CRC handbook's reported water density at 25 C. Standard Deviation Results Not Reported Not  | CASRN and Test Material            |                                      | 106-99-0; 1,3-Butadiene                                                                 |                                            |                                                                                                                                                                   |
| Solvent, Reactivity, Storage, and Stability NR; NR; NR<br>Radiolabel, Source, State, and Purity NR; NR; NR; NR<br>Temperature 25°C<br>System Not Reported<br>PH Not reported<br>Results Details Method Value of solubility for a gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20,<br>converted using CRC handbook's reported water density at 25 C.<br>Standard Deviation Results Not Reported<br>Results Details Not Reported<br>Not Reported<br>Results Details Not Reported<br>Retric 1: Representativeness High Measured or estimated for the subject chemical substance.<br>Metric 2: Appropriateness High Measured data are consistent with the subject chemical's physical/chemical properties.<br>Domain 2: Test Reliability<br>Metric 3: Reliability/Unbiased (Method Objectivity)<br>Metric 4: Reliability/Analytical Method Medium Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/ata collection.<br>Metric 5: Databases High Data is from a peer-reviewed data collection.<br>Metric 5: Models N/A Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                               | Confidentiality, Type, and C       | Guideline                            | None; Experimental; Not reported                                                        |                                            |                                                                                                                                                                   |
| Radiolabel, Source, State, and Purity       NR; NR; NR         Temperature       25°C         System       Not Reported         pH       Not reported         Results Details Method       Value of solubility for a gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, converted using CRC handbook's reported water density at 25 C.         Standard Deviation Results       Not Reported         Results Details       Not Reported         Metric 1:       Metric C         Metric 2:       Appropriateness         Metric 2:       Appropriateness         High       Data are measured or estimated for the subject chemical substance.         Metric 2:       Appropriateness         High       Medium         Metric 3:       Reliability/Unbiased (Method Objectivity)         Metric 4:       Reliability/Analytical Method         Medium       Analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 5:         Metric 5:       Models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Solvent, Reactivity, Storage       | e, and Stability                     | NR; NR; NR; NR                                                                          |                                            |                                                                                                                                                                   |
| Temperature       25°C         System       Not Reported         PH       Not reported         Results Details Method       Value of solubility for a gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, converted using CRC handbook's reported water density at 25 C.         Standard Deviation Results       Not Reported         Results Details       Not Reported         Domain       Metric         Results Details       Not Reported         Domain 1: Substance       EVALUATION         Metric 1:       Representativeness         Metric 2:       Appropriateness         High       Measured data are consistent with the subject chemical substance.         Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium         Metric 4:       Reliability/Unbiased<br>(Method Objectivity)       Medium         Metric 4:       Reliability/Analytical Method       Medium         Analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed data collection.         Domain 3: Other       Metric 5:       Data bases         Metric 5:       Databases       High       Data is from a peer-reviewed data collection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Radiolabel, Source, State, a       | nd Purity                            | NR; NR; NR; NR                                                                          |                                            |                                                                                                                                                                   |
| System     Not Reported       PH     Not reported       Results Details Method     Value of solubility for a gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, converted using CRC handbook's reported water density at 25 C.       Standard Deviation Results     Not Reported       Results Details     Not Reported       Metric Domain     Metric       Representativeness     High       Domain 1: Substance     Metric 1:       Metric 2:     Appropriateness       High     Data are measured or estimated for the subject chemical's physical/chemical properties.       Domain 2: Test Reliability     Metric 3:       Metric 4:     Reliability/Unbiased<br>(Method Objectivity)     Medium<br>(Method Objectivity)       Metric 5:     Databases       Metric 5:     Databases       Metric 5:     Databases       Metric 6:     Models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Temperature                        |                                      | 25°C                                                                                    |                                            |                                                                                                                                                                   |
| pH       Not reported         Results Details Method       Value of solubility for a gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, converted using CRC handbook's reported water density at 25 C.         Standard Deviation Results       Not Reported         Results Details       Not Reported         Results Details       Not Reported         Results Details       Not Reported         Domain       Metric         Results Details       Metric         Results Details       Not Reported         Domain 1: Substance       Representativeness         Metric 2:       Appropriateness         High       Data are measured or estimated for the subject chemical substance.         Metric 3:       Reliability/Unbiased<br>(Method Objectivity)         Metric 4:       Reliability/Unbiased<br>(Method Objectivity)       Medium<br>Hedium       There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.         Domain 3: Other       Metric 5:       Databases       High<br>Metric 6:       Data is from a peer-reviewed data collection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | System                             |                                      | Not Reported                                                                            |                                            |                                                                                                                                                                   |
| Results Details Method       Value of solubility for a gas at a partial pressure of 101.325 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, converted using CRC handbook's reported water density at 25 C.         Standard Deviation Results Results Details       Not Reported         Domain       Metric         Representativeness       High         Domain 1: Substance       Metric 1:         Metric 2:       Appropriateness         High       Data are measured or estimated for the subject chemical substance.         Metric 3:       Reliability/Unbiased (Method Objectivity)         Metric 4:       Reliability/Unbiased (Method Objectivity)         Metric 4:       Reliability/Analytical Method         Domain 3: Other       Metric 5:         Metric 5:       Databases         Metric 5:       Databases         Metric 6:       Models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | рН                                 |                                      | Not reported                                                                            |                                            |                                                                                                                                                                   |
| Standard Deviation Results       Not Reported         Results Details       Not Reported         Domain       Metric       Rating       Comments         Domain 1:       Substance       High       Data are measured or estimated for the subject chemical substance.         Metric 2:       Appropriateness       High       Data are consistent with the subject chemical's physical/chemical properties.         Domain 2:       Test Reliability       Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium       There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.         Domain 3:       Other       Metric 5:       Databases       High       Data is from a peer-reviewed data collection.         Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Results Details Method             |                                      | Value of solubility for a gas at a partial g<br>converted using CRC handbook's reported | pressure of 101.325<br>ed water density at | 5 kPa (1 atm) in equilibrium with the solution. Originally reported as 0.735 g/kg H20, 25 C.                                                                      |
| Results Details       Not Reported         EVALUATION       Comments         Domain       Metric       Rating       Comments         Domain 1: Substance       Metric 1:       Representativeness       High       Data are measured or estimated for the subject chemical substance.         Metric 2:       Appropriateness       High       Data are consistent with the subject chemical 's physical/chemical properties.         Domain 2: Test Reliability       Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium       There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.         Domain 3: Other       Metric 5:       Databases       High       Data is from a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Standard Deviation Results         |                                      | Not Reported                                                                            | -                                          |                                                                                                                                                                   |
| EVALUATION         Comments           Domain 1: Substance         Metric 1:         Representativeness         High         Data are measured or estimated for the subject chemical substance.           Metric 2:         Appropriateness         High         Data are measured or estimated for the subject chemical's physical/chemical properties.           Domain 2: Test Reliability         Metric 3:         Reliability/Unbiased<br>(Method Objectivity)         Medium         There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.           Metric 4:         Reliability/Analytical Method         Medium         Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source.           Domain 3: Other         Metric 5:         Databases         High         Data is from a peer-reviewed data collection.           Metric 6:         Models         N/A         Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Results Details                    |                                      | Not Reported                                                                            |                                            |                                                                                                                                                                   |
| Domain       Metric       Rating       Comments         Domain 1: Substance       Metric 1:       Representativeness       High       Data are measured or estimated for the subject chemical substance.         Metric 2:       Appropriateness       High       Measured data are consistent with the subject chemical's physical/chemical properties.         Domain 2: Test Reliability       Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium       There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.         Metric 4:       Reliability/Analytical Method       Medium       Analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 5:       Databases       High       Data is from a peer-reviewed data collection.         Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                    |                                      |                                                                                         |                                            |                                                                                                                                                                   |
| Domain       Metric       Rating       Comments         Domain 1: Substance       Metric 1:       Representativeness       High       Data are measured or estimated for the subject chemical substance.         Metric 2:       Appropriateness       High       Data are measured or estimated for the subject chemical substance.         Domain 2: Test Reliability       Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium       There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.         Metric 4:       Reliability/Analytical Method       Medium       Analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 5:       Databases       High       Data is from a peer-reviewed data collection.         Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | D ·                                |                                      |                                                                                         | EVALUATIO                                  | N                                                                                                                                                                 |
| Domain 1: Substance       Metric 1:       Representativeness       High       Data are measured or estimated for the subject chemical substance.         Metric 2:       Appropriateness       High       Data are measured or estimated for the subject chemical substance.         Domain 2: Test Reliability       Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium       There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.         Metric 4:       Reliability/Analytical Method       Medium       Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 5:       Databases       High       Data is from a peer-reviewed data collection.         Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Domain                             |                                      | Metric                                                                                  | Rating                                     | Comments                                                                                                                                                          |
| Metric 1:       Representativeness       High       Data are measured or estimated for the subject chemical substance.         Metric 2:       Appropriateness       High       Measured data are consistent with the subject chemical's physical/chemical properties.         Domain 2: Test Reliability       Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium       There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.         Metric 4:       Reliability/Analytical Method       Medium       Analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 5:       Databases       High       Data is from a peer-reviewed data collection.         Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Domain 1: Substance                | Matria 1.                            | Dennestetissenes                                                                        | TT: -1-                                    |                                                                                                                                                                   |
| Metric 2:       Appropriateness       High       Measured data are consistent with the subject chemical's physical/chemical properties.         Domain 2: Test Reliability       Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium       There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.         Metric 4:       Reliability/Analytical Method       Medium       Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 5:       Databases       High       Data is from a peer-reviewed data collection.         Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                    | Metric 1:                            | Ammennisteness                                                                          | High                                       | Data are measured or estimated for the subject chemical substance.                                                                                                |
| Domain 2: Test Reliability       Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium       There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.         Metric 4:       Reliability/Analytical Method       Medium       Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 5:       Databases       High<br>Netric 6:       Data is from a peer-reviewed data collection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    | Metric 2:                            | Appropriateness                                                                         | High                                       | Measured data are consistent with the subject chemical's physical/chemical properties.                                                                            |
| Metric 3:       Reliability/Unbiased<br>(Method Objectivity)       Medium       There is no indication that the methodology for producing the information was biased<br>towards a particular product or outcome.         Metric 4:       Reliability/Analytical Method       Medium       Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 5:       Databases       High       Data is from a peer-reviewed data collection.         Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Domain 2: Test Reliabili           | itv                                  |                                                                                         |                                            |                                                                                                                                                                   |
| Metric 4:       (Method Objectivity)<br>Reliability/Analytical Method       towards a particular product or outcome.         Medium       Analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 5:       Databases         Metric 6:       Models       N/A         Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                    | Metric 3:                            | Reliability/Unbiased                                                                    | Medium                                     | There is no indication that the methodology for producing the information was biased                                                                              |
| Metric 4:       Reliability/Analytical Method       Medium       Analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.         Domain 3: Other       Metric 5:       Databases       High       Data is from a peer-reviewed data collection.         Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                    |                                      | (Method Objectivity)                                                                    |                                            | towards a particular product or outcome.                                                                                                                          |
| Domain 3: Other       Metric 5:       Databases       High       Data is from a peer-reviewed data collection.         Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                    | Metric 4:                            | Reliability/Analytical Method                                                           | Medium                                     | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other       Metric 5:       Databases       High       Data is from a peer-reviewed data collection.         Metric 6:       Models       N/A       Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                    |                                      |                                                                                         |                                            |                                                                                                                                                                   |
| Metric 5:DatabasesHighData is from a peer-reviewed data collection.Metric 6:ModelsN/ARating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Domain 3: Other                    | 20.00                                | <b>D</b> . 1                                                                            |                                            |                                                                                                                                                                   |
| Metric 6: Models N/A Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                    | Metric 5:                            | Databases                                                                               | High                                       | Data is from a peer-reviewed data collection.                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                    | Metric 6:                            | Models                                                                                  | N/A                                        | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Quality Determination High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Overall Quality Determination High |                                      |                                                                                         |                                            |                                                                                                                                                                   |

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1,3-Butadiene

| Study Citation:<br>OECD Harmonized<br>Template: | U.S. EPA, (2002).<br>Water Solubility | Health assessment of 1,3-butadiene. |            |                                                                                                           |
|-------------------------------------------------|---------------------------------------|-------------------------------------|------------|-----------------------------------------------------------------------------------------------------------|
| HERO ID:                                        | 52153                                 |                                     |            |                                                                                                           |
|                                                 |                                       |                                     | EXTRACTION |                                                                                                           |
| Parameter                                       |                                       | Data                                |            |                                                                                                           |
|                                                 |                                       |                                     |            |                                                                                                           |
| Water Solubility                                |                                       | 735 mg/L                            |            |                                                                                                           |
| CASRN and Test Material                         |                                       | 106-99-0; 1,3-butadiene             |            |                                                                                                           |
| Confidentiality, Type, and C                    | Guideline                             | none; not specified; NA             |            |                                                                                                           |
| Solvent, Reactivity, Storage                    | , and Stability                       | NR; NR; NA; NA                      |            |                                                                                                           |
| Radiolabel, Source, State, a                    | nd Purity                             | NA; NA; gas; NA                     |            |                                                                                                           |
| Temperature                                     |                                       | 20°C                                |            |                                                                                                           |
| System                                          |                                       | NA                                  |            |                                                                                                           |
| pН                                              |                                       | NA                                  |            |                                                                                                           |
| Results Details Method                          |                                       | Not Reported                        |            |                                                                                                           |
| Standard Deviation Results                      |                                       | Not Reported                        |            |                                                                                                           |
| Results Details                                 |                                       | Not Reported                        |            |                                                                                                           |
|                                                 |                                       |                                     |            |                                                                                                           |
|                                                 |                                       |                                     | EVALUATION |                                                                                                           |
| Domain                                          |                                       | Metric                              | Rating     | Comments                                                                                                  |
| Domain 1: Substance                             |                                       |                                     |            |                                                                                                           |
|                                                 | Metric 1:                             | Representativeness                  | High       | Data are measured or estimated for the subject chemical substance.                                        |
|                                                 | Metric 2:                             | Appropriateness                     | High       | Measured data are consistent with the subject chemical substance structural features or                   |
|                                                 |                                       |                                     | 0          | other physical/chemical properties or behaviors.                                                          |
|                                                 |                                       |                                     |            |                                                                                                           |
| Domain 2: Test Reliabili                        | ty                                    |                                     |            |                                                                                                           |
|                                                 | Metric 3:                             | Reliability/Unbiased                | N/A        | Rating of this factor is not applicable to this kind of information.                                      |
|                                                 |                                       | (Method Objectivity)                |            |                                                                                                           |
|                                                 | Metric 4:                             | Reliability/Analytical Method       | Medium     | The analytical method is unknown but is likely to be appropriate based on the data's                      |
|                                                 |                                       |                                     |            | inclusion in a peer-reviewed/recognized database or other secondary source.                               |
| Domain 2. Other                                 |                                       |                                     |            |                                                                                                           |
| Domain 5: Other                                 | Matria 5.                             | Detahagaa                           | Madium     | The data are former a second that is herein hat is missive allowed as mained for this h                   |
|                                                 | wettic 5:                             | Databases                           | Weatum     | designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                                                 | Metric 6:                             | Models                              | N/A        | Rating of this factor is not applicable to this kind of information.                                      |
|                                                 |                                       |                                     |            | - **                                                                                                      |
| <b>Overall Qualit</b>                           | y Determina                           | ation                               | Medium     |                                                                                                           |

\* Related References: Secondary source referencing: Sax, NI; Lewis, RJ, Sr. (1987) Hawley's condensed chemical dictionary, 11th ed. New York, NY: Van Nostrand Reinhold, p. 177.

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| Study Citation:<br>OECD Harmonized   | U.S. EPA, (2019<br>Water Solubility | ). Chemistry Dashboard Information fo                 | or 1,3-Butadiene. | 106-99-0                                                                                 |
|--------------------------------------|-------------------------------------|-------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------|
| HERO ID:                             | 5926160                             |                                                       |                   |                                                                                          |
|                                      |                                     |                                                       | EXTRACTIO         | N                                                                                        |
| Parameter                            |                                     | Data                                                  |                   |                                                                                          |
|                                      |                                     |                                                       |                   |                                                                                          |
| Water Solubility                     |                                     | 735 mg/L                                              |                   |                                                                                          |
| CASRN and Test Material              |                                     | 106-99-0; 1,3-Butadiene                               |                   |                                                                                          |
| Confidentiality, Type, and C         | Guideline                           | None; Experimental; Not reported                      |                   |                                                                                          |
| Solvent, Reactivity, Storage         | e, and Stability                    | NR; NR; NR; NR                                        |                   |                                                                                          |
| Radiolabel, Source, State, a         | nd Purity                           | NR; NR; NR; NR                                        |                   |                                                                                          |
| Temperature                          |                                     | Not Reported                                          |                   |                                                                                          |
| System                               |                                     | Not Reported                                          |                   |                                                                                          |
| pH                                   |                                     | Not reported                                          |                   |                                                                                          |
| Results Details Method               |                                     | Not Reported                                          |                   |                                                                                          |
| Standard Deviation Results           |                                     | Not Reported                                          |                   |                                                                                          |
| Results Details                      |                                     | Reported as 1.36E-2 mol/L                             |                   |                                                                                          |
|                                      |                                     |                                                       | EVALUATIO         | N                                                                                        |
| Domain                               |                                     | Metric                                                | Rating            | Comments                                                                                 |
| Domain 1: Substance                  |                                     |                                                       |                   |                                                                                          |
|                                      | Metric 1:                           | Representativeness                                    | High              | Data are measured or estimated for the subject chemical substance.                       |
|                                      | Metric 2:                           | Appropriateness                                       | High              | Measured data are consistent with the subject chemical's physical/chemical properties.   |
|                                      |                                     |                                                       |                   |                                                                                          |
| Domain 2: Test Reliabili             | Ity                                 |                                                       | Mallin            |                                                                                          |
|                                      | Metric 3:                           | (Mathad Objectivity)                                  | Medium            | I here is no indication that the methodology for producing the information was biased    |
|                                      | Metric 4.                           | (Method Objectivity)<br>Reliability/Analytical Method | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-  |
|                                      | Methe 1.                            | Rendonity// mary tear method                          | Weddulli          | sion in a peer-reviewed/recognized database or other secondary source.                   |
| Domain 3: Other                      |                                     |                                                       |                   |                                                                                          |
|                                      | Metric 5:                           | Databases                                             | High              | Data is from a publicly available database that provides references to original sources. |
|                                      | Metric 6:                           | Models                                                | N/A               | Rating of this factor is not applicable to this kind of information.                     |
| <b>Overall Quality Determination</b> |                                     | High                                                  |                   |                                                                                          |

\* Related References: PhysProp. McAuliffe, C 1966

| Study Citation:              | California Office                  | California Office of Environmental Health Hazard Assessment :: OEHHA (2014). Appendix D: Individual acute, 8-hour, and chronic reference exposure |                   |                                                                                                                                                                                                                                            |  |  |
|------------------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| OECD Harmonized              | level summaries.<br>Flash Point    |                                                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |
| Template:                    |                                    |                                                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |
| HERO ID:                     | 5155603                            |                                                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |
|                              | EXTRACTION                         |                                                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |
| Parameter                    |                                    | Data                                                                                                                                              |                   |                                                                                                                                                                                                                                            |  |  |
|                              |                                    |                                                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |
| Flash Point                  |                                    | -76 C                                                                                                                                             |                   |                                                                                                                                                                                                                                            |  |  |
| CASRN and Test Material      |                                    | 106-99-0; 1,3-butadiene                                                                                                                           |                   |                                                                                                                                                                                                                                            |  |  |
| Confidentiality, Type, and C | Guideline                          | No; Not specified; Not Reported                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |
| Solvent, Reactivity, Storage | e, and Stability                   | Not Reported; Not Reported; Not Repor                                                                                                             | ted; Not Reported |                                                                                                                                                                                                                                            |  |  |
| Radiolabel, Source, State, a | nd Purity                          | Not Reported; Not Reported; Not Repor                                                                                                             | ted; Not Reported |                                                                                                                                                                                                                                            |  |  |
| System                       |                                    | Not Reported                                                                                                                                      |                   |                                                                                                                                                                                                                                            |  |  |
| Standard Deviation Results   |                                    | Not Reported                                                                                                                                      |                   |                                                                                                                                                                                                                                            |  |  |
| Results Details              |                                    | Not Reported                                                                                                                                      |                   |                                                                                                                                                                                                                                            |  |  |
|                              |                                    |                                                                                                                                                   | FVAL HATIO        | N                                                                                                                                                                                                                                          |  |  |
| Domain                       |                                    | Metric                                                                                                                                            | Rating            | Comments                                                                                                                                                                                                                                   |  |  |
| Domain 1: Substance          |                                    |                                                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |
|                              | Metric 1:                          | Representativeness                                                                                                                                | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                         |  |  |
|                              | Metric 2:                          | Appropriateness                                                                                                                                   | High              | Measured data are consistent with the subject chemical substance structural features                                                                                                                                                       |  |  |
|                              |                                    |                                                                                                                                                   | C C               | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                                                                                                 |  |  |
|                              |                                    |                                                                                                                                                   |                   | if the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors                                                                      |  |  |
|                              |                                    |                                                                                                                                                   |                   | below 25 C and a boning point above 25 C) of benaviors.                                                                                                                                                                                    |  |  |
| Domain 2: Test Reliabili     | ity                                |                                                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |
|                              | Metric 3:                          | Reliability/Unbiased                                                                                                                              | Medium            | There is no indication that the methodology for producing the information was biased                                                                                                                                                       |  |  |
|                              |                                    | (Method Objectivity)                                                                                                                              |                   | towards a particular product or outcome.                                                                                                                                                                                                   |  |  |
|                              | Metric 4:                          | Reliability/Analytical Method                                                                                                                     | Medium            | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.                                                                           |  |  |
|                              |                                    |                                                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |
| Domain 3: Other              | M                                  |                                                                                                                                                   | TT' 1             |                                                                                                                                                                                                                                            |  |  |
|                              | Metric 5:                          | Databases                                                                                                                                         | High              | The information or data is from a recognized data collection/repository where data are<br>peer-reviewed by experts in the field, are broadly available to the public for review and<br>use OR includes references to the original sources. |  |  |
|                              | Metric 6:                          | Models                                                                                                                                            | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                       |  |  |
| Overall Qualit               | Overall Quality Determination High |                                                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |
| Storan Zuant                 |                                    |                                                                                                                                                   |                   |                                                                                                                                                                                                                                            |  |  |

\* Related References: No source cited; extracted gray lit

1,3-Butadiene

| Study Citation:<br>OECD Harmonized                                                                                                                                                                | Coleman, R. S.,<br>Flash Point             | Alegria, H. A. (2001). 1,3-Butadiene.                                                                                                                                                                      | 1-4.                                      |                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:                                                                                                                                                                             | 9493522                                    |                                                                                                                                                                                                            |                                           |                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                   |                                            |                                                                                                                                                                                                            | EXTRACTIO                                 | N                                                                                                                                                                                                                                                                                                                  |
| Parameter                                                                                                                                                                                         |                                            | Data                                                                                                                                                                                                       |                                           |                                                                                                                                                                                                                                                                                                                    |
| Flash Point<br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>System<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>nd Purity | < -7 - C<br>106-99-0; Not Reported<br>no; not specified; Not Reported<br>Not Reported; Not Reported; Not Repor<br>Not Reported; Not Reported; Not Reported<br>Not Reported<br>Not Reported<br>Not Reported | orted; Not Reported<br>rted; Not Reported |                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                   |                                            | L                                                                                                                                                                                                          |                                           |                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                   |                                            |                                                                                                                                                                                                            | EVALUATIO                                 | N                                                                                                                                                                                                                                                                                                                  |
| Domain                                                                                                                                                                                            |                                            | Metric                                                                                                                                                                                                     | Rating                                    | Comments                                                                                                                                                                                                                                                                                                           |
| Domain 1: Substance                                                                                                                                                                               | Matria 1.                                  | <b>D</b> oprocentativeness                                                                                                                                                                                 | Uiah                                      | Data are manying an actimated for the subject chamical substance                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                   | Metric 2:                                  | Appropriateness                                                                                                                                                                                            | High                                      | Measured data are consistent with the subject chemical substance.<br>(e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2: Taat Paliabil                                                                                                                                                                           | <b>1 1 1</b>                               |                                                                                                                                                                                                            |                                           |                                                                                                                                                                                                                                                                                                                    |
| Domain 2. Test Kenaon                                                                                                                                                                             | Metric 3:                                  | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                               | Medium                                    | There is no indication that the methodology for producing the information was biased towards a particular product or outcome                                                                                                                                                                                       |
|                                                                                                                                                                                                   | Metric 4:                                  | Reliability/Analytical Method                                                                                                                                                                              | Medium                                    | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                |
| Domain 2: Other                                                                                                                                                                                   |                                            |                                                                                                                                                                                                            |                                           |                                                                                                                                                                                                                                                                                                                    |
| Domain 5: Other                                                                                                                                                                                   | Metric 5:                                  | Databases                                                                                                                                                                                                  | Medium                                    | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources.                                                                                                                       |
|                                                                                                                                                                                                   | Metric 6:                                  | Models                                                                                                                                                                                                     | N/A                                       | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                               |
| Overall Qualit                                                                                                                                                                                    | y Determi                                  | nation                                                                                                                                                                                                     | High                                      |                                                                                                                                                                                                                                                                                                                    |

\* Related References: no references cited

1,3-Butadiene

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ECB, (2002). Eu<br>Flash Point | ropean Union risk assessment report: 1       | ,3-butadiene.     |                                                                                                                                                                                                                                     |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Template:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                |                                              |                   |                                                                                                                                                                                                                                     |  |  |
| HERO ID:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5155560                        |                                              |                   |                                                                                                                                                                                                                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | EXTRACTION                     |                                              |                   |                                                                                                                                                                                                                                     |  |  |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                | Data                                         |                   |                                                                                                                                                                                                                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                              |                   |                                                                                                                                                                                                                                     |  |  |
| Flash Point                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                | -85 - C                                      |                   |                                                                                                                                                                                                                                     |  |  |
| CASRN and Test Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                | 106-99-0; 1,3-Butadiene                      |                   |                                                                                                                                                                                                                                     |  |  |
| Confidentiality, Type, and Confidentiality, and | Guideline                      | no; experimental; Not Reported               |                   |                                                                                                                                                                                                                                     |  |  |
| Solvent, Reactivity, Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | e, and Stability               | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                                                                                                     |  |  |
| Radiolabel, Source, State, a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | and Purity                     | Not Reported; Not Reported; Not Repor        | ted; Not Reported |                                                                                                                                                                                                                                     |  |  |
| System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                | Closed Cup                                   |                   |                                                                                                                                                                                                                                     |  |  |
| Standard Deviation Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5                              | Not Reported                                 |                   |                                                                                                                                                                                                                                     |  |  |
| Results Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                | DIN 51755, Sax and Lewis, 1987               |                   |                                                                                                                                                                                                                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                              | EVALUATIO         |                                                                                                                                                                                                                                     |  |  |
| Domain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                | Metric                                       | Rating            | Comments                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                | incure                                       | Tutting           | Comments                                                                                                                                                                                                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 1:                      | Representativeness                           | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 2:                      | Appropriateness                              | Medium            | Data measured for a structural analogue of the subject chemical substance are consistent                                                                                                                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                              |                   | with what is expected for the subject chemical substance structural properties, features or behaviors.                                                                                                                              |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                              |                   |                                                                                                                                                                                                                                     |  |  |
| Domain 2: Test Reliabil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ity                            |                                              |                   |                                                                                                                                                                                                                                     |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 3:                      | Reliability/Unbiased<br>(Method Objectivity) | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 4:                      | Reliability/Analytical Method                | High              | Data are obtained by accepted standard analytical methods, including, but not limited to OECD guidelines for physical-chemical properties or other developed standard.                                                              |  |  |
| Domain 3: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                              |                   |                                                                                                                                                                                                                                     |  |  |
| Domain 5. Ould                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 5:                      | Databases                                    | High              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Metric 6:                      | Models                                       | N/A               | Rating of this factor is not applicable to this kind of information                                                                                                                                                                 |  |  |
| <b>Overall Qualit</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ty Determir                    | nation                                       | High              |                                                                                                                                                                                                                                     |  |  |

\* Related References: Sax NI, Lewis RJ (1987). Hawley's Condensed Chemical Dictionary 11th Edition. Van Norstrand Reinhold Co. New York. (HERO ID: 1061025)

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | Grub, J., Löser,<br>Flash Point | E. (2011). Butadiene. :381-396.              |                    |                                                                                                                                                                                                                                                                           |
|------------------------------------|---------------------------------|----------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                 |                                              |                    |                                                                                                                                                                                                                                                                           |
| HERO ID:                           | 9493526                         |                                              |                    |                                                                                                                                                                                                                                                                           |
|                                    |                                 |                                              | EXTRACTIO          | N                                                                                                                                                                                                                                                                         |
| Parameter                          |                                 | Data                                         |                    |                                                                                                                                                                                                                                                                           |
|                                    |                                 |                                              |                    |                                                                                                                                                                                                                                                                           |
| Flash Point                        |                                 | -85 - C                                      |                    |                                                                                                                                                                                                                                                                           |
| CASRN and Test Material            |                                 | 106-99-0; 1,3-Butadiene                      |                    |                                                                                                                                                                                                                                                                           |
| Confidentiality, Type, and C       | Guideline                       | no; not specified; Not Reported              |                    |                                                                                                                                                                                                                                                                           |
| Solvent, Reactivity, Storage       | e, and Stability                | Not Reported; Not Reported; Not Report       | rted; Not Reported |                                                                                                                                                                                                                                                                           |
| Radiolabel, Source, State, a       | and Purity                      | Not Reported; Not Reported; Not Report       | rted; Not Reported |                                                                                                                                                                                                                                                                           |
| System                             |                                 | Not Reported                                 |                    |                                                                                                                                                                                                                                                                           |
| Standard Deviation Results         |                                 | Not Reported                                 |                    |                                                                                                                                                                                                                                                                           |
| Results Details                    |                                 | Not Reported                                 |                    |                                                                                                                                                                                                                                                                           |
|                                    |                                 |                                              |                    |                                                                                                                                                                                                                                                                           |
|                                    |                                 |                                              | EVALUATIO          | N                                                                                                                                                                                                                                                                         |
| Domain                             |                                 | Metric                                       | Rating             | Comments                                                                                                                                                                                                                                                                  |
| Domain 1: Substance                |                                 |                                              |                    |                                                                                                                                                                                                                                                                           |
|                                    | Metric 1:                       | Representativeness                           | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                        |
|                                    | Metric 2:                       | Appropriateness                              | High               | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point |
|                                    |                                 |                                              |                    | below 25°C and a boiling point above 25°C) or behaviors.                                                                                                                                                                                                                  |
| Domain 2: Test Reliabil            | ity                             |                                              |                    |                                                                                                                                                                                                                                                                           |
|                                    | Metric 3:                       | Reliability/Unbiased<br>(Method Objectivity) | Medium             | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                             |
|                                    | Metric 4:                       | Reliability/Analytical Method                | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                       |
| Domain 2. Other                    |                                 |                                              |                    |                                                                                                                                                                                                                                                                           |
| Domain 5: Other                    | Matric 5:                       | Databases                                    | High               | The information or date is from a recognized date collection/repository where date are                                                                                                                                                                                    |
|                                    | wieu ie 3.                      | DataUases                                    | rugii              | peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                                                             |
|                                    | Metric 6:                       | Models                                       | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                      |
| <b>Overall Qualit</b>              | ty Determi                      | nation                                       | High               |                                                                                                                                                                                                                                                                           |

\* Related References: K€uhn, Birett: Merkblatter Gef € ahrliche Arbeitsstoffe € ,107. Erg.-Lfg. 5/98 – B 059-1.

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | Kerns, M., Henn<br>Flash Point | ning, S., Rachita, M. (2002). Butadiene | polymers. :317-35   | 56.                                                                                                                                                                                                                                                                                                                                |  |  |
|------------------------------------|--------------------------------|-----------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                           | 9493542                        |                                         |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    | EXTRACTION                     |                                         |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Parameter                          |                                | Data                                    |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    |                                |                                         |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Flash Point                        |                                | -76.1 - C                               |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
| CASRN and Test Material            |                                | 109-66-0; 1,3-Butadiene                 |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Confidentiality, Type, and         | Guideline                      | no; not specified; Not Reported         |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Solvent, Reactivity, Storage       | e, and Stability               | Not Reported; Not Reported; Not Repo    | orted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Radiolabel, Source, State, a       | and Purity                     | Not Reported; Not Reported; Not Repo    | orted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |  |
| System                             |                                | Not Reported                            |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Standard Deviation Results         |                                | Not Reported                            |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Results Details                    |                                | Not Reported                            |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    |                                |                                         | EVALUATIO           | Ň                                                                                                                                                                                                                                                                                                                                  |  |  |
| Domain                             |                                | Metric                                  | Rating              | Comments                                                                                                                                                                                                                                                                                                                           |  |  |
| Domain 1: Substance                |                                |                                         |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    | Metric 1:                      | Representativeness                      | High                | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |  |  |
|                                    | Metric 2:                      | Appropriateness                         | High                | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |  |  |
| D                                  | ·                              |                                         |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Domain 2: Test Keliabil            | Ily<br>Metric 3:               | Reliability/Unbiased                    | Madium              | There is no indication that the methodology for producing the information was biased                                                                                                                                                                                                                                               |  |  |
|                                    | Metric 5.                      | (Method Objectivity)                    | Wedium              | towards a particular product or outcome.                                                                                                                                                                                                                                                                                           |  |  |
|                                    | Metric 4:                      | Reliability/Analytical Method           | Medium              | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |  |  |
| Domain 3: Other                    |                                |                                         |                     |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Domain 5. Other                    | Metric 5:                      | Databases                               | High                | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |  |  |
|                                    | Metric 6:                      | Models                                  | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |  |  |
| <b>Overall Qualit</b>              | ty Determi                     | nation                                  | High                |                                                                                                                                                                                                                                                                                                                                    |  |  |

\* Related References: cited from R. W. Gallant, Hydrocarbon Process. Pet. Refiner 44(10), 151 (1965).

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | NIOSH, (2007).<br>Flash Point | NIOSH pocket guide to chemical haz | ards.     |                                                                                                                                                                                              |
|------------------------------------|-------------------------------|------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                               |                                    |           |                                                                                                                                                                                              |
| HERO ID:                           | 192177                        |                                    |           |                                                                                                                                                                                              |
|                                    |                               |                                    | EXTRACTIO | N                                                                                                                                                                                            |
| Parameter                          |                               | Data                               |           |                                                                                                                                                                                              |
|                                    |                               |                                    |           |                                                                                                                                                                                              |
| Flash Point                        |                               | -105 - F                           |           |                                                                                                                                                                                              |
| CASRN and Test Material            |                               | 106-99-0; 1,3-Butadiene            |           |                                                                                                                                                                                              |
| Confidentiality, Type, and C       | Guideline                     | None; Experimental; closed cup     |           |                                                                                                                                                                                              |
| Solvent, Reactivity, Storage       | e, and Stability              | NR; NR; NR; NR                     |           |                                                                                                                                                                                              |
| Radiolabel, Source, State, a       | and Purity                    | NR; NR; Liquid; NR Notes: NR       |           |                                                                                                                                                                                              |
| System                             |                               | closed cup                         |           |                                                                                                                                                                                              |
| Standard Deviation Results         |                               | NR                                 |           |                                                                                                                                                                                              |
| Results Details                    |                               | NR                                 |           |                                                                                                                                                                                              |
|                                    |                               |                                    |           |                                                                                                                                                                                              |
|                                    |                               |                                    | EVALUATIO | N                                                                                                                                                                                            |
| Domain                             |                               | Metric                             | Rating    | Comments                                                                                                                                                                                     |
| Domain 1: Substance                |                               |                                    |           |                                                                                                                                                                                              |
|                                    | Metric 1:                     | Representativeness                 | High      | Data are measured or estimated for the subject chemical substance.                                                                                                                           |
|                                    | Metric 2:                     | Appropriateness                    | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| Domain 2: Test Reliabil            | ity                           |                                    |           |                                                                                                                                                                                              |
|                                    | Metric 3:                     | Reliability/Unbiased               | High      | The methodology for producing the information is designed to answer a specific ques-                                                                                                         |
|                                    |                               | (Method Objectivity)               |           | tion, and the methodology's objective is clear.                                                                                                                                              |
|                                    | Metric 4:                     | Reliability/Analytical Method      | Medium    | Analytical method likely to be appropriate based on the data's inclusion in a peer-<br>reviewed/recognized database or other secondary source.                                               |
| Domain 3. Other                    |                               |                                    |           |                                                                                                                                                                                              |
| Domain 5. Outer                    | Metric 5:                     | Databases                          | Medium    | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                                    | Metric 6:                     | Models                             | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| <b>Overall Qualit</b>              | y Determi                     | nation                             | High      |                                                                                                                                                                                              |

| Study Citation:<br>OECD Harmonized | NIOSH, (1992). (<br>Flash Point | Occupational safety and health guideli | ne for butadiene ( | 1,3-butadiene).                                                                                                                                                                                                                                                                                                                    |  |  |
|------------------------------------|---------------------------------|----------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Template:                          |                                 |                                        |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| HERO ID:                           | 8408503                         |                                        |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    | EXTRACTION                      |                                        |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Parameter                          |                                 | Data                                   |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    |                                 |                                        |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Flash Point                        |                                 | -156 - F                               |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| CASRN and Test Material            |                                 | 106-99-0; 1,3-Butadiene                |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Confidentiality, Type, and C       | Guideline                       | no; not specified; Not Reported        |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                | Not Reported; Not Reported; Not Repo   | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Radiolabel, Source, State, a       | nd Purity                       | Not Reported; Not Reported; Not Repo   | rted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |  |  |
| System                             |                                 | Not Reported                           |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Standard Deviation Results         |                                 | Not Reported                           |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Results Details                    |                                 | also report 105 C                      |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    |                                 |                                        |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    |                                 |                                        | EVALUATIO          | Ň                                                                                                                                                                                                                                                                                                                                  |  |  |
| Domain                             |                                 | Metric                                 | Rating             | Comments                                                                                                                                                                                                                                                                                                                           |  |  |
| Domain 1: Substance                |                                 | D                                      |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                    | Metric 1:                       | Representativeness                     | High               | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |  |  |
|                                    | Metric 2:                       | Appropriateness                        | High               | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |  |  |
| Domain 2. Tost Dalishil            | ·                               |                                        |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Domain 2: Test Kellabil            | Metric 3.                       | Reliability/Unbiased                   | Medium             | There is no indication that the methodology for producing the information was biased                                                                                                                                                                                                                                               |  |  |
|                                    | Methe 5.                        | (Method Objectivity)                   | Weddulli           | towards a particular product or outcome.                                                                                                                                                                                                                                                                                           |  |  |
|                                    | Metric 4:                       | Reliability/Analytical Method          | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |  |  |
| Demain 2. Out                      |                                 |                                        |                    |                                                                                                                                                                                                                                                                                                                                    |  |  |
| Domain 3: Other                    | Metric 5:                       | Databases                              | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |  |  |
|                                    | Metric 6:                       | Models                                 | N/A                | Rating of this factor is not applicable to this kind of information                                                                                                                                                                                                                                                                |  |  |
| Overall Qualit                     | y Determin                      | ation                                  | High               |                                                                                                                                                                                                                                                                                                                                    |  |  |

\* Related References: no references cited

| Study Citation:<br>OECD Harmonized | RSC, (2019). C<br>Flash Point | hemSpider: 1,3-Butadiene.             |           |                                                                                                                                                                  |
|------------------------------------|-------------------------------|---------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                               |                                       |           |                                                                                                                                                                  |
| HERO ID:                           | 5926255                       |                                       |           |                                                                                                                                                                  |
|                                    |                               |                                       | EXTRACTIO | N                                                                                                                                                                |
| Parameter                          |                               | Data                                  |           |                                                                                                                                                                  |
|                                    |                               |                                       |           |                                                                                                                                                                  |
| Flash Point                        |                               | -76.111 C                             |           |                                                                                                                                                                  |
| CASRN and Test Material            |                               | 106-99-0; 1,3-Butadiene               |           |                                                                                                                                                                  |
| Confidentiality, Type, and C       | Guideline                     | None; Experimental; Not reported      |           |                                                                                                                                                                  |
| Solvent, Reactivity, Storage       | e, and Stability              | NR; NR; NR; NR                        |           |                                                                                                                                                                  |
| Radiolabel, Source, State, a       | und Purity                    | NR; NR; NR; NR                        |           |                                                                                                                                                                  |
| System                             |                               | Not Reported                          |           |                                                                                                                                                                  |
| Standard Deviation Results         |                               | Not reported                          |           |                                                                                                                                                                  |
| Results Details                    |                               | -105°F (-76.1111°C) (Gas, Liquid, Non | e)        |                                                                                                                                                                  |
|                                    |                               |                                       |           |                                                                                                                                                                  |
|                                    |                               |                                       | EVALUATIO | N                                                                                                                                                                |
| Domain                             |                               | Metric                                | Rating    | Comments                                                                                                                                                         |
| Domain 1: Substance                |                               |                                       |           |                                                                                                                                                                  |
|                                    | Metric 1:                     | Representativeness                    | High      | Data are measured or estimated for the subject chemical substance.                                                                                               |
|                                    | Metric 2:                     | Appropriateness                       | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                             |
| Domain 2: Test Reliabil            | itv                           |                                       |           |                                                                                                                                                                  |
|                                    | Metric 3:                     | Reliability/Unbiased                  | Medium    | There is no indication that the methodology for producing the information was biased                                                                             |
|                                    |                               | (Method Objectivity)                  |           | towards a particular product or outcome.                                                                                                                         |
|                                    | Metric 4:                     | Reliability/Analytical Method         | Medium    | The analytical method is unknown but is likely to be appropriate based on the data's inclusion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |                               |                                       |           |                                                                                                                                                                  |
| Domain 5. Outer                    | Metric 5:                     | Databases                             | High      | Data is from a publicly available database that provides references to the original, peer-<br>reviewed source.                                                   |
|                                    | Metric 6:                     | Models                                | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                             |
| Overall Qualit                     | y Determi                     | nation                                | High      |                                                                                                                                                                  |

\* Related References: NIOSH

| Study Citation:<br>OECD Harmonized | RSC, (2019).<br>Flash Point | ChemSpider: 1,3-Butadiene.       |            |                                                                                              |
|------------------------------------|-----------------------------|----------------------------------|------------|----------------------------------------------------------------------------------------------|
| Template:                          |                             |                                  |            |                                                                                              |
| HERO ID:                           | 5926255                     |                                  |            |                                                                                              |
|                                    |                             |                                  | EXTRACTION |                                                                                              |
| Parameter                          |                             | Data                             |            |                                                                                              |
| Flack Doint                        |                             | 76.0                             |            |                                                                                              |
| CASPN and Test Material            |                             | -70 C                            |            |                                                                                              |
| Confidentiality Type and           | Zuidalina                   | None: Experimental: Not reported |            |                                                                                              |
| Solvent Reactivity Storage         | and Stability               | ND. ND. ND. ND                   |            |                                                                                              |
| Radiolabel Source State            | and Purity                  | NR · NR · NR · NR                |            |                                                                                              |
| System                             | ind I unity                 | Not Reported                     |            |                                                                                              |
| Standard Deviation Results         |                             | Not reported                     |            |                                                                                              |
| Results Details                    |                             | Not Reported                     |            |                                                                                              |
|                                    |                             |                                  |            |                                                                                              |
|                                    |                             |                                  | EVALUATION |                                                                                              |
| Domain                             |                             | Metric                           | Rating     | Comments                                                                                     |
| Domain 1: Substance                |                             |                                  |            |                                                                                              |
|                                    | Metric 1:                   | Representativeness               | High       | Data are measured or estimated for the subject chemical substance.                           |
|                                    | Metric 2:                   | Appropriateness                  | N/A        | Rating of this factor is not applicable to this kind of information.                         |
| Domain 2: Test Reliabil            | itv                         |                                  |            |                                                                                              |
|                                    | Metric 3:                   | Reliability/Unbiased             | Medium     | There is no indication that the methodology for producing the information was biased         |
|                                    |                             | (Method Objectivity)             |            | towards a particular product or outcome.                                                     |
|                                    | Metric 4:                   | Reliability/Analytical Method    | Low        | The analytical method is unknown and there is no indication that a reliable method was used. |
| Domain 3: Other                    |                             |                                  |            |                                                                                              |
| Domain 5. Outer                    | Metric 5                    | Databases                        | Medium     | Data is from a publicly available secondary source with references to non-neer reviewed      |
|                                    | metric J.                   | Dutubuses                        | wiedrum    | sources.                                                                                     |
|                                    | Metric 6:                   | Models                           | N/A        | Rating of this factor is not applicable to this kind of information.                         |
| Overall Oneli                      | v Dotorm                    | ination                          | Modium     |                                                                                              |
|                                    | y Determ                    | manon                            | Ivicululli |                                                                                              |

\* Related References: Oxford University Chemical Safety Data

| Study Citation:<br>OECD Harmonized | RSC, (2019). C<br>Flash Point                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ChemSpider: 1,3-Butadiene.                   |            |                                                                                                                               |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                              |            |                                                                                                                               |
| HERO ID:                           | 5926255                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                              |            |                                                                                                                               |
|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                              | EXTRACTION |                                                                                                                               |
| Parameter                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Data                                         |            |                                                                                                                               |
| Elach Doint                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 76.0                                         |            |                                                                                                                               |
| CASEN and Test Material            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -70 C<br>106-99-0: 1 3-Butadiene             |            |                                                                                                                               |
| Confidentiality Type and (         | Guideline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | None: Experimental: Not reported             |            |                                                                                                                               |
| Solvent Reactivity Storage         | e and Stability                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | NR: NR: NR: NR                               |            |                                                                                                                               |
| Radiolabel, Source, State, a       | and Purity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | NR: NR: NR: NR                               |            |                                                                                                                               |
| System                             | , and the second s | Not Reported                                 |            |                                                                                                                               |
| Standard Deviation Results         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Not reported                                 |            |                                                                                                                               |
| Results Details                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Not Reported                                 |            |                                                                                                                               |
|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                              |            |                                                                                                                               |
|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                              | EVALUATION |                                                                                                                               |
| Domain                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Metric                                       | Rating     | Comments                                                                                                                      |
| Domain 1: Substance                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                              |            |                                                                                                                               |
|                                    | Metric 1:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Representativeness                           | High       | Data are measured or estimated for the subject chemical substance.                                                            |
|                                    | Metric 2:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Appropriateness                              | N/A        | Rating of this factor is not applicable to this kind of information.                                                          |
| Domain 2: Test Reliabil            | ity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                              |            |                                                                                                                               |
|                                    | Metric 3:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Reliability/Unbiased<br>(Method Objectivity) | Medium     | There is no indication that the methodology for producing the information was biased towards a particular product or outcome. |
|                                    | Metric 4:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Reliability/Analytical Method                | Low        | The analytical method is unknown and there is no indication that a reliable method was used.                                  |
| Domain 3: Other                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                              |            |                                                                                                                               |
| Domain 5. Outer                    | Metric 5:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Databases                                    | Medium     | Data is from a publicly available secondary source with references to non-peer reviewed                                       |
|                                    | Metric 6:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Models                                       | N/A        | sources.<br>Rating of this factor is not applicable to this kind of information.                                              |
|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                              |            | C 11                                                                                                                          |
| Overall Qualit                     | t <mark>y Determ</mark> i                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ination                                      | Medium     |                                                                                                                               |

\* Related References: SynQuest

| Study Citation:<br>OECD Harmonized   | RSC, (2019).<br>Flash Point | ChemSpider: 1,3-Butadiene.       |            |                                                                                                                              |
|--------------------------------------|-----------------------------|----------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------|
| Template:                            |                             |                                  |            |                                                                                                                              |
| HERO ID:                             | 5926255                     |                                  |            |                                                                                                                              |
|                                      |                             |                                  | EXTRACTION |                                                                                                                              |
| Parameter                            |                             | Data                             |            |                                                                                                                              |
|                                      |                             |                                  |            |                                                                                                                              |
| Flash Point                          |                             | -75 C                            |            |                                                                                                                              |
| CASRN and Test Material              | ~                           | 106-99-0; 1,3-Butadiene          |            |                                                                                                                              |
| Confidentiality, Type, and C         |                             | None; Experimental; Not reported |            |                                                                                                                              |
| Solvent, Reactivity, Storage         | e, and Stability            | NK; NK; NK; NK                   |            |                                                                                                                              |
| Kadiolabel, Source, State, a         | and Purity                  | NK; NK; NK; NK                   |            |                                                                                                                              |
| System<br>Standard Doviation Basults |                             | Not reported                     |            |                                                                                                                              |
| Results Details                      |                             | Not Reported                     |            |                                                                                                                              |
| Results Details                      |                             | Not Reported                     |            |                                                                                                                              |
|                                      |                             |                                  | EVALUATION |                                                                                                                              |
| Domain                               |                             | Metric                           | Rating     | Comments                                                                                                                     |
| Domain 1: Substance                  |                             |                                  |            |                                                                                                                              |
|                                      | Metric 1:                   | Representativeness               | High       | Data are measured or estimated for the subject chemical substance.                                                           |
|                                      | Metric 2:                   | Appropriateness                  | N/A        | Rating of this factor is not applicable to this kind of information.                                                         |
| Domain 2: Test Reliabil              | itv                         |                                  |            |                                                                                                                              |
|                                      | Metric 3:                   | Reliability/Unbiased             | Medium     | There is no indication that the methodology for producing the information was biased towards a particular product or outcome |
|                                      | Metric 4:                   | Reliability/Analytical Method    | Low        | The analytical method is unknown and there is no indication that a reliable method was                                       |
|                                      |                             |                                  |            | used.                                                                                                                        |
| Domain 3: Other                      |                             |                                  |            |                                                                                                                              |
|                                      | Metric 5:                   | Databases                        | High       | Data is from a publicly available database that provides references to the original, peer-<br>reviewed source.               |
|                                      | Metric 6:                   | Models                           | N/A        | Rating of this factor is not applicable to this kind of information.                                                         |
| <b>Overall Qualit</b>                | ty Determ                   | ination                          | Medium     |                                                                                                                              |

\* Related References: Sigma-Aldrich

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | U.S. EPA, (2002<br>Flash Point | 2). Health assessment of 1,3-butadiene. |            |                                                                                                                                                                                              |
|------------------------------------|--------------------------------|-----------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                |                                         |            |                                                                                                                                                                                              |
| HERO ID:                           | 52153                          |                                         |            |                                                                                                                                                                                              |
|                                    |                                |                                         | EXTRACTION |                                                                                                                                                                                              |
| Parameter                          |                                | Data                                    |            |                                                                                                                                                                                              |
| Elash Daint                        |                                | 76.0                                    |            |                                                                                                                                                                                              |
| CASPN and Test Material            |                                | -70 C 106 00 0: 1.3 but a diene         |            |                                                                                                                                                                                              |
| Confidentiality Type and           | Guideline                      | none: not specified: NA                 |            |                                                                                                                                                                                              |
| Solvent Reactivity Storage         | and Stability                  | NA· NA· NA· NA                          |            |                                                                                                                                                                                              |
| Radiolabel Source State            | and Purity                     | NA: NA: gas: NA                         |            |                                                                                                                                                                                              |
| System                             |                                | NA                                      |            |                                                                                                                                                                                              |
| Standard Deviation Results         | 5                              | NA                                      |            |                                                                                                                                                                                              |
| Results Details                    |                                | Not Reported                            |            |                                                                                                                                                                                              |
|                                    |                                | L                                       |            |                                                                                                                                                                                              |
|                                    |                                |                                         | EVALUATION |                                                                                                                                                                                              |
| Domain                             |                                | Metric                                  | Rating     | Comments                                                                                                                                                                                     |
| Domain 1: Substance                |                                |                                         |            |                                                                                                                                                                                              |
|                                    | Metric 1:                      | Representativeness                      | High       | Data are measured or estimated for the subject chemical substance.                                                                                                                           |
|                                    | Metric 2:                      | Appropriateness                         | High       | Measured data are consistent with the subject chemical substance structural features or other physical/chemical properties or behaviors.                                                     |
| Domain 2: Test Reliabil            | itv                            |                                         |            |                                                                                                                                                                                              |
|                                    | Metric 3:                      | Reliability/Unbiased                    | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
|                                    |                                | (Method Objectivity)                    |            |                                                                                                                                                                                              |
|                                    | Metric 4:                      | Reliability/Analytical Method           | Low        | The analytical method is unknown and there is no indication that a reliable method was used.                                                                                                 |
| Domain 2: Other                    |                                |                                         |            |                                                                                                                                                                                              |
| Domain 5. Outer                    | Metric 5:                      | Databases                               | Medium     | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |
|                                    | Metric 6:                      | Models                                  | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                                                         |
| Overall Qualit                     | ty Determi                     | nation                                  | Medium     |                                                                                                                                                                                              |

\* Related References: Secondary source referencing: Sax, NI; Lewis, RJ, Sr. (1987) Hawley's condensed chemical dictionary, 11th ed. New York, NY: Van Nostrand Reinhold, p. 177.

| Study Citation:<br>OECD Harmonized | U.S. EPA, (1990<br>Flash Point | 5). Locating and estimating air emission                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | is from sources of  | 1,3-butadiene.                                                                                                                                                                                                                                                                                                                     |
|------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:              | 6389860                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                                                                                                                                                                                                                    |
|                                    |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EXTRACTIO           | N                                                                                                                                                                                                                                                                                                                                  |
| Parameter                          |                                | Data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EATRACIIO           |                                                                                                                                                                                                                                                                                                                                    |
|                                    |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                                                                                                                                                                                                                    |
| Flash Point                        |                                | -105 - C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |                                                                                                                                                                                                                                                                                                                                    |
| CASRN and Test Material            |                                | 106-99-0; 1,3-butadiene                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                                                                                                                                                                                                                                                                                                                                    |
| Confidentiality, Type, and         | Guideline                      | no; not specified: Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                                                                                                                                                                                                                    |
| Solvent, Reactivity, Storage       | e, and Stability               | Not Reported; Not Reported; Not Repo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | rted; Not Reported  |                                                                                                                                                                                                                                                                                                                                    |
| Radiolabel, Source, State, a       | and Purity                     | Not Reported; No | orted; Not Reported |                                                                                                                                                                                                                                                                                                                                    |
| System                             |                                | Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                                                                                                                                                                                                                                                                                                                    |
| Standard Deviation Results         | 3                              | Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                                                                                                                                                                                                                                                                                                                    |
| Results Details                    |                                | Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                                                                                                                                                                                                                                                                                                                                    |
|                                    |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EVALUATIO           | N                                                                                                                                                                                                                                                                                                                                  |
| Domain                             |                                | Metric                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Rating              | Comments                                                                                                                                                                                                                                                                                                                           |
| Domain 1: Substance                |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <u> </u>            |                                                                                                                                                                                                                                                                                                                                    |
|                                    | Metric 1:                      | Representativeness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | High                | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                                                                                                 |
|                                    | Metric 2:                      | Appropriateness                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | High                | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties (e.g., if the physical state is described as a liquid, the substance should have a melting point below 25°C and a boiling point above 25°C) or behaviors. |
| Domain 2: Test Reliabil            | ity                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                                                                                                                                                                                                                    |
|                                    | Metric 3:                      | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Medium              | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                                                                                                      |
|                                    | Metric 4:                      | Reliability/Analytical Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Medium              | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source.                                                                                |
| Domain 3: Other                    |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                                                                                                                                                                                                                    |
| Domain 5. Outer                    | Metric 5:                      | Databases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | High                | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                                                                                               |
|                                    | Metric 6:                      | Models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                 | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                                                                                               |
| <b>Overall Qualit</b>              | ty Determi                     | nation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | High                |                                                                                                                                                                                                                                                                                                                                    |

\* Related References: source vaguely references both Kirshenbaum, I. Butadiene. In: Kirk-Othmer Encyclopedia of Chemical Technology,3rd ed, Volume 4. New York, New York: John Wiley and Sons, 1978. (HERO ID 594584 )and Hawley, G.G. 1,3-Butadiene. In: The Condensed Chemical Dictionary, 10th ed., New York, New York: Van Nostrand Reinhold Company, Inc., 1981. p. 177. (HERO ID HERO ID: 69425)

PUBLIC RELEASE DRAFT November 2024 Autoflammability

| Study Citation:<br>OECD Harmonized                                                                                                                                                  | ECB, (2002). Eu<br>Autoflammabilit          | ropean Union risk assessment report: 1                                                                                                                                     | ,3-butadiene.                            |                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                                                                                                                                                            | 5155560                                     |                                                                                                                                                                            |                                          |                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                     |                                             |                                                                                                                                                                            | EXTRACTIO                                | N                                                                                                                                                                                                                                                 |
| Parameter                                                                                                                                                                           |                                             | Data                                                                                                                                                                       |                                          |                                                                                                                                                                                                                                                   |
| Auto-flammability<br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>System<br>Standard Deviation Pacult | Guideline<br>e, and Stability<br>and Purity | 415 - C<br>106-99-0; 1,3-Butadiene<br>no; not specified; Not Reported<br>Not Reported; Not Reported; Not Repor<br>Not Reported; Not Reported; Not Reported<br>Not Reported | rted; Not Reported<br>rted; Not Reported |                                                                                                                                                                                                                                                   |
| Results Details                                                                                                                                                                     |                                             | reference to DIN 51794                                                                                                                                                     |                                          |                                                                                                                                                                                                                                                   |
| Results Value                                                                                                                                                                       |                                             | Not Reported                                                                                                                                                               |                                          |                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                     |                                             |                                                                                                                                                                            |                                          |                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                     |                                             |                                                                                                                                                                            | EVALUATIO                                | N                                                                                                                                                                                                                                                 |
| Domain                                                                                                                                                                              |                                             | Metric                                                                                                                                                                     | Rating                                   | Comments                                                                                                                                                                                                                                          |
| Domain 1: Substance                                                                                                                                                                 | Metric 1:<br>Metric 2:                      | Representativeness<br>Appropriateness                                                                                                                                      | High<br>High                             | Data are measured or estimated for the subject chemical substance.<br>Measured data are consistent with the subject chemical substance structural features<br>(e.g., presence of certain functional groups) or other physical/chemical properties |
| Domain 2: Test Reliabil                                                                                                                                                             | ity                                         |                                                                                                                                                                            |                                          |                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                     | Metric 3:                                   | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                               | Medium                                   | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                     |
|                                                                                                                                                                                     | Metric 4:                                   | Reliability/Analytical Method                                                                                                                                              | High                                     | Data are obtained by accepted standard analytical methods, including, but not limited to OECD guidelines for physical-chemical properties or other developed standard.                                                                            |
| Domain 3: Other                                                                                                                                                                     | Metric 5:                                   | Databases                                                                                                                                                                  | High                                     | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.              |
|                                                                                                                                                                                     | Metric 6:                                   | Models                                                                                                                                                                     | N/A                                      | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                              |
| <b>Overall Quality Determination</b>                                                                                                                                                |                                             |                                                                                                                                                                            | High                                     |                                                                                                                                                                                                                                                   |

\* Related References: cited from BASF safety data sheet
| Study Citation:<br>OECD Harmonized                                                                                                                                                                      | ECB, (2002). E<br>Autoflammabili            | uropean Union risk assessment report: 1,<br>ty                                                                                                                                                                | 3-butadiene.                         |                                                                                                                                                                                                                                                     |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                                                                                                                                                                                                | 5155560                                     |                                                                                                                                                                                                               |                                      |                                                                                                                                                                                                                                                     |  |  |
|                                                                                                                                                                                                         |                                             |                                                                                                                                                                                                               | EXTRACTIO                            | N                                                                                                                                                                                                                                                   |  |  |
| Parameter                                                                                                                                                                                               |                                             | Data                                                                                                                                                                                                          |                                      |                                                                                                                                                                                                                                                     |  |  |
| Auto-flammability<br>CASRN and Test Material<br>Confidentiality, Type, and C<br>Solvent, Reactivity, Storage<br>Radiolabel, Source, State, a<br>System<br>Standard Deviation Results<br>Results Details | Guideline<br>e, and Stability<br>Ind Purity | 415 - 420 C<br>106-99-0; 1,3-Butadiene<br>no; not specified; Not Reported<br>Not Reported; Not Reported; Not Report<br>Not Reported; Not Reported; Not Report<br>Not Reported<br>Not Reported<br>Not Reported | ed; Not Reported<br>ed; Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Results Value                                                                                                                                                                                           | Its Value Not Reported                      |                                                                                                                                                                                                               |                                      |                                                                                                                                                                                                                                                     |  |  |
|                                                                                                                                                                                                         |                                             |                                                                                                                                                                                                               | EVALUATIO                            | N                                                                                                                                                                                                                                                   |  |  |
| Domain                                                                                                                                                                                                  |                                             | Metric                                                                                                                                                                                                        | Rating                               | Comments                                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance                                                                                                                                                                                     |                                             |                                                                                                                                                                                                               |                                      |                                                                                                                                                                                                                                                     |  |  |
|                                                                                                                                                                                                         | Metric 1:<br>Metric 2:                      | Appropriateness                                                                                                                                                                                               | High<br>High                         | Data are measured or estimated for the subject chemical substance.<br>Measured data are consistent with the subject chemical substance structural features<br>(e.g., presence of certain functional groups) or other physical/chemical properties   |  |  |
| Domain 2: Test Reliabil                                                                                                                                                                                 | itv                                         |                                                                                                                                                                                                               |                                      |                                                                                                                                                                                                                                                     |  |  |
|                                                                                                                                                                                                         | Metric 3:                                   | Reliability/Unbiased<br>(Method Objectivity)                                                                                                                                                                  | Medium                               | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |  |  |
|                                                                                                                                                                                                         | Metric 4:                                   | Reliability/Analytical Method                                                                                                                                                                                 | Medium                               | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |
| Domain 3 <sup>.</sup> Other                                                                                                                                                                             |                                             |                                                                                                                                                                                                               |                                      |                                                                                                                                                                                                                                                     |  |  |
| Soman 5. Ouer                                                                                                                                                                                           | Metric 5:                                   | Databases                                                                                                                                                                                                     | High                                 | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |
|                                                                                                                                                                                                         | Metric 6:                                   | Models                                                                                                                                                                                                        | N/A                                  | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| <b>Overall Qualit</b>                                                                                                                                                                                   | y Determi                                   | nation                                                                                                                                                                                                        | High                                 |                                                                                                                                                                                                                                                     |  |  |

\* Related References: cited from Auer (1989). Auer-Technikum, Ausgabe 12, Auer-Gesellschaft mbH, Berlin, 146-151. andHommel G (1987). Handbuch der gefachrlichen Gueter, Merkblatt 44, 4 neubearbeitete Auflage, Springer Verlag,Berlin.

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| Study Citation:<br>OECD Harmonized | Study Citation:       Rumble, J. R. (2018). Flammability of chemical substances. :16-16 - 16-32.         DECD Harmonized       Autoflammability |                                   |           |                                                                                         |  |  |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------|-----------------------------------------------------------------------------------------|--|--|
| Template:                          | 1 140011411114001110                                                                                                                            | 5                                 |           |                                                                                         |  |  |
| HERO ID:                           | 6655446                                                                                                                                         |                                   |           |                                                                                         |  |  |
|                                    |                                                                                                                                                 |                                   | FYTRACTIO | N                                                                                       |  |  |
| Parameter                          |                                                                                                                                                 | Data                              | EATRACIIO |                                                                                         |  |  |
|                                    |                                                                                                                                                 |                                   |           |                                                                                         |  |  |
| Auto-flammability                  |                                                                                                                                                 | 420 C                             |           |                                                                                         |  |  |
| CASRN and Test Material            |                                                                                                                                                 | Not Reported; 1,3-Butadiene       |           |                                                                                         |  |  |
| Confidentiality, Type, and C       | Guideline                                                                                                                                       | None; not specified; Not reported |           |                                                                                         |  |  |
| Solvent, Reactivity, Storage       | e, and Stability                                                                                                                                | NR; NR; NR; NR                    |           |                                                                                         |  |  |
| Radiolabel, Source, State, a       | nd Purity                                                                                                                                       | NR; NR; NR; NR                    |           |                                                                                         |  |  |
| System                             |                                                                                                                                                 | Not reported                      |           |                                                                                         |  |  |
| Standard Deviation Results         |                                                                                                                                                 | Not reported                      |           |                                                                                         |  |  |
| Results Details                    |                                                                                                                                                 | Not reported                      |           |                                                                                         |  |  |
| Results Value                      |                                                                                                                                                 | Not Reported                      |           |                                                                                         |  |  |
|                                    |                                                                                                                                                 |                                   |           |                                                                                         |  |  |
|                                    |                                                                                                                                                 |                                   | EVALUATIO | N                                                                                       |  |  |
| Domain                             |                                                                                                                                                 | Metric                            | Rating    | Comments                                                                                |  |  |
| Domain 1: Substance                |                                                                                                                                                 |                                   |           |                                                                                         |  |  |
|                                    | Metric 1:                                                                                                                                       | Representativeness                | High      | Data are measured or estimated for the subject chemical substance.                      |  |  |
|                                    | Metric 2:                                                                                                                                       | Appropriateness                   | N/A       | Rating of this factor is not applicable to this kind of information.                    |  |  |
| Domain 2: Test Reliabili           | ity                                                                                                                                             |                                   |           |                                                                                         |  |  |
| 2 onium 2. Test Reliabili          | Metric 3.                                                                                                                                       | Reliability/Unbiased              | Medium    | There is no indication that the methodology for producing the information was biased    |  |  |
|                                    | metric 5.                                                                                                                                       | (Method Objectivity)              | Weddum    | towards a particular product or outcome.                                                |  |  |
|                                    | Metric 4:                                                                                                                                       | Reliability/Analytical Method     | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu- |  |  |
|                                    |                                                                                                                                                 |                                   |           | sion in a peer- reviewed/recognized database or other secondary source.                 |  |  |
| Domain 3: Other                    |                                                                                                                                                 |                                   |           |                                                                                         |  |  |
| Bomun 5. Outer                     | Metric 5.                                                                                                                                       | Databases                         | High      | Data is from a known data-collection, prepared by experts in the field                  |  |  |
|                                    | Metric 6:                                                                                                                                       | Models                            | N/A       | Rating of this factor is not applicable to this kind of information                     |  |  |
|                                    |                                                                                                                                                 |                                   | 1.1/1     |                                                                                         |  |  |
| Overall Quality Determination High |                                                                                                                                                 |                                   |           |                                                                                         |  |  |

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| Study Citation:              | Rumble, J. R., ( | Ed.) (2018). 1,3-Butadiene. :3-8.                     |           |                                                                                       |
|------------------------------|------------------|-------------------------------------------------------|-----------|---------------------------------------------------------------------------------------|
| Templetee                    | Autonammadin     | ty                                                    |           |                                                                                       |
| Template:                    | 5240196          |                                                       |           |                                                                                       |
| HERO ID:                     | 5349180          |                                                       |           |                                                                                       |
|                              |                  |                                                       | EXTRACTIO | N                                                                                     |
| Parameter                    |                  | Data                                                  |           |                                                                                       |
|                              |                  |                                                       |           |                                                                                       |
| Auto-flammability            |                  | 420 C                                                 |           |                                                                                       |
| CASRN and Test Material      |                  | 106-99-0; 1,3-Butadiene                               |           |                                                                                       |
| Confidentiality, Type, and C | Guideline        | None; Experimental; Not specified                     |           |                                                                                       |
| Solvent, Reactivity, Storage | e, and Stability | NR; NR; NR; NR                                        |           |                                                                                       |
| Radiolabel, Source, State, a | and Purity       | NR; NR; NR; NR                                        |           |                                                                                       |
| System                       |                  | Not reported                                          |           |                                                                                       |
| Standard Deviation Results   |                  | Not Reported                                          |           |                                                                                       |
| Results Details              |                  | Not Reported                                          |           |                                                                                       |
| Results Value                |                  | Not Reported                                          |           |                                                                                       |
|                              |                  |                                                       |           |                                                                                       |
|                              |                  |                                                       | EVALUATIO | N                                                                                     |
| Domain                       |                  | Metric                                                | Rating    | Comments                                                                              |
| Domain 1: Substance          |                  |                                                       |           |                                                                                       |
|                              | Metric 1:        | Representativeness                                    | High      | Data are measured or estimated for the subject chemical substance.                    |
|                              | Metric 2:        | Appropriateness                                       | N/A       | Rating of this factor is not applicable to this kind of information.                  |
|                              | •.               |                                                       |           |                                                                                       |
| Domain 2: Test Reliabil      |                  |                                                       |           |                                                                                       |
|                              | Metric 3:        | Reliability/Unbiased                                  | Medium    | There is no indication that the methodology for producing the information was biased  |
|                              | Matria 4.        | (Method Objectivity)<br>Reliability/Apolytical Mathod | Madium    | Analytical mathed is unknown but is likely to be annearists based on the deta's inclu |
|                              | Meuric 4.        | Reliability/Allarytical Method                        | Wiedrum   | sion in a peer- reviewed/recognized database or other secondary source.               |
|                              |                  |                                                       |           |                                                                                       |
| Domain 3: Other              |                  |                                                       |           |                                                                                       |
|                              | Metric 5:        | Databases                                             | High      | Data is from a recognized, peer- reviewed data collection.                            |
|                              | Metric 6:        | Models                                                | N/A       | Rating of this factor is not applicable to this kind of information.                  |
| 0 110 11                     |                  |                                                       |           |                                                                                       |
| <b>Overall Qualit</b>        | ty Determi       | nation                                                | High      |                                                                                       |

PUBLIC RELEASE DRAFT November 2024 Autoflammability

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Sun, H. N., Wr<br>Autoflammabil | isters, J. P. (2002). Butadiene.<br>ity |           |                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------------------------|-----------|-------------------------------------------------------------------------------------------|
| Template:<br>HERO ID:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5349218                         |                                         |           |                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         | EXTRACTIO | N                                                                                         |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                 | Data                                    | EATRACIIO | 11                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         |           |                                                                                           |
| Auto-flammability                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                 | 417.8 - C                               |           |                                                                                           |
| CASRN and Test Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                 | 106-99-0; 1,3-Butadiene                 |           |                                                                                           |
| Confidentiality, Type, and Guideline no; not specifed; Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                                         |           |                                                                                           |
| Solvent, Reactivity, Storage, and Stability Not Reported;  |                                 | ted; Not Reported                       |           |                                                                                           |
| Radiolabel, Source, State, and Purity Not Reported; Not Re |                                 | ted; Not Reported                       |           |                                                                                           |
| System Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                                         |           |                                                                                           |
| Standard Deviation Results Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                 |                                         |           |                                                                                           |
| Results Details Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                 |                                         |           |                                                                                           |
| Results Value Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                 |                                         |           |                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         |           |                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         | EVALUATIO | N                                                                                         |
| Domain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                 | Metric                                  | Rating    | Comments                                                                                  |
| Domain 1: Substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                                         |           |                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 1:                       | Representativeness                      | High      | Data are measured or estimated for the subject chemical substance.                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 2:                       | Appropriateness                         | Medium    | Data measured for a structural analogue of the subject chemical substance are consistent  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         |           | with what is expected for the subject chemical substance structural properties, features  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         |           | or behaviors.                                                                             |
| Domain 2: Test Reliabil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ity                             |                                         |           |                                                                                           |
| 2 1000 10000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Metric 3:                       | Reliability/Unbiased                    | Medium    | There is no indication that the methodology for producing the information was biased      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 | (Method Objectivity)                    |           | towards a particular product or outcome.                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 4:                       | Reliability/Analytical Method           | Medium    | The analytical method is non-standard but is expected to be appropriate OR the analyti-   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         |           | cal method is unknown but is likely to be appropriate based on the data's inclusion in a  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         |           | peer-reviewed/recognized database or other secondary source.                              |
| Domain 3: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         |           |                                                                                           |
| Domain 5. Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 5:                       | Databases                               | High      | The information or data is from a recognized data collection/repository where data are    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | wienie J.                       | Databases                               | riigii    | peer-reviewed by experts in the field, are broadly available to the public for review and |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         |           | use OR includes references to the original sources.                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 6:                       | Models                                  | N/A       | Rating of this factor is not applicable to this kind of informatio                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                         |           |                                                                                           |
| <b>Overall Qualit</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ty Determi                      | ination                                 | High      |                                                                                           |

\* Related References: The source cites one of six references W. Baker and A. L. Mossman, Matheson Gas Data Book 83, (1980) F. D. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953. R. C. Weast, CRC Handb. Chem. Phys. 70, C161 (1990). C. L. Yaws and P.-Y. Chiang, Chem. Eng. 95(13), 81 (1988). N. Gee, K. Shinsaka, J. P. Dodelet, and G. R. Freeman, J. Chem. Thermodyn. 18, 221 (1986). C. L. Yaws, H.-C. Yang, J. R. Hopper, and K. C. Hansen, Chem. Eng. 97(4), 177 (1990). Vol. 4 BUTADIENE 385 Standard on Explosion Prevention Systems, National Fire Protection Association, NFPA 69, Boston, Mass., 1973.

PUBLIC RELEASE DRAFT November 2024 Viscosity

| Study Citation:<br>OECD Harmonized      | Grub, J., Löser,             | E. (2011). Butadiene. :381-396.        |                   |                                                                                                                                                                                                                                                     |  |  |
|-----------------------------------------|------------------------------|----------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Template:                               | Viscosity                    |                                        |                   |                                                                                                                                                                                                                                                     |  |  |
| HERO ID:                                | 9493526                      |                                        |                   |                                                                                                                                                                                                                                                     |  |  |
|                                         |                              |                                        | EXTRACTIO         | N                                                                                                                                                                                                                                                   |  |  |
| Parameter                               |                              | Data                                   |                   |                                                                                                                                                                                                                                                     |  |  |
|                                         |                              |                                        |                   |                                                                                                                                                                                                                                                     |  |  |
| Viscosity                               |                              | 0.20 -                                 |                   |                                                                                                                                                                                                                                                     |  |  |
| CASRN and Test Material                 |                              | 106-99-0; 1,3-Butadiene                |                   |                                                                                                                                                                                                                                                     |  |  |
| Confidentiality, Type, and              | Guideline                    | no; not specified; Not Reported        |                   |                                                                                                                                                                                                                                                     |  |  |
| Solvent, Reactivity, Storage            | e, and Stability             | Not Reported; Not Reported; Not Report | ted; Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Radiolabel, Source, State, a            | and Purity                   | Not Reported; Not Reported; Not Repor  | ted; Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Temperature                             |                              | 50 C                                   |                   |                                                                                                                                                                                                                                                     |  |  |
| Test Conditions                         |                              | Not Reported                           |                   |                                                                                                                                                                                                                                                     |  |  |
| Standard Deviation Results Not Reported |                              |                                        |                   |                                                                                                                                                                                                                                                     |  |  |
| Results Details                         | Results Details Not Reported |                                        |                   |                                                                                                                                                                                                                                                     |  |  |
|                                         |                              |                                        |                   |                                                                                                                                                                                                                                                     |  |  |
|                                         |                              |                                        | EVALUATIO         | N                                                                                                                                                                                                                                                   |  |  |
| Domain                                  |                              | Metric                                 | Rating            | Comments                                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance                     |                              |                                        |                   |                                                                                                                                                                                                                                                     |  |  |
|                                         | Metric 1:                    | Representativeness                     | High              | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |
|                                         | Metric 2:                    | Appropriateness                        | High              | Data measured for a structural analogue of the subject chemical substance are consistent<br>with what is expected for the subject chemical substance structural properties, features<br>or behaviors.                                               |  |  |
| р : <u>о</u> т (р.:)                    | •,                           |                                        |                   |                                                                                                                                                                                                                                                     |  |  |
| Domain 2: Test Reliabil                 | ILY<br>Matria 2.             | Daliability/Unbiaged                   | Iliah             |                                                                                                                                                                                                                                                     |  |  |
|                                         | Metric 3:                    | (Method Objectivity)                   | High              | tion, and the methodology's objective is clear.                                                                                                                                                                                                     |  |  |
|                                         | Metric 4:                    | Reliability/Analytical Method          | Medium            | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |
|                                         |                              |                                        |                   |                                                                                                                                                                                                                                                     |  |  |
| Domain 3: Other                         | N                            |                                        | TT' 1             |                                                                                                                                                                                                                                                     |  |  |
|                                         | Metric 5:                    | Databases                              | Hıgh              | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |
|                                         | Metric 6:                    | Models                                 | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Overall Qualit                          | ty Determin                  | nation                                 | High              |                                                                                                                                                                                                                                                     |  |  |

\* Related References: cited from D. R. Lide: CRC Handbook of Chemistry and Physics, 79th edition, CRC Press, New York, 1998. (HERO ID: 5349247) and C. L. Yaws et al., Chem. Eng. 83 (1976) no. 17, 79 (HERO ID: 5706678)

PUBLIC RELEASE DRAFT November 2024 Viscosity

1,3-Butadiene

| Study Citation:<br>OECD Harmonized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Grub, J., Löser, l<br>Viscosity | E. (2011). Butadiene. :381-396.      |                    |                                                                                                                                                                                                                                                     |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Template:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -                               |                                      |                    |                                                                                                                                                                                                                                                     |  |
| HERO ID:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9493526                         |                                      |                    |                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                      | EXTRACTIO          | N                                                                                                                                                                                                                                                   |  |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                 | Data                                 |                    |                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                      |                    |                                                                                                                                                                                                                                                     |  |
| Viscosity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                 | 0.25 -                               |                    |                                                                                                                                                                                                                                                     |  |
| CASRN and Test Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                 | 106-99-0; 1,3-Butadiene              |                    |                                                                                                                                                                                                                                                     |  |
| Confidentiality, Type, and Confidentiality, and Confidentiality | Guideline                       | no; not specified; Not Reported      |                    |                                                                                                                                                                                                                                                     |  |
| Solvent, Reactivity, Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | e, and Stability                | Not Reported; Not Reported; Not Repo | rted; Not Reported |                                                                                                                                                                                                                                                     |  |
| Radiolabel, Source, State, a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | and Purity                      | Not Reported; Not Reported; Not Repo | rted; Not Reported |                                                                                                                                                                                                                                                     |  |
| Temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                 | 25 C                                 |                    |                                                                                                                                                                                                                                                     |  |
| Test Conditions Not Reported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                 |                                      |                    |                                                                                                                                                                                                                                                     |  |
| Standard Deviation Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                 | Not Reported                         |                    |                                                                                                                                                                                                                                                     |  |
| Results Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 | Not Reported                         |                    |                                                                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                      |                    |                                                                                                                                                                                                                                                     |  |
| D :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |                                      | EVALUATIO          | N                                                                                                                                                                                                                                                   |  |
| Domain<br>Domain 1, Substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 | Metric                               | Rating             | Comments                                                                                                                                                                                                                                            |  |
| Domain 1: Substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Matria 1:                       | Panrasantativanass                   | High               | Date are measured or estimated for the subject chemical substance                                                                                                                                                                                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 7:                       | Appropriateness                      | High               | Data are measured for a structural analogue of the subject chemical substance are consistent                                                                                                                                                        |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Wette 2.                        | приорнаенсез                         | Ingn               | with what is expected for the subject chemical substance structural properties, features<br>or behaviors.                                                                                                                                           |  |
| Domain 2: Taat Paliabil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>t</b> ty                     |                                      |                    |                                                                                                                                                                                                                                                     |  |
| Domain 2. Test Kenaon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Metric 3.                       | Reliability/Unbiased                 | High               | The methodology for producing the information is designed to answer a specific ques-                                                                                                                                                                |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Weater 5.                       | (Method Objectivity)                 | Ingn               | tion, and the methodology's objective is clear.                                                                                                                                                                                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 4:                       | Reliability/Analytical Method        | Medium             | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |
| Domain 2. Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                 |                                      |                    |                                                                                                                                                                                                                                                     |  |
| Domain 3: Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 5:                       | Databases                            | High               | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Metric 6:                       | Models                               | N/A                | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |
| <b>Overall Qualit</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ty Determin                     | nation                               | High               |                                                                                                                                                                                                                                                     |  |

\* Related References: cited from D. R. Lide: CRC Handbook of Chemistry and Physics, 79th edition, CRC Press, New York, 1998. (HERO ID: 5349247) and C. L. Yaws et al., Chem. Eng. 83 (1976) no. 17, 79 (HERO ID: 5706678)

PUBLIC RELEASE DRAFT November 2024 Viscosity

1,3-Butadiene

| Study Citation:<br>OECD Harmonized | NLM, (2003). Pr<br>Viscosity | ubChem: Hazardous Substance Data B | ank: 1,3-Butadien | e, 106-99-0.                                                                                                                                                      |
|------------------------------------|------------------------------|------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5926134                      |                                    |                   |                                                                                                                                                                   |
|                                    |                              |                                    | EXTRACTIO         | N                                                                                                                                                                 |
| Parameter                          |                              | Data                               |                   |                                                                                                                                                                   |
| Viscosity                          |                              | 0.00754                            |                   |                                                                                                                                                                   |
| CASRN and Test Material            |                              | 106-99-0: 1 3-Butadiene            |                   |                                                                                                                                                                   |
| Confidentiality Type and (         | Guideline                    | None: Experimental: Not reported   |                   |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability             | NR: NR: NR: NR                     |                   |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | and Purity                   | NR; NR; NR; NR                     |                   |                                                                                                                                                                   |
| Temperature                        |                              | 20°C                               |                   |                                                                                                                                                                   |
| Test Conditions                    |                              | Not Reported                       |                   |                                                                                                                                                                   |
| Standard Deviation Results         |                              | Not Reported                       |                   |                                                                                                                                                                   |
| Results Details                    |                              | Not Reported                       |                   |                                                                                                                                                                   |
|                                    |                              |                                    |                   | N                                                                                                                                                                 |
| Domain                             |                              | Metric                             | Rating            | Comments                                                                                                                                                          |
| Domain 1: Substance                |                              | Wette                              | Rating            | comments                                                                                                                                                          |
| Domain 1. Substance                | Metric 1:                    | Representativeness                 | High              | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                    | Metric 2:                    | Appropriateness                    | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                              |
|                                    |                              |                                    |                   |                                                                                                                                                                   |
| Domain 2: Test Reliabil            | ity                          |                                    |                   |                                                                                                                                                                   |
|                                    | Metric 3:                    | Reliability/Unbiased               | Medium            | There is no indication that the methodology for producing the information was biased                                                                              |
|                                    |                              | (Method Objectivity)               |                   | towards a particular product or outcome.                                                                                                                          |
|                                    | Metric 4:                    | Reliability/Analytical Method      | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                                    |                              |                                    |                   |                                                                                                                                                                   |
| Domain 3: Other                    | M                            | Detahaan                           | II: -1            |                                                                                                                                                                   |
|                                    | Metric 5:                    | Datadases                          | High              | Data is from a publicly available, peer-reviewed database that provides references to a recognized data collection.                                               |
|                                    | Metric 6:                    | Models                             | N/A               | Rating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Qualit</b>              | y Determin                   |                                    |                   |                                                                                                                                                                   |

\* Related References: Braker, W., Mossman, A., Matheson. 1980. Matheson Gas Data Book. 6th Ed. P. 79.

| Study Citation:<br>OECD Harmonized | NLM, (2003). Pu<br>Viscosity  | ubChem: Hazardous Substance Data B | ank: 1,3-Butadien | e, 106-99-0.                                                                                                                 |
|------------------------------------|-------------------------------|------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5926134                       |                                    |                   |                                                                                                                              |
|                                    |                               |                                    | EXTRACTIO         | N                                                                                                                            |
| Parameter                          |                               | Data                               |                   |                                                                                                                              |
| Viscosity                          |                               | 0.22                               |                   |                                                                                                                              |
| CASEN and Test Material            |                               | 0.55<br>106-00-0: 1.3-Butadiene    |                   |                                                                                                                              |
| Confidentiality Type and (         | Juideline                     | None: Experimental: Not reported   |                   |                                                                                                                              |
| Solvent Reactivity Storage         | and Stability                 | NR· NR· NR                         |                   |                                                                                                                              |
| Radiolabel, Source, State, a       | and Purity                    | NR: NR: NR: NR                     |                   |                                                                                                                              |
| Temperature                        |                               | -40°C                              |                   |                                                                                                                              |
| Test Conditions                    |                               | Not Reported                       |                   |                                                                                                                              |
| Standard Deviation Results         |                               | Not Reported                       |                   |                                                                                                                              |
| Results Details                    |                               | Not Reported                       |                   |                                                                                                                              |
|                                    |                               |                                    |                   |                                                                                                                              |
|                                    |                               |                                    | EVALUATIO         | N                                                                                                                            |
| Domain                             |                               | Metric                             | Rating            | Comments                                                                                                                     |
| Domain 1: Substance                | Matria 1.                     | Democratic                         | II: -l-           |                                                                                                                              |
|                                    | Metric 1:                     | A supervision and                  | High              | Data are measured or estimated for the subject chemical substance.                                                           |
|                                    | Metric 2:                     | Appropriateness                    | N/A               | Rating of this factor is not applicable to this kind of information.                                                         |
| Domain 2: Test Reliabil            | ity                           |                                    |                   |                                                                                                                              |
|                                    | Metric 3:                     | Reliability/Unbiased               | Medium            | There is no indication that the methodology for producing the information was biased towards a particular product or outcome |
|                                    | Metric 4:                     | Reliability/Analytical Method      | Medium            | Analytical method is unknown but is likely to be appropriate based on the data's inclu-                                      |
|                                    |                               |                                    |                   | sion in a peer-reviewed/recognized database or other secondary source.                                                       |
| Domain 3: Other                    |                               |                                    |                   |                                                                                                                              |
| Domain 5. Other                    | Metric 5:                     | Databases                          | High              | Data is from a publicly available, peer-reviewed database that provides references to a recognized data collection.          |
|                                    | Metric 6:                     | Models                             | N/A               | Rating of this factor is not applicable to this kind of information.                                                         |
| Overall Qualit                     | Overall Quality Determination |                                    |                   |                                                                                                                              |

\* Related References: Braker, W., Mossman, A., Matheson. 1980. Matheson Gas Data Book. 6th Ed. P. 79.

| Study Citation:<br>OECD Harmonized<br>Template: | Elsevier, (2019). F<br>Refractive Index | Reaxys: physical-chemical property data                                                                                                  | for 1,3-butadie         | ene. CAS Registry Number: 106-99-0                                                                                                                                |  |  |  |  |  |
|-------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| HERO ID:                                        | 5926412                                 |                                                                                                                                          |                         |                                                                                                                                                                   |  |  |  |  |  |
|                                                 |                                         | I                                                                                                                                        | EXTRACTIO               | N                                                                                                                                                                 |  |  |  |  |  |
| Parameter                                       |                                         | Data                                                                                                                                     |                         |                                                                                                                                                                   |  |  |  |  |  |
|                                                 |                                         |                                                                                                                                          |                         |                                                                                                                                                                   |  |  |  |  |  |
| Refractive Index                                |                                         | 1.4295                                                                                                                                   |                         |                                                                                                                                                                   |  |  |  |  |  |
| CASRN and Test Material                         |                                         | 106-99-0; 1,3-Butadiene                                                                                                                  | 106-99-0; 1,3-Butadiene |                                                                                                                                                                   |  |  |  |  |  |
| Confidentiality, Type, and C                    | Guideline                               | None; Experimental; Not reported                                                                                                         |                         |                                                                                                                                                                   |  |  |  |  |  |
| Solvent, Reactivity, Storage, and Stability     |                                         | NR; NR; NR; NR                                                                                                                           |                         |                                                                                                                                                                   |  |  |  |  |  |
| Radiolabel, Source, State, and Purity           |                                         | NR; NR; NR; NR                                                                                                                           | NR; NR; NR              |                                                                                                                                                                   |  |  |  |  |  |
| Temperature                                     |                                         | 20°C                                                                                                                                     |                         |                                                                                                                                                                   |  |  |  |  |  |
| System                                          |                                         | Not Reported                                                                                                                             |                         |                                                                                                                                                                   |  |  |  |  |  |
| Standard Deviation Results                      |                                         | Not Reported                                                                                                                             |                         |                                                                                                                                                                   |  |  |  |  |  |
| Results Details                                 |                                         | 9 values were reported in Reaxys; 1 of these values was reported as 1.4295 at 20 C; 8 values were measured at non-standard temperatures. |                         |                                                                                                                                                                   |  |  |  |  |  |
| Results Details Methods                         |                                         | Not Reported                                                                                                                             |                         |                                                                                                                                                                   |  |  |  |  |  |
| Parameter                                       |                                         | Not Reported                                                                                                                             |                         |                                                                                                                                                                   |  |  |  |  |  |
|                                                 |                                         |                                                                                                                                          |                         | AT                                                                                                                                                                |  |  |  |  |  |
| Domain                                          |                                         | Matria                                                                                                                                   | E VALUATIO<br>Dating    | N Commonto                                                                                                                                                        |  |  |  |  |  |
| Domain<br>Domain 1: Substance                   |                                         | Metric                                                                                                                                   | Kating                  | Comments                                                                                                                                                          |  |  |  |  |  |
| Domain 1: Substance                             | Matria 1.                               | Democentativeness                                                                                                                        | High                    | Determined an estimated for the subject download substance                                                                                                        |  |  |  |  |  |
|                                                 | Metric 1:<br>Matria 2:                  | Appropriator                                                                                                                             | nign<br>N/A             | Data are measured or estimated for the subject chemical substance.                                                                                                |  |  |  |  |  |
|                                                 | Metric 2.                               | Appropriateness                                                                                                                          | IN/A                    | Rating of this factor is not applicable to this kind of information.                                                                                              |  |  |  |  |  |
| Domain 2: Test Reliabili                        | ty                                      |                                                                                                                                          |                         |                                                                                                                                                                   |  |  |  |  |  |
|                                                 | Metric 3:                               | Reliability/Unbiased                                                                                                                     | Medium                  | There is no indication that the methodology for producing the information was biased                                                                              |  |  |  |  |  |
|                                                 |                                         | (Method Objectivity)                                                                                                                     |                         | towards a particular product or outcome.                                                                                                                          |  |  |  |  |  |
|                                                 | Metric 4:                               | Reliability/Analytical Method                                                                                                            | Medium                  | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |  |  |  |  |  |
| Domain 3: Other                                 |                                         |                                                                                                                                          |                         |                                                                                                                                                                   |  |  |  |  |  |
|                                                 | Metric 5:                               | Databases                                                                                                                                | High                    | Data is from a secondary database with a references to the peer-reviewed original source.                                                                         |  |  |  |  |  |

## **Overall Quality Determination**

Metric 6:

High

N/A

Rating of this factor is not applicable to this kind of information.

\* Related References: Data point includes multiple primary sources in REAXYS.

Models

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| Study Citation:<br>OECD Harmonized    | O'Neil, M. J. (2<br>Refractive Inde | 2013). 1,3-Butadiene. 106-99-0. :267.        |           |                                                                                                                                                                   |
|---------------------------------------|-------------------------------------|----------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                             |                                     |                                              |           |                                                                                                                                                                   |
| HERO ID:                              | 5926379                             |                                              |           |                                                                                                                                                                   |
|                                       |                                     |                                              | EXTRACTIO | N                                                                                                                                                                 |
| Parameter                             |                                     | Data                                         |           |                                                                                                                                                                   |
| Refractive Index                      |                                     | 1.4223                                       |           |                                                                                                                                                                   |
| CASRN and Test Material               | l                                   | 106-99-0; 1,3-Butadiene                      |           |                                                                                                                                                                   |
| Confidentiality, Type, and            | Guideline                           | None; Experimental; Not reported             |           |                                                                                                                                                                   |
| Solvent, Reactivity, Storag           | ge, and Stability                   | NR; NR; NR; NR                               |           |                                                                                                                                                                   |
| Radiolabel, Source, State, and Purity |                                     | NR; NR; NR; NR                               |           |                                                                                                                                                                   |
| Temperature                           |                                     | -6°C                                         |           |                                                                                                                                                                   |
| System                                |                                     | Not Reported                                 |           |                                                                                                                                                                   |
| Standard Deviation Result             | s                                   | Not Reported                                 |           |                                                                                                                                                                   |
| Results Details                       |                                     | Not Reported                                 |           |                                                                                                                                                                   |
| Results Details Methods               |                                     | Not Reported                                 |           |                                                                                                                                                                   |
| Parameter                             |                                     | Not Reported                                 |           |                                                                                                                                                                   |
|                                       |                                     |                                              | EVALUATIO | N                                                                                                                                                                 |
| Domain                                |                                     | Metric                                       | Rating    | Comments                                                                                                                                                          |
| Domain 1: Substance                   |                                     |                                              |           |                                                                                                                                                                   |
|                                       | Metric 1:                           | Representativeness                           | High      | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                       | Metric 2:                           | Appropriateness                              | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Domain 2: Test Reliabi                | lity                                |                                              |           |                                                                                                                                                                   |
|                                       | Metric 3:                           | Reliability/Unbiased<br>(Method Objectivity) | Medium    | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                     |
|                                       | Metric 4:                           | Reliability/Analytical Method                | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                       |                                     |                                              |           |                                                                                                                                                                   |
|                                       | Metric 5:                           | Databases                                    | High      | Data is from a recognized, peer-reviewed data collection.                                                                                                         |
|                                       |                                     | N/ 11                                        | N1/A      |                                                                                                                                                                   |

PUBLIC RELEASE DRAFT November 2024 Refractive Index

| 1 | 2            | D    | 4   | 11 |      |
|---|--------------|------|-----|----|------|
|   | - <b>^</b> . | - 61 | ıта | a1 | ene. |
|   | ·~           | -    | acu | ~  | CIIC |

| HERO ID: | 5926255 | Table: | 1 | of 1 |
|----------|---------|--------|---|------|

| Study Citation:<br>OECD Harmonized   | RSC, (2019). Che<br>Refractive Index | mSpider: 1,3-Butadiene.          |            |                                                                                                  |
|--------------------------------------|--------------------------------------|----------------------------------|------------|--------------------------------------------------------------------------------------------------|
| Template:                            | 5026255                              |                                  |            |                                                                                                  |
|                                      | 3920233                              |                                  |            |                                                                                                  |
| <b>D</b> (                           |                                      |                                  | EXTRACTION |                                                                                                  |
| Parameter                            |                                      | Data                             |            |                                                                                                  |
|                                      |                                      |                                  |            |                                                                                                  |
| Refractive Index                     |                                      | 1.4292                           |            |                                                                                                  |
| CASRN and Test Material              |                                      | 106-99-0; 1,3-Butadiene          |            |                                                                                                  |
| Confidentiality, Type, and C         | Guideline                            | None; Experimental; Not reported |            |                                                                                                  |
| Solvent, Reactivity, Storage         | e, and Stability                     | NR; NR; NR; NR                   |            |                                                                                                  |
| Radiolabel, Source, State, a         | nd Purity                            | NR; NR; NR; NR                   |            |                                                                                                  |
| Temperature                          |                                      | Not Reported                     |            |                                                                                                  |
| System                               |                                      | Not Reported                     |            |                                                                                                  |
| Standard Deviation Results           |                                      | Not Reported                     |            |                                                                                                  |
| Results Details                      |                                      | Not Reported                     |            |                                                                                                  |
| Results Details Methods              |                                      | Not Reported                     |            |                                                                                                  |
| Parameter                            |                                      | Not Reported                     |            |                                                                                                  |
|                                      |                                      |                                  |            |                                                                                                  |
|                                      |                                      |                                  | EVALUATION |                                                                                                  |
| Domain                               |                                      | Metric                           | Rating     | Comments                                                                                         |
| Domain 1: Substance                  |                                      |                                  |            |                                                                                                  |
|                                      | Metric 1:                            | Representativeness               | High       | Data are measured or estimated for the subject chemical substance.                               |
|                                      | Metric 2:                            | Appropriateness                  | N/A        | Rating of this factor is not applicable to this kind of information.                             |
| Domain 2 <sup>.</sup> Test Reliabili | ity                                  |                                  |            |                                                                                                  |
|                                      | Metric 3:                            | Reliability/Unbiased             | Medium     | There is no indication that the methodology for producing the information was biased             |
|                                      | 11100110 01                          | (Method Objectivity)             | 1110010111 | towards a particular product or outcome.                                                         |
|                                      | Metric 4:                            | Reliability/Analytical Method    | Low        | The analytical method is unknown and there is no indication that a reliable method was used.     |
| Domain 3: Other                      |                                      |                                  |            |                                                                                                  |
|                                      | Metric 5:                            | Databases                        | Medium     | Data is from a publicly available secondary source with references to non-peer reviewed sources. |
|                                      | Metric 6:                            | Models                           | N/A        | Rating of this factor is not applicable to this kind of information.                             |
| <b>Overall Qualit</b>                | y Determina                          | ation                            | Medium     |                                                                                                  |

\* Related References: Parchem-fine & specialty chemicals

PUBLIC RELEASE DRAFT November 2024 Refractive Index

| Study Citation:<br>OECD Harmonized          | Rumble, J. R., (Ed<br>Refractive Index | 1.) (2018). 1,3-Butadiene. :3-8. |            |                                                                                                                                                                   |
|---------------------------------------------|----------------------------------------|----------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                                   |                                        |                                  |            |                                                                                                                                                                   |
| HERO ID:                                    | 5349186                                |                                  |            |                                                                                                                                                                   |
|                                             |                                        |                                  | EXTRACTIO  | N                                                                                                                                                                 |
| Parameter                                   |                                        | Data                             |            |                                                                                                                                                                   |
|                                             |                                        |                                  |            |                                                                                                                                                                   |
| Refractive Index                            |                                        | 1.4292                           |            |                                                                                                                                                                   |
| CASRN and Test Material                     |                                        | 106-99-0; 1,3-Butadiene          |            |                                                                                                                                                                   |
| Confidentiality, Type, and G                | luideline                              | None; Experimental; Not reported |            |                                                                                                                                                                   |
| Solvent, Reactivity, Storage, and Stability |                                        | NR; NR; NR; NR                   |            |                                                                                                                                                                   |
| Radiolabel, Source, State, and Purity       |                                        | NR; NR; NR; NR                   |            |                                                                                                                                                                   |
| Temperature                                 |                                        | -25°C                            |            |                                                                                                                                                                   |
| System                                      |                                        | Not Reported                     |            |                                                                                                                                                                   |
| Standard Deviation Results                  |                                        | Not Reported                     |            |                                                                                                                                                                   |
| Results Details                             |                                        | Not Reported                     |            |                                                                                                                                                                   |
| Results Details Methods                     |                                        | Not Reported                     |            |                                                                                                                                                                   |
| Parameter                                   |                                        | Not Reported                     |            |                                                                                                                                                                   |
|                                             |                                        |                                  |            | •                                                                                                                                                                 |
| <b>D</b> .                                  |                                        |                                  | EVALUATION |                                                                                                                                                                   |
| Domain                                      |                                        | Metric                           | Rating     | Comments                                                                                                                                                          |
| Domain 1: Substance                         | 34.1.1                                 |                                  | TT' 1      |                                                                                                                                                                   |
|                                             | Metric 1:                              | Representativeness               | High       | Data are measured or estimated for the subject chemical substance.                                                                                                |
|                                             | Metric 2:                              | Appropriateness                  | N/A        | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Domain 2: Test Reliabili                    | tv                                     |                                  |            |                                                                                                                                                                   |
|                                             | Metric 3:                              | Reliability/Unbiased             | Medium     | There is no indication that the methodology for producing the information was biased                                                                              |
|                                             |                                        | (Method Objectivity)             |            | towards a particular product or outcome.                                                                                                                          |
|                                             | Metric 4:                              | Reliability/Analytical Method    | Medium     | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
| Demois 2: Other                             |                                        |                                  |            |                                                                                                                                                                   |
| Domain 3: Other                             | M                                      |                                  | TT' 1      |                                                                                                                                                                   |
|                                             | Metric 5:                              | Databases                        | High       | Data is from a recognized, peer-reviewed data collection.                                                                                                         |
|                                             | wietric 6:                             | wiodels                          | IN/A       | Kating of this factor is not applicable to this kind of information.                                                                                              |
| <b>Overall Qualit</b>                       | y Determin                             | ation                            | High       |                                                                                                                                                                   |

| Study Citation:<br>OECD Harmonized | EC, (2000). Prio<br>Henry's Law | rity Substances List Assessment Report:      | 1,3-Butadiene.   |                                                                                                                                                                                                                                                     |  |  |
|------------------------------------|---------------------------------|----------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                           | 5160048                         |                                              |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    | EXTRACTION                      |                                              |                  |                                                                                                                                                                                                                                                     |  |  |
| Parameter                          |                                 | Data                                         |                  |                                                                                                                                                                                                                                                     |  |  |
| Henry's Law                        |                                 | 7460 Po*m3/mol                               |                  |                                                                                                                                                                                                                                                     |  |  |
| CASPN and Test Material            |                                 | 106 00 0: 1 3 Butadiana                      |                  |                                                                                                                                                                                                                                                     |  |  |
| Confidentiality Type and (         | Guideline                       | no: calculated: Not Reported                 |                  |                                                                                                                                                                                                                                                     |  |  |
| Solvent Reactivity Storage         | and Stability                   | Not Reported: Not Reported: Not Report       | ed: Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Badialabal Source State            | and Durity                      | Not Reported: Not Reported: Not Report       | ad: Not Reported |                                                                                                                                                                                                                                                     |  |  |
| Temperature                        | ulu I ulity                     |                                              | eu, Not Reporteu |                                                                                                                                                                                                                                                     |  |  |
| nH                                 |                                 | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |  |  |
| System                             |                                 | calculated at 25 C and 101 325 kPa           |                  |                                                                                                                                                                                                                                                     |  |  |
| Standard Deviation Results         |                                 | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |  |  |
| Results Details                    |                                 | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |  |  |
| Results Details Methods            |                                 | Not Reported                                 |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    |                                 |                                              |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    |                                 |                                              | EVALUATIO        | N                                                                                                                                                                                                                                                   |  |  |
| Domain                             |                                 | Metric                                       | Rating           | Comments                                                                                                                                                                                                                                            |  |  |
| Domain 1: Substance                |                                 |                                              |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 1:                       | Representativeness                           | High             | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |  |  |
|                                    | Metric 2:                       | Appropriateness                              | Medium           | Data measured for a structural analogue of the subject chemical substance are consistent<br>with what is expected for the subject chemical substance structural properties, features<br>or behaviors.                                               |  |  |
| Domain 2: Test Reliabil            | itv                             |                                              |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 3:                       | Reliability/Unbiased<br>(Method Objectivity) | Medium           | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |  |  |
|                                    | Metric 4:                       | Reliability/Analytical Method                | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |  |  |
| Domain 3: Other                    |                                 |                                              |                  |                                                                                                                                                                                                                                                     |  |  |
|                                    | Metric 5:                       | Databases                                    | High             | The information or data is from a recognized data collection/repository where data are peer-reviewed by experts in the field, are broadly available to the public for review and use OR includes references to the original sources.                |  |  |
|                                    | Metric 6:                       | Models                                       | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |  |  |
| Overall Qualit                     | ty Determin                     | nation                                       | High             |                                                                                                                                                                                                                                                     |  |  |

\* Related References: cited from Mackay, D. and W.Y. Shiu. 1981. A criticalreview of Henry's law constants for chemicalsof environmental interest. J. Phys. Chem. Ref.Data 10: 1175–1199.

| Study Citation:<br>OECD Harmonized | NCBI, (2020). Pu<br>Henry's Law | ibChem Compound Summary for CID          | 7845 1,3 Butadie | ne.                                                                                                                                                                   |
|------------------------------------|---------------------------------|------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Template:                          |                                 |                                          |                  |                                                                                                                                                                       |
| HERO ID:                           | 10171483                        |                                          |                  |                                                                                                                                                                       |
|                                    |                                 |                                          | EXTRACTIO        | N                                                                                                                                                                     |
| Parameter                          |                                 | Data                                     |                  |                                                                                                                                                                       |
|                                    |                                 |                                          |                  |                                                                                                                                                                       |
| Henry's Law                        |                                 | 7.36E-2 - atm-cu m/mole                  |                  |                                                                                                                                                                       |
| CASRN and Test Material            |                                 | 106-99-0; Not Reported                   |                  |                                                                                                                                                                       |
| Confidentiality, Type, and C       | Guideline                       | Not Reported; Not Reported; Not Report   | ed               |                                                                                                                                                                       |
| Solvent, Reactivity, Storage       | e, and Stability                | Not Reported; Not Reported; Not Report   | ed; Not Reported |                                                                                                                                                                       |
| Radiolabel, Source, State, a       | nd Purity                       | Not Reported; Not Reported; Not Report   | ed; Not Reported |                                                                                                                                                                       |
| Temperature                        |                                 | 25 C                                     |                  |                                                                                                                                                                       |
| pH                                 |                                 | Not Reported                             |                  |                                                                                                                                                                       |
| System                             |                                 | Not Reported                             |                  |                                                                                                                                                                       |
| Standard Deviation Results         |                                 | Not Reported                             |                  |                                                                                                                                                                       |
| Results Details                    |                                 | Not Reported                             |                  |                                                                                                                                                                       |
| Results Details Methods            |                                 | calculated from the atmospheric vapor pr | essure (760 mm H | g since it is a gas) and water solubility                                                                                                                             |
|                                    |                                 |                                          |                  |                                                                                                                                                                       |
|                                    |                                 |                                          | EVALUATIO        | N                                                                                                                                                                     |
| Domain                             |                                 | Metric                                   | Rating           | Comments                                                                                                                                                              |
| Domain 1: Substance                |                                 |                                          |                  |                                                                                                                                                                       |
|                                    | Metric 1:                       | Representativeness                       | High             | Data are measured or estimated for the subject chemical substance.                                                                                                    |
|                                    | Metric 2:                       | Appropriateness                          | High             | Measured data are consistent with the subject chemical substance structural features                                                                                  |
|                                    |                                 |                                          |                  | (e.g., presence of certain functional groups) or other physical/chemical properties (e.g.,                                                                            |
|                                    |                                 |                                          |                  | If the physical state is described as a liquid, the substance should have a melting point below $25^{\circ}$ C and a boiling point above $25^{\circ}$ C) or behaviors |
|                                    |                                 |                                          |                  | below 25 °C and a bonning point above 25 °C) of benaviors.                                                                                                            |
| Domain 2: Test Reliabili           | ity                             |                                          |                  |                                                                                                                                                                       |
|                                    | Metric 3:                       | Reliability/Unbiased                     | Medium           | There is no indication that the methodology for producing the information was biased                                                                                  |
|                                    |                                 | (Method Objectivity)                     |                  | towards a particular product or outcome.                                                                                                                              |
|                                    | Metric 4:                       | Reliability/Analytical Method            | Medium           | The analytical method is non-standard but is expected to be appropriate OR the analyti-                                                                               |
|                                    |                                 |                                          |                  | cal method is unknown but is likely to be appropriate based on the data's inclusion in a                                                                              |
|                                    |                                 |                                          |                  | peer-reviewed/recognized database or other secondary source.                                                                                                          |
| Domain 3: Other                    |                                 |                                          |                  |                                                                                                                                                                       |
| Domain J. Oulei                    | Metric 5                        | Databases                                | High             | The information or data is from a recognized data collection/repository where data are                                                                                |
|                                    | Methe 5.                        | Databases                                | Ingn             | peer-reviewed by experts in the field, are broadly available to the public for review and                                                                             |
|                                    |                                 |                                          |                  | use OR includes references to the original sources.                                                                                                                   |
|                                    | Metric 6:                       | Models                                   | N/A              | Rating of this factor is not applicable to this kind of information.                                                                                                  |
|                                    |                                 |                                          |                  |                                                                                                                                                                       |
|                                    |                                 | Con                                      | tinued on next r | page                                                                                                                                                                  |

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1,3-Butadiene

| continued from previous page                    |                                                       |                             |          |  |
|-------------------------------------------------|-------------------------------------------------------|-----------------------------|----------|--|
| Study Citation:<br>OECD Harmonized<br>Template: | NCBI, (2020). PubChem Compound Summary<br>Henry's Law | for CID 7845 1,3 Butadiene. |          |  |
| HERO ID:                                        | 10171483                                              |                             |          |  |
|                                                 |                                                       | EVALUATION                  |          |  |
| Domain                                          | Metric                                                | Rating                      | Comments |  |
| <b>Overall Quali</b>                            | ty Determination                                      | High                        |          |  |

\* Related References: Cited from US EPA; Estimation Program Interface (EPI) Suite. Ver. 4.11. Nov, 2012. Available from, as of Mar 9, 2015:

| Study Citation:<br>OECD Harmonized | NIST, (2022). NIS<br>Henry's Law        | IST, (2022). NIST Chemistry WebBook. 1,3-Butadiene (106-99-0). Standard Reference Database No. 69.<br>enry's Law |                 |                                                                                                                                                                                              |  |  |
|------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Template.                          | Tienry 5 Eaw                            |                                                                                                                  |                 |                                                                                                                                                                                              |  |  |
| HERO ID:                           | 10225178                                |                                                                                                                  |                 |                                                                                                                                                                                              |  |  |
| EXTRACTION                         |                                         |                                                                                                                  |                 |                                                                                                                                                                                              |  |  |
| Parameter                          |                                         | Data                                                                                                             |                 |                                                                                                                                                                                              |  |  |
|                                    |                                         |                                                                                                                  |                 |                                                                                                                                                                                              |  |  |
| Henry's Law                        | Henry's Law 0.014 - 0.016 mol/(kg*bar)  |                                                                                                                  |                 |                                                                                                                                                                                              |  |  |
| CASRN and Test Material            |                                         | 106-99-0; 1,3-Butadiene                                                                                          |                 |                                                                                                                                                                                              |  |  |
| Confidentiality, Type, and C       | Guideline                               | No; not specified; Not Reported                                                                                  |                 |                                                                                                                                                                                              |  |  |
| Solvent, Reactivity, Storage       | , and Stability                         | Not Reported; Not Reported; Not Reported; N                                                                      | lot Reported    |                                                                                                                                                                                              |  |  |
| Radiolabel, Source, State, a       | nd Purity                               | Not Reported; Not Reported; Not Reported; N                                                                      | lot Reported    |                                                                                                                                                                                              |  |  |
| Temperature                        |                                         | Not Reported                                                                                                     |                 |                                                                                                                                                                                              |  |  |
| рН                                 |                                         | Not Reported                                                                                                     |                 |                                                                                                                                                                                              |  |  |
| System                             |                                         | Noted as Henry's Law Constant (Water Soluti                                                                      | on)             |                                                                                                                                                                                              |  |  |
| Standard Deviation Results         | Standard Deviation Results Not Reported |                                                                                                                  |                 |                                                                                                                                                                                              |  |  |
| Results Details                    |                                         | NIST entry notes that it is missing a citation a                                                                 | ind doesn't see | em well documented.                                                                                                                                                                          |  |  |
| Results Details Methods            |                                         | Not Reported                                                                                                     |                 |                                                                                                                                                                                              |  |  |
|                                    |                                         |                                                                                                                  |                 |                                                                                                                                                                                              |  |  |
|                                    |                                         | EV                                                                                                               | VALUATION       | Ň                                                                                                                                                                                            |  |  |
| Domain                             |                                         | Metric                                                                                                           | Rating          | Comments                                                                                                                                                                                     |  |  |
| Domain 1: Substance                |                                         |                                                                                                                  |                 |                                                                                                                                                                                              |  |  |
|                                    | Metric 1:                               | Representativeness                                                                                               | High            | Data are measured or estimated for the subject chemical substance.                                                                                                                           |  |  |
|                                    | Metric 2:                               | Appropriateness                                                                                                  | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                         |  |  |
| Domain 2: Test Reliabili           | tv                                      |                                                                                                                  |                 |                                                                                                                                                                                              |  |  |
|                                    | Metric 3:                               | Reliability/Unbiased                                                                                             | Medium          | There is no indication that the methodology for producing the information was biased                                                                                                         |  |  |
|                                    |                                         | (Method Objectivity)                                                                                             |                 | towards a particular product or outcome.                                                                                                                                                     |  |  |
|                                    | Metric 4:                               | Reliability/Analytical Method                                                                                    | Low             | The analytical method is unknown and there is no indication that a reliable method was used.                                                                                                 |  |  |
|                                    |                                         |                                                                                                                  |                 |                                                                                                                                                                                              |  |  |
| Domain 3: Other                    | N                                       |                                                                                                                  | N / 1'          |                                                                                                                                                                                              |  |  |
|                                    | Metric 5:                               | Databases                                                                                                        | Medium          | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |  |  |
|                                    | Metric 6:                               | Models                                                                                                           | N/A             | Rating of this factor is not applicable to this kind of information.                                                                                                                         |  |  |
| <b>Overall Qualit</b>              | y Determina                             | ation                                                                                                            | Low             |                                                                                                                                                                                              |  |  |

\* Related References: missing citation

| Study Citation:<br>OECD Harmonized | Rumble, J. R. (2018). Aqueous solubility and Henry's law constants of organic compounds. :5-148 - 5-177. Henry's Law |                                         |                        |                                                                                                                                                                   |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                           | 5932745                                                                                                              |                                         |                        |                                                                                                                                                                   |
|                                    |                                                                                                                      |                                         | EXTRACTIO              | N                                                                                                                                                                 |
| Parameter                          |                                                                                                                      | Data                                    |                        |                                                                                                                                                                   |
|                                    |                                                                                                                      |                                         |                        |                                                                                                                                                                   |
| Henry's Law                        |                                                                                                                      | 20.7 kPa m3/mol                         |                        |                                                                                                                                                                   |
| CASRN and Test Material            |                                                                                                                      | 106-99-0; 1,3-Butadiene                 |                        |                                                                                                                                                                   |
| Confidentiality, Type, and C       | Guideline                                                                                                            | None; Experimental; Not Reported        |                        |                                                                                                                                                                   |
| Solvent, Reactivity, Storage       | e, and Stability                                                                                                     | NR; NR; NR; NR                          |                        |                                                                                                                                                                   |
| Radiolabel, Source, State, a       | and Purity                                                                                                           | NR; NR; NR; NR                          |                        |                                                                                                                                                                   |
| Temperature                        |                                                                                                                      | 25°C                                    |                        |                                                                                                                                                                   |
| pH                                 |                                                                                                                      | Not Reported                            |                        |                                                                                                                                                                   |
| System Not Reported                |                                                                                                                      |                                         |                        |                                                                                                                                                                   |
| Standard Deviation Results         | 1                                                                                                                    | Not Reported                            |                        |                                                                                                                                                                   |
| Results Details                    |                                                                                                                      | Reported as 20.7 kPa m3 mol-1 (converte | ed using 1 kPa = $0$ . | 00986923 atm)                                                                                                                                                     |
| Results Details Methods            |                                                                                                                      | Not Reported                            |                        |                                                                                                                                                                   |
|                                    |                                                                                                                      |                                         |                        | AT                                                                                                                                                                |
| Domain                             |                                                                                                                      | Metric                                  | Rating                 | Comments                                                                                                                                                          |
| Domain 1: Substance                |                                                                                                                      | Wette                                   | Rating                 | Comments                                                                                                                                                          |
| Domain 1. Substance                | Metric 1                                                                                                             | Representativeness                      | High                   | Data are measured or estimated for the subject chemical substance                                                                                                 |
|                                    | Metric 2:                                                                                                            | Appropriateness                         | High                   | Measured data are consistent with the subject chemical's physical/chemical properties                                                                             |
|                                    |                                                                                                                      | rippropriateness                        | mgn                    | neusarea aua are consistent with the subject enemiear s physical enemiear properties.                                                                             |
| Domain 2: Test Reliabil            | ity                                                                                                                  |                                         |                        |                                                                                                                                                                   |
|                                    | Metric 3:                                                                                                            | Reliability/Unbiased                    | Medium                 | There is no indication that the methodology for producing the information was biased                                                                              |
|                                    |                                                                                                                      | (Method Objectivity)                    |                        | towards a particular product or outcome.                                                                                                                          |
|                                    | Metric 4:                                                                                                            | Reliability/Analytical Method           | Medium                 | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer-reviewed/recognized database or other secondary source. |
|                                    |                                                                                                                      |                                         |                        |                                                                                                                                                                   |
| Domain 3: Other                    |                                                                                                                      |                                         |                        |                                                                                                                                                                   |
|                                    | Metric 5:                                                                                                            | Databases                               | High                   | Data is from a recognized, peer-reviewed data collection.                                                                                                         |
|                                    | Metric 6:                                                                                                            | Models                                  | N/A                    | Rating of this factor is not applicable to this kind of information.                                                                                              |
| Overall Qualit                     | ty Determi                                                                                                           | nation                                  | High                   |                                                                                                                                                                   |

| Study Citation:<br>OECD Harmonized | U.S. EPA, (1989).<br>Henry's Law | Health and environmental effects docur   | nent for 1,3-butadien | е.                                                                                                                                                                                           |  |  |
|------------------------------------|----------------------------------|------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| HERO ID:                           | 3454                             |                                          |                       |                                                                                                                                                                                              |  |  |
|                                    | EXTRACTION                       |                                          |                       |                                                                                                                                                                                              |  |  |
| Parameter                          |                                  | Data                                     |                       |                                                                                                                                                                                              |  |  |
|                                    |                                  |                                          |                       |                                                                                                                                                                                              |  |  |
| Henry's Law                        |                                  | 0.0617 - atm-m3/mole                     |                       |                                                                                                                                                                                              |  |  |
| Cashdantiality Type and C          | Vuidalina                        | No: experimental: Not reported           |                       |                                                                                                                                                                                              |  |  |
| Confidentiality, Type, and C       | and Stability                    | Not Papartad: Not Papartad: Not Paparta  | d: Not Papartad       |                                                                                                                                                                                              |  |  |
| Padialabel Source State a          | nd Purity                        | Not Reported: Not Reported: Not Reported | d: Not Reported       |                                                                                                                                                                                              |  |  |
| Temperature                        | ild I ulity                      | 25°C                                     | u, Not Reported       |                                                                                                                                                                                              |  |  |
| nH                                 |                                  | Not Reported                             |                       |                                                                                                                                                                                              |  |  |
| System                             |                                  | Not Reported                             |                       |                                                                                                                                                                                              |  |  |
| Standard Deviation Results         |                                  | Not Reported                             |                       |                                                                                                                                                                                              |  |  |
| Results Details                    |                                  | Not Reported                             |                       |                                                                                                                                                                                              |  |  |
| Results Details Methods            |                                  | Not Reported                             |                       |                                                                                                                                                                                              |  |  |
|                                    |                                  |                                          |                       |                                                                                                                                                                                              |  |  |
|                                    |                                  |                                          | EVALUATION            |                                                                                                                                                                                              |  |  |
| Domain                             |                                  | Metric                                   | Rating                | Comments                                                                                                                                                                                     |  |  |
| Domain 1: Substance                |                                  |                                          |                       |                                                                                                                                                                                              |  |  |
|                                    | Metric 1:                        | Representativeness                       | High                  | Data are measured or estimated for the subject chemical substance.                                                                                                                           |  |  |
|                                    | Metric 2:                        | Appropriateness                          | High                  | Measured data are consistent with the subject chemical substance structural features.                                                                                                        |  |  |
| Domain 2. Tast Paliabili           | its,                             |                                          |                       |                                                                                                                                                                                              |  |  |
| Domain 2. Test Kendom              | Metric 3.                        | Reliability/Unbiased                     | Medium                | There is no indication that the methodology for producing the information was biased                                                                                                         |  |  |
|                                    | Medice 5.                        | (Method Objectivity)                     | Wiedrum               | towards a particular product or outcome.                                                                                                                                                     |  |  |
|                                    | Metric 4:                        | Reliability/Analytical Method            | Low                   | The analytical method is unknown and there is no indication that a reliable method was used.                                                                                                 |  |  |
| uscu.                              |                                  |                                          |                       |                                                                                                                                                                                              |  |  |
| Domain 3: Other                    |                                  |                                          |                       |                                                                                                                                                                                              |  |  |
|                                    | Metric 5:                        | Databases                                | Medium                | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources. |  |  |
|                                    | Metric 6:                        | Models                                   | N/A                   | Rating of this factor is not applicable to this kind of information.                                                                                                                         |  |  |
| Overall Qualit                     | y Determin                       | ation                                    | Medium                |                                                                                                                                                                                              |  |  |

\* Related References: Hine. J. and P.K. Mookerjee. 1975. The intrinsic hydrophilic character of organic compounds. Correlations in terms of structural contributions. J. Org. Chem. 40: 292-298. No HERO ID.

PUBLIC RELEASE DRAFT November 2024 Dielectric Constant

| Study Citation:<br>OECD Harmonized       | Rumble, J. R., (<br>Dielectric Cons | Ed.) (2018). 1,3-Butadiene. :3-8.<br>tant |           |                                                                                                                                                                     |
|------------------------------------------|-------------------------------------|-------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HERO ID:                                 | 5349186                             |                                           |           |                                                                                                                                                                     |
|                                          |                                     |                                           | EXTRACTIO | N                                                                                                                                                                   |
| Parameter                                |                                     | Data                                      |           |                                                                                                                                                                     |
| CASEN and Test Material                  |                                     | 106-00-0: 1 3-Rutadiene                   |           |                                                                                                                                                                     |
| Confidentiality Type and (               | Guideline                           | None: Experimental: Not Reported          |           |                                                                                                                                                                     |
| Solvent Reactivity Storage and Stability |                                     | NR· NR· NR                                |           |                                                                                                                                                                     |
| Radiolabel. Source. State. and Purity    |                                     | NR: NR: NR                                |           |                                                                                                                                                                     |
| Dielectric Constant                      |                                     | 2.050                                     |           |                                                                                                                                                                     |
| Temperature                              |                                     | Not Reported                              |           |                                                                                                                                                                     |
| System                                   |                                     | Not Reported                              |           |                                                                                                                                                                     |
| Results Value                            |                                     | Not Reported                              |           |                                                                                                                                                                     |
| Results Details                          |                                     | Not Reported                              |           |                                                                                                                                                                     |
|                                          |                                     |                                           | EVALUATIO | N                                                                                                                                                                   |
| Domain                                   |                                     | Metric                                    | Rating    | Comments                                                                                                                                                            |
| Domain 1: Substance                      |                                     |                                           |           |                                                                                                                                                                     |
|                                          | Metric 1:                           | Representativeness                        | High      | Data are measured or estimated for the subject chemical substance.                                                                                                  |
|                                          | Metric 2:                           | Appropriateness                           | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                                |
| Domain 2: Test Reliabil                  | ity                                 |                                           |           |                                                                                                                                                                     |
|                                          | Metric 3:                           | Reliability/Unbiased                      | Medium    | There is no indication that the methodology for producing the information was biased                                                                                |
|                                          |                                     | (Method Objectivity)                      |           | towards a particular product or outcome.                                                                                                                            |
|                                          | Metric 4:                           | Reliability/Analytical Method             | Medium    | Analytical method is unknown but is likely to be appropriate based on the data's inclu-<br>sion in a peer- reviewed/recognize d database or other secondary source. |
| Domain 3: Other                          |                                     |                                           |           |                                                                                                                                                                     |
| Domain 5. Outer                          | Metric 5:                           | Databases                                 | High      | Data is from a recognized peer-reviewed data collection                                                                                                             |
|                                          | Metric 6:                           | Models                                    | N/A       | Rating of this factor is not applicable to this kind of information.                                                                                                |
|                                          |                                     |                                           |           |                                                                                                                                                                     |
| <b>Overall Qualit</b>                    | ty Determi                          | nation                                    | High      |                                                                                                                                                                     |

| Study Citation:                               | EC, (2000). Priorit                         | ty Substances List Assessment                          | Report: 1.3-Butadiene.                                 |          |  |  |
|-----------------------------------------------|---------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|----------|--|--|
| <b>OECD</b> Harmonized                        | ECD Harmonized UV and Visible Absorption    |                                                        |                                                        |          |  |  |
| Template:                                     |                                             | 1                                                      |                                                        |          |  |  |
| HERO ID:                                      | 5160048                                     |                                                        |                                                        |          |  |  |
|                                               |                                             |                                                        | EXTRACTION                                             |          |  |  |
| Parameter                                     |                                             | Data                                                   |                                                        |          |  |  |
|                                               |                                             |                                                        |                                                        |          |  |  |
| CASRN and Test Material                       | a                                           | 106-99-0; Not Reported                                 |                                                        |          |  |  |
| Confidentiality, Type, and                    | Guideline                                   | No; not specified; Not Reported                        | 1                                                      |          |  |  |
| Solvent, Reactivity, Storag                   | e, and Stability                            | Not Reported; Not Reported; Not Reported; Not Reported |                                                        |          |  |  |
| Radiolabel, Source, State,                    | and Purity                                  | Not Reported; Not Reported; Not Reported; Not Reported |                                                        |          |  |  |
| Wave Length Range                             |                                             | 230 nm                                                 |                                                        |          |  |  |
| Light Source, Optical Path<br>Cell Type       | h Length, and Optical                       | Not Reported; Not Reported; Not Reported               |                                                        |          |  |  |
| Test Concentration and Re                     | ference Substance                           | Not Reported; Not Reported                             |                                                        |          |  |  |
| Solvent and Solvent pH                        |                                             | Not Reported; Not Reported                             |                                                        |          |  |  |
| Blank Control, Maxima, L<br>Band Width        | Blank Control, Maxima, Lambda Max, and Peak |                                                        | Not Reported; Not Reported; Not Reported; Not Reported |          |  |  |
| Measured Absolute Value and Molar Coefficient |                                             | Not Reported; Not Reported                             |                                                        |          |  |  |
| Results Details                               |                                             | insignificant above 230 nm                             |                                                        |          |  |  |
|                                               | EVALUATION                                  |                                                        |                                                        |          |  |  |
| Domain                                        |                                             | Metric                                                 | Rating                                                 | Comments |  |  |

| Domain               |           | Metric                                       | Rating | Comments                                                                                                                                                                                                                                            |
|----------------------|-----------|----------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Domain 1: Substance  | 2         |                                              |        |                                                                                                                                                                                                                                                     |
|                      | Metric 1: | Representativeness                           | High   | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                      | Metric 2: | Appropriateness                              | Medium | Data measured for a structural analogue of the subject chemical substance are consistent<br>with what is expected for the subject chemical substance structural properties, features<br>or behaviors.                                               |
| Domain 2: Test Relia | bility    |                                              |        |                                                                                                                                                                                                                                                     |
|                      | Metric 3: | Reliability/Unbiased<br>(Method Objectivity) | Medium | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                      | Metric 4: | Reliability/Analytical Method                | Medium | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other      |           |                                              |        |                                                                                                                                                                                                                                                     |
|                      | Metric 5: | Databases                                    | High   | The information or data is from a recognized data collection/repository where data are<br>peer-reviewed by experts in the field, are broadly available to the public for review and<br>use OR includes references to the original sources.          |
|                      | Metric 6: | Models                                       | N/A    | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |

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|                        |                                               | continued from previous page |          |  |
|------------------------|-----------------------------------------------|------------------------------|----------|--|
| Study Citation:        | EC, (2000). Priority Substances List Assessme | nt Report: 1,3-Butadiene.    |          |  |
| <b>OECD Harmonized</b> | UV and Visible Absorption                     |                              |          |  |
| Template:              |                                               |                              |          |  |
| HERO ID:               | 5160048                                       |                              |          |  |
|                        |                                               | EVALUATION                   |          |  |
| Domain                 | Metric                                        | Rating                       | Comments |  |

| <b>Overall Quality Determination</b> | High |  |
|--------------------------------------|------|--|
|                                      |      |  |
|                                      |      |  |

\* Related References: cited from Jaber, H.M., W.R. Mabey, A.T. Liu, T.W. Chouand H.L. Johnson. 1984. Data acquisition forenvironmental transport and fate screening.SRI International, Menlo Park, California(EPA 600/6-84-009).

| Study Citation:                               | Fahr, A., Nayak, A. K. (1994). Temperature dependent ultraviolet absorption cross sections of 1,3-butadiene and butadiyne. Chemical Physics 189(3):725- |                                                                                                                                                                                                                                                                                                                |  |  |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>OECD Harmonized</b>                        | 731.<br>UV and Visible Absorption                                                                                                                       |                                                                                                                                                                                                                                                                                                                |  |  |
| Template:                                     |                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                |  |  |
| HERO ID:                                      | 5621443                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                |  |  |
|                                               |                                                                                                                                                         | EXTRACTION                                                                                                                                                                                                                                                                                                     |  |  |
| Parameter                                     |                                                                                                                                                         | Data                                                                                                                                                                                                                                                                                                           |  |  |
|                                               |                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                |  |  |
| CASRN and Test Material                       |                                                                                                                                                         | 106-99-0; Not Reported                                                                                                                                                                                                                                                                                         |  |  |
| Confidentiality, Type, and                    | Guideline                                                                                                                                               | no; experimental; Temperature dependent absorption cross sections                                                                                                                                                                                                                                              |  |  |
| Solvent, Reactivity, Storag                   | e, and Stability                                                                                                                                        | Not Reported; Not Reported; Not Reported; Not Reported                                                                                                                                                                                                                                                         |  |  |
| Radiolabel, Source, State,                    | and Purity                                                                                                                                              | Not Reported; Matheson Gad Products; Not Reported; Not Reported Notes: used it after successive freeze-pump-thaw cycles.                                                                                                                                                                                       |  |  |
| Wave Length Range                             |                                                                                                                                                         | 160 - 240                                                                                                                                                                                                                                                                                                      |  |  |
| Light Source, Optical Path<br>Cell Type       | h Length, and Optical                                                                                                                                   | a one meter, single beam, vacuum monochromatot provided with interchangeable vacuum UV and UV photomultipliers, a deuterium light source,<br>an analog to digital circuitry, computer controlled stepping motor for wavelength control and computerized data acquisition system; Not Reported;<br>Not Reported |  |  |
| Test Concentration and Re-                    | ference Substance                                                                                                                                       | Not Reported; Not Reported                                                                                                                                                                                                                                                                                     |  |  |
| Solvent and Solvent pH                        |                                                                                                                                                         | Not Reported; Not Reported                                                                                                                                                                                                                                                                                     |  |  |
| Blank Control, Maxima, L<br>Band Width        | ambda Max, and Peak                                                                                                                                     | Not Reported; Not Reported; aprox. 210 based on figure 1; 160-240 nm                                                                                                                                                                                                                                           |  |  |
| Measured Absolute Value and Molar Coefficient |                                                                                                                                                         | Not Reported; Not Reported                                                                                                                                                                                                                                                                                     |  |  |
| Results Details                               |                                                                                                                                                         | measured at 333 K, 313 K, 295 K, 273 K, 253 K, 233 K, and 218 K                                                                                                                                                                                                                                                |  |  |

| EVALUATION            |           |                                              |        |                                                                                                                                                                                                                                                     |
|-----------------------|-----------|----------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Domain                |           | Metric                                       | Rating | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance   |           |                                              |        |                                                                                                                                                                                                                                                     |
|                       | Metric 1: | Representativeness                           | High   | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                       | Metric 2: | Appropriateness                              | High   | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties                                                                            |
| Domain 2: Test Reliab | ility     |                                              |        |                                                                                                                                                                                                                                                     |
|                       | Metric 3: | Reliability/Unbiased<br>(Method Objectivity) | Medium | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                       | Metric 4: | Reliability/Analytical Method                | Medium | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other       |           |                                              |        |                                                                                                                                                                                                                                                     |
|                       | Metric 5: | Databases                                    | Medium | The data are from a source that is known but is missing elements required for High designation such as peer-review, public availability, or the inclusion of references to original sources.                                                        |
|                       | Metric 6: | Models                                       | N/A    | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
|                       |           |                                              |        |                                                                                                                                                                                                                                                     |

Continued on next page ...

# ...continued from previous page Study Citation: Fahr, A., Nayak, A. K. (1994). Temperature dependent ultraviolet absorption cross sections of 1,3-butadiene and butadiyne. Chemical Physics 189(3):725 OECD Harmonized 731. UV and Visible Absorption Template: 5621443 Domain Metric EVALUATION Domain Metric Rating Comments

High

## **Overall Quality Determination**

\* Related References: no references cited

| Study Citation:                         | Sun, H. N., Wristers, J. P. (2002). Butadiene. |                                                        |  |
|-----------------------------------------|------------------------------------------------|--------------------------------------------------------|--|
| OECD Harmonized                         | UV and Visible Absorption                      |                                                        |  |
| Template:                               |                                                |                                                        |  |
| HERO ID:                                | 5349218                                        |                                                        |  |
|                                         |                                                | EXTRACTION                                             |  |
| Parameter                               |                                                | Data                                                   |  |
|                                         |                                                |                                                        |  |
| CASRN and Test Material                 |                                                | 106-99-0; Not Reported                                 |  |
| Confidentiality, Type, and              | Guideline                                      | no; not specified; Not Reported                        |  |
| Solvent, Reactivity, Storage            | e, and Stability                               | Not Reported; Not Reported; Not Reported; Not Reported |  |
| Radiolabel, Source, State, a            | and Purity                                     | Not Reported; Not Reported; Not Reported; Not Reported |  |
| Wave Length Range                       |                                                | 217                                                    |  |
| Light Source, Optical Path<br>Cell Type | h Length, and Optical                          | Not Reported; Not Reported; Not Reported               |  |
| Test Concentration and Ret              | ference Substance                              | Not Reported; Not Reported                             |  |
| Solvent and Solvent pH                  |                                                | Not Reported; Not Reported                             |  |
| Blank Control, Maxima, La<br>Band Width | ambda Max, and Peak                            | Not Reported; Not Reported; 217; cm-1                  |  |
| Measured Absolute Value a               | and Molar Coefficient                          | Not Reported; Not Reported                             |  |
| Results Details                         |                                                | Not Reported                                           |  |
|                                         |                                                |                                                        |  |

| EVALUATION                         |           |                                              |        |                                                                                                                                                                                                                                                     |
|------------------------------------|-----------|----------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Domain                             |           | Metric                                       | Rating | Comments                                                                                                                                                                                                                                            |
| Domain 1: Substance                |           |                                              |        |                                                                                                                                                                                                                                                     |
|                                    | Metric 1: | Representativeness                           | High   | Data are measured or estimated for the subject chemical substance.                                                                                                                                                                                  |
|                                    | Metric 2: | Appropriateness                              | High   | Measured data are consistent with the subject chemical substance structural features (e.g., presence of certain functional groups) or other physical/chemical properties                                                                            |
| Domain 2: Test Reliab              | oility    |                                              |        |                                                                                                                                                                                                                                                     |
|                                    | Metric 3: | Reliability/Unbiased<br>(Method Objectivity) | Medium | There is no indication that the methodology for producing the information was biased towards a particular product or outcome.                                                                                                                       |
|                                    | Metric 4: | Reliability/Analytical Method                | Medium | The analytical method is non-standard but is expected to be appropriate OR the analyti-<br>cal method is unknown but is likely to be appropriate based on the data's inclusion in a<br>peer-reviewed/recognized database or other secondary source. |
| Domain 3: Other                    |           |                                              |        |                                                                                                                                                                                                                                                     |
|                                    | Metric 5: | Databases                                    | High   | The information or data is from a recognized data collection/repository where data are<br>peer-reviewed by experts in the field, are broadly available to the public for review and<br>use OR includes references to the original sources.          |
|                                    | Metric 6: | Models                                       | N/A    | Rating of this factor is not applicable to this kind of information.                                                                                                                                                                                |
| Overall Quality Determination High |           |                                              |        |                                                                                                                                                                                                                                                     |
| Continued on next page             |           |                                              |        |                                                                                                                                                                                                                                                     |

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|                                                 |                                                                             | continued from previous page |          |
|-------------------------------------------------|-----------------------------------------------------------------------------|------------------------------|----------|
| Study Citation:<br>OECD Harmonized<br>Template: | Sun, H. N., Wristers, J. P. (2002). Butadiene.<br>UV and Visible Absorption |                              |          |
| HERO ID:                                        | 5349218                                                                     |                              |          |
|                                                 |                                                                             | EVALUATION                   |          |
| Domain                                          | Metric                                                                      | Rating                       | Comments |

\* Related References: The source cites one of six references W. Baker and A. L. Mossman, Matheson Gas Data Book 83, (1980) F. D. Rossini, K. S. Pitzer, R. L. Arnett, R. M. Braun, and G. C. Pimentel, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, American Petroleum Institute Research Project 44, Carnegie Press, Pittsburgh, Pa., 1953. R. C. Weast, CRC Handb. Chem. Phys. 70, C161 (1990). C. L. Yaws and P.-Y. Chiang, Chem. Eng. 95(13), 81 (1988). N. Gee, K. Shinsaka, J. P. Dodelet, and G. R. Freeman, J. Chem. Thermodyn. 18, 221 (1986). C. L. Yaws, H.-C. Yang, J. R. Hopper, and K. C. Hansen, Chem. Eng. 97(4), 177 (1990). Vol. 4 BUTADIENE 385 Standard on Explosion Prevention Systems, National Fire Protection Association, NFPA 69, Boston, Mass., 1973.

List of Abbreviations and Acronyms for Data Quality Evaluation and Extraction Tables

List of Abbreviations and Acronyms for Data Quality Evaluation and Extraction Tables

| Term                | Definition                                                           |
|---------------------|----------------------------------------------------------------------|
| ASTM                | American Society for Testing and Materials                           |
| ATSDR               | Agency for Toxic Substances and Disease Registry                     |
| atm                 | Atmospheres                                                          |
| $atm \cdot m^3/mol$ | Atmospheres - cubic meters per mole                                  |
| C                   | Celsius                                                              |
| CASRN               | Chemical Abstract Service registry number                            |
| cP                  | Centipoise                                                           |
| CRC                 | CRC Handbook of Chemistry and Physics                                |
| DOE                 | U.S. Department of Energy                                            |
| ECB                 | European Chemicals Bureau                                            |
| EPA                 | Environmental Protection Agency                                      |
| F                   | Fahrenheit                                                           |
| GC                  | Gas Chromatography                                                   |
| g/cm <sup>3</sup>   | Grams per cubic centimeter                                           |
| GLP                 | Good Laboratory Practice                                             |
| HLC                 | Henry's Law Constant                                                 |
| HPV                 | High Production Volume                                               |
| HSDB                | Hazard Substance Data Bank                                           |
| ILO                 | International Labour Organization                                    |
| IPCS                | International Programme on Chemical Safety                           |
| IUCLID              | International Uniform Chemical Information Database                  |
| K                   | Kelvin                                                               |
| Koa                 | Octanol-Air partition coefficient                                    |
| Kow                 | Octanol-Water partition coefficient                                  |
| mg/L                | Milligrams per Liter                                                 |
| mol                 | Mole                                                                 |
| mmHg                | Millimeters of Mercury                                               |
| MS                  | Mass Spectrometry                                                    |
| N/A                 | Not Applicable                                                       |
| NICNAS              | National Industrial Chemicals Notification and Assessment Scheme     |
| NLM                 | National Library of Medicine                                         |
| NR                  | Not Reported                                                         |
| OECD                | Organisation for Economic Co-operation and Development               |
| Pa (hPa)            | Pascals (hectopascals; $1 \text{ hPa} = 100 \text{ Pa}$ )            |
| pH                  | Negative base 10 Log of Hydrogen Ion (H+) Concentration in Aque-     |
|                     | ous Solution                                                         |
| рКа                 | Negative base 10 Log of Acid Dissociation Constant (Ka)              |
| RIVM                | National Institute for Public Health and the Environment (Dutch: Ri- |
|                     | jksinstituut voor Volksgezondheid en Milieu)                         |

### PUBLIC RELEASE DRAFT November 2024

List of Abbreviations and Acronyms for Data Quality Evaluation and Extraction Tables

| Term        | Definition                    |
|-------------|-------------------------------|
| RSC         | Royal Society of Chemistry    |
| RT          | Retention Time                |
| SIDs        | Screening Information Dataset |
| VP          | Vapor Pressure                |
| US or USA   | United States of America      |
| UV (UV-Vis) | Ultra Violet (UV-Visible)     |
| WHO         | World Health Organization     |

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