≎EPA **United States** **Office of Chemical Safety and**
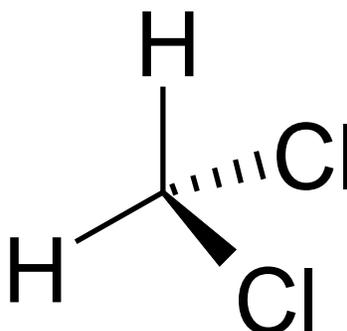**Environmental Protection Agency** **Pollution Prevention**

Risk Evaluation for Methylene Chloride (Dichloromethane, DCM)

Systematic Review Supplemental File:

Data Quality Evaluation of
Environmental Release and Occupational Exposure Data

CASRN: 75-09-2

October 2019

This document is a compilation of tables for the data extraction and evaluation for Methylene Chloride (Dichloromethane, DCM) . Each table shows the data point or set or information element that was extracted and evaluated from a data source in accordance with Appendix D of the Application of Systematic Review in TSCA Risk Evaluations. If the source contains more than one data set or information element, the review provides an overall confidence score for each data set or information element that is found in the source. Therefore, it is possible that a source may have more than one overall quality/confidence score.

Table of Contents

Explanatory Notes

These explanatory notes provide context to understand the short comments in the data evaluation tables.

Domain	Metric	Description of Comments Field
Reliability	Methodology	Indicates the sampling/analytical methodology, estimation method, or type of publication
Representativeness	Geographic Scope	Indicates the country of the study, publication, or underlying data
	Applicability	Indicates whether the data are for a condition of use within scope of the Risk Evaluation
	Temporal Representativeness	Provides the year of study, publication, or underlying data
	Sample Size	Describes the distribution of the sample or underlying data
Accessibility / Clarity	Metadata Completeness	Describes the completeness of the metadata
Variability and Uncertainty	Metadata Completeness	Indicates if study or publication addresses variability and uncertainty of the data or information

Releases to the Environment

Source Citation:	2014. Toxic release inventory: Dichloro-methane.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3860461

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Release Source:	All
Environmental Media:	Annual release estimates for UI, landfills, fugitive air, surface water.
Release Estimation Method:	Reported
Annual Release Quantity (kg/yr):	135,396 lb/yr to Class I Wells; 16,212 lb/yr to RCRA Subtitle C landfills, 54 lb/yr to other on-site landfills; 1,346,811 lb/yr to fugitive air; 1,607,512 lb/yr from point sources; 24,567 lb/yr to surface water; 2,677 lb/yr to other land disposal.

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	EPA Source
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Overal releases
	Metric 4:	Temporal Representativeness	High	× 2	2	2014
	Metric 5:	Sample Size	High	× 1	1	Direcly reported data to EPA
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Data provided by site on an annual basis only
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Chemistry Industry Association of, Canada. 2017. All substances emissions for 2012 and projections for 2015.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3982361

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Environmental Media:	not specified
Release Estimation Method:	Estimated
Annual Release Quantity (kg/yr):	0 tonnes/yr
Number of Sites:	1

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Low	× 1	3	not specified
Domain 2: Representative					
	Metric 2: Geographic Scope	Medium	× 1	2	Canada
	Metric 3: Applicability	Medium	× 2	4	Warehouse
	Metric 4: Temporal Representativeness	High	× 2	2	2012
	Metric 5: Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Unacceptable	× 1	4	no media of release
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 2.3.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Chemistry Industry Association of, Canada. 2017. All substances emissions for 2011 and projections for 2014.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3982362

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing/Use
Environmental Media:	not specified
Release Estimation Method:	Estimated
Annual Release Quantity (kg/yr):	0.02 tonnes/yr
Number of Sites:	3

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	not specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Canada
	Metric 3:	Applicability	Medium	× 2	4	Warehouse; industrial site(s)
	Metric 4:	Temporal Representativeness	High	× 2	2	2011
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	no media of release
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 2.3.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Occupational exposure to methylene chloride: Section 9 - IX. Environmental impact.
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978297

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polyurethane foam manufacturing
Release Source:	Polyurethane foam manufacturing
Environmental Media:	air
Release or Emission Factor:	1
Release Estimation Method:	Estimated

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	OSHA Preamble to Final Rules - Environmental Impact Section
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Polyurethane foam manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Occupational exposure to methylene chloride: Section 9 - IX. Environmental impact.
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978297

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Release Source:	Paint Stripping
Environmental Media:	air
Release or Emission Factor:	1
Release Estimation Method:	Estimated

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	OSHA Preamble to Final Rules - Environmental Impact Section
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Paint Stripping
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Occupational exposure to methylene chloride: Section 9 - IX. Environmental impact.
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978297

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Solvent Recovery
Release Source:	Solvent Recovery
Environmental Media:	air
Release or Emission Factor:	<1 percent
Release Estimation Method:	Estimated

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	OSHA Preamble to Final Rules - Environmental Impact Section
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Solvent Recovery
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Occupational exposure to methylene chloride: Section 9 - IX. Environmental impact.
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978297

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Release Source:	Manufacture of DCM
Environmental Media:	air
Release or Emission Factor:	<1 percent
Release Estimation Method:	Estimated

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	OSHA Preamble to Final Rules - Environmental Impact Section
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Manufacture of DCM
Metric 4:	Temporal Representativeness	Low	× 2	6	1997
Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polyurethane Foam Blowing
Release Source:	Polyurethane Foam Blowing
Environmental Media:	air
Release or Emission Factor:	1
Release Estimation Method:	Estimated

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Polyurethane Foam Blowing
Metric 4:	Temporal Representativeness	Low	× 2	6	1997
Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source   Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Aerosols
Release Source:	Aerosols
Environmental Media:	air
Release or Emission Factor:	unknown during packing; 100 percent release during consumer use
Release Estimation Method:	Estimated

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Aerosols
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polycarbonate Resin
Release Source:	Polycarbonate Resin
Environmental Media:	air
Release or Emission Factor:	7,000,000 lb/yr released
Release Estimation Method:	Estimated

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Polycarbonate Resin
Metric 4:	Temporal Representativeness	Low	× 2	6	1997
Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Pharmaceuticals
Release Source:	Pharmaceuticals
Environmental Media:	air
Release or Emission Factor:	43 percent released and 57 percent recovered and processed for use
Release Estimation Method:	Estimated

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Pharmaceuticals
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paints and Coatings
Release Source:	Paints and Coatings
Environmental Media:	air
Release or Emission Factor:	1
Release Estimation Method:	Estimated

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Paints and Coatings
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cellulose Triacetate and Film Base Production
Release Source:	Cellulose Triacetate and Film Base Production
Environmental Media:	air
Release or Emission Factor:	4,500,000 lb/yr
Release Estimation Method:	Estimated

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Cellulose Triacetate and Film Base Production
Metric 4:	Temporal Representativeness	Low	× 2	6	1997
Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source   Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Electronics
Release Source:	Electronics
Environmental Media:	air
Release or Emission Factor:	1
Release Estimation Method:	Estimated

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	OSHA - Proposed Rules
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Electronics
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
    High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Releases to the Environment; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Release Source:	Manufacture of DCM
Environmental Media:	air
Release or Emission Factor:	<1 percent compared to the use of DCM in 1995
Release Estimation Method:	Estimated

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Refers to Tukker et al. 1995
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	OECD
	Metric 3:	Applicability	High	× 2	2	Manufacture of DCM
	Metric 4:	Temporal Representativeness	Low	× 2	6	1995
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Releases to the Environment; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Release Source:	Paint Stripping
Environmental Media:	85-90 percent to air; 10-15 percent to waste

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Refers to Tukker et al. 1995
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	OECD
	Metric 3:	Applicability	High	× 2	2	Paint Stripping
	Metric 4:	Temporal Representativeness	Low	× 2	6	1991
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Releases to the Environment; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Adhesives
Release Source:	Adhesives
Environmental Media:	air
Release or Emission Factor:	1

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	$\times\,1$	2	Refers to Tukker et al. 1995
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	$\times\,1$	2	OECD
	Metric 3:	Applicability	High	$\times\,2$	2	Adhesives
	Metric 4:	Temporal Representativeness	Low	$\times\,2$	6	1995
	Metric 5:	Sample Size	Low	$\times\,1$	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	$\times\,1$	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	$\times\,1$	3	No discussion of variability or uncertainty
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source Releases to the Environment; Completed Exposure or Risk Assessments;
Hero ID 3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Aerosols
Release Source:	Aerosols
Environmental Media:	air
Release or Emission Factor:	1

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	European Commission Report
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	OECD
	Metric 3:	Applicability	High	× 2	2	Aerosols
	Metric 4:	Temporal Representativeness	Low	× 2	6	unknown
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Releases to the Environment; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Pharmaceuticals
Release Source:	Pharmaceuticals
Environmental Media:	55 percent to air; 44 percent discharge with waste; 1 percent to water

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Refers to Tukker et al. 1995
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	OECD
	Metric 3:	Applicability	High	× 2	2	Pharmaceuticals
	Metric 4:	Temporal Representativeness	Low	× 2	6	1995
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source   Releases to the Environment; Completed Exposure or Risk Assessments;
Hero ID   3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Other chemical processing (solvent in polycarbonate; blowing agent in PUR)
Release Source:	Other chemical processing (solvent in polycarbonate; blowing agent in PUR)
Environmental Media:	0.2 percent to water; 64.8 percent to air; 35 percent to waste

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Refers to Tukker et al. 1995
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	OECD
	Metric 3:	Applicability	High	× 2	2	Other chemical processing (solvent in polycarbonate; blowing agent in PUR)
	Metric 4:	Temporal Representativeness	Low	× 2	6	1995
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Releases to the Environment; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Degreasing
Release Source:	Degreasing
Environmental Media:	0.3 percent to water; 57.7 percent to air; 42 percent to waste

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Refers to van der Most 1993
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	OECD
	Metric 3:	Applicability	High	× 2	2	Degreasing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Releases to the Environment; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Food extraction
Release Source:	Food extraction
Environmental Media:	100 percent to air

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Refers to UBA 1991
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	OECD
	Metric 3:	Applicability	High	× 2	2	Food extraction
	Metric 4:	Temporal Representativeness	Low	× 2	6	1991
	Metric 5:	Sample Size	Low	× 1	3	no sample size data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	only includes release media
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Kikuchi, E. mi,Kikuchi, Y.,Hirao, M.. 2012. Monitoring and Analysis of Solvent Emissions from Metal Cleaning Processes for Practical Process Improvement. Annals of Occupational Hygiene.
Type of Data Source	Releases to the Environment; Published Models for Exposures or Releases;
Hero ID	2128076

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Open top vapor degreasing
Release Source:	Open top vapor degreasing
Environmental Media:	air
Release or Emission Factor:	various rate of solvent diffusion (kg/m-s)
Release Estimation Method:	calculated curves based on data

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Journal article
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Japan
	Metric 3:	Applicability	High	× 2	2	Vapor Degreasing
	Metric 4:	Temporal Representativeness	High	× 2	2	2011
	Metric 5:	Sample Size	N/A		N/A	modeling approach - no sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	modeling air releases
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	error bars included but no discussion
Overall Quality Determination[†]			High		1.6	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1994. Chemical summary for methylene chloride (dichloromethane).
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3860545

EXTRACTION

Parameter	Data
Life Cycle Stage:	EPA Chemical Summary
Life Cycle Description (Subcategory of Use):	Varies
Release Source:	Varies
Disposal /Treatment Method:	Varies
Environmental Media:	Air
Release or Emission Factor:	Varies

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA - though there is a line that states: No attempt has been made to verify information in these databases and secondary sourced.
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Low	× 2	6	Overview of the DCM, production use, fate, etc.
	Metric 4:	Temporal Representativeness	Low	× 2	6	1994, 24 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No Comment.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination†			Low		2.6	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Atsdr,. 2006. Health consultation: Historical outdoor air emissions in the Endicott area: International Business Machines Corporation (IBM): Village of Endicott, Broome County, New York EPA facility ID: NYD002233039, Part 2.
Type of Data Source	Releases to the Environment; Completed Exposure or Risk Assessments;
Hero ID	3978093

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	electronics manufacturing
Release Source:	fugitive and stack
Environmental Media:	Air
Release or Emission Factor:	Varies
Release Estimation Method:	calculated based on historic facility use data
Release Days per Year:	continuous
Number of Sites:	1

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Agency for Toxic Substances and Disease Registry (ATSDR)
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Low	× 2	6	Overview and analysis of historical DCM release into the environment
	Metric 4:	Temporal Representativeness	Medium	× 2	4	2006, 12 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Clearly documents sources, methods, and assumptions
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	High	× 1	1	Discusses limitations and uncertainty in data.
Overall Quality Determination[†]			Medium		1.9	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Erg,. 2008. LCI summary for six tuna packaging systems.
Type of Data Source	Releases to the Environment; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978168

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Food Production
Environmental Media:	Air
Annual Release Quantity (kg/yr):	0.000043 to 0.0015 lbs/100,000 ounces

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Franklin Associates/ERG
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Unacceptable	× 2	8	Not quite relevant. Only addresses atmospheric emisssions of Methylene Chloride
	Metric 4:	Temporal Representativeness	Medium	× 2	4	2008, 10 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Data is generally well documented.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Limited Discussion of uncertainty
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 2.3.

[**] Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1993. Locating and estimating air emissions from sources of methylene chloride.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3970168

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Methane Chlorination
Release Source:	Inert Gas purge vent product recover condenser
Environmental Media:	Air
Release or Emission Factor:	0.28 lb/ton produced
Number of Sites:	5

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Method was referenced in citation: XATEF database
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that produces Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Basic Metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No addressed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1993. Locating and estimating air emissions from sources of methylene chloride.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3970168

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Methane Chlorination
Release Source:	Storage
Environmental Media:	Air
Release or Emission Factor:	2.04 lb/ton produced
Number of Sites:	5

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Method was referenced in citation: XATEF database
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that produces Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Basic Metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No addressed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1993. Locating and estimating air emissions from sources of methylene chloride.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3970168

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Methyl Chloride Chlorination
Release Source:	Inert Gas purge vent product recover condenser
Environmental Media:	Air
Release or Emission Factor:	0.052 lb/ton produced
Number of Sites:	5

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Method was referenced in citation: XATEF database
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that produces Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Basic Metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No addressed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1993. Locating and estimating air emissions from sources of methylene chloride.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3970168

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Methyl Chloride Chlorination
Release Source:	Storage
Environmental Media:	Air
Release or Emission Factor:	4.92 lb/ton produced
Number of Sites:	5

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	Method was referenced in citation: XATEF database
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that produces Methylene Chloride
Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old
Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Basic Metadata present
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No addressed
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1993. Locating and estimating air emissions from sources of methylene chloride.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3970168

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Methylene Chloride Production
Release Source:	Entire Processs
Environmental Media:	Air
Release or Emission Factor:	6 lb/ton produced
Number of Sites:	5

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Method was referenced in citation: XATEF database
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that produces Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Basic Metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No addressed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1993. Locating and estimating air emissions from sources of methylene chloride.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3970168

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Wate Water Treatment
Release Source:	Publically owned treatment works
Environmental Media:	Air
Release or Emission Factor:	1040 lb/ton produced
Number of Sites:	5

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Medium	× 1	2	Method was referenced in citation: XATEF database
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Workplace that produces Methylene Chloride
	Metric 4: Temporal Representativeness	Low	× 2	6	1993, 25 years old
	Metric 5: Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Medium	× 1	2	Basic Metadata present
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No addressed
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1991. Emissions of Metals and Organics from Municipal Wastewater Sludge Incinerators.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	1261227

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Life Cycle Description (Subcategory of Use):	Sludge Incinerator
Release Source:	Stacks
Environmental Media:	Air
Release or Emission Factor:	.151-1.04 gram/hr
Release Estimation Method:	semi-VOST method (collected from flu-gas)
Number of Sites:	4

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA Method was referenced in text.
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Workplace indirectly connected to Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1987, 31 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.
Overall Quality Determination[†]			Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Chiang, H. L.,Lin, K. H.. 2014. Exhaust constituent emission factors of printed circuit board pyrolysis processes and its exhaust control. Journal of Hazardous Materials.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	2232631

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Life Cycle Description (Subcategory of Use):	PCB recycling
Release Source:	Exhaust
Environmental Media:	Air
Release or Emission Factor:	82-2010 ug/g PCB pyrolysis
Release Estimation Method:	Discussed, but not named.

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Journal of Hazardous Materials - though no methods were stated for DCM
Domain 2: Representative						
	Metric 2:	Geographic Scope	Low	× 1	3	China
	Metric 3:	Applicability	Medium	× 2	4	Workplace indirectly connected to Methylene Chloride
	Metric 4:	Temporal Representativeness	High	× 2	2	2013, 5 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Some variability addressed in the results.
Overall Quality Determination†			Medium		2.0	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Schuetz, C.,Bogner, J.,Chanton, J.,Blake, D.,Morcet, M.,Kjeldsen, P.. 2003. Comparative oxidation and net emissions of methane and selected non-methane organic compounds in landfill cover soils. Environmental Science and Technology.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	2528560

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Life Cycle Description (Subcategory of Use):	Landfill Emissions
Release Source:	Ambient Emissions
Environmental Media:	Air
Release or Emission Factor:	700ug/L
Release Estimation Method:	Discussed, but not named.
Release Days per Year:	365
Number of Sites:	1

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Medium	× 1	2	American Chemical Society Environmental Science and Technology - detailed description of process, but no statement of method.
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US, predominantly. Lab work was done in the US.
	Metric 3: Applicability	Low	× 2	6	Workplace indirectly connected to Methylene Chloride
	Metric 4: Temporal Representativeness	Medium	× 2	4	2003, 15 years old
	Metric 5: Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Medium	× 1	2	Majority of metadata present
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	None addressed.
Overall Quality Determination[†]		Low		2.3	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Cheng, W.,Hsu, S. K.,Chou, M. S.. 2008. Volatile organic compound emissions from wastewater treatment plants in Taiwan: Legal regulations and costs of control. Journal of Environmental Management.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	2546404

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Life Cycle Description (Subcategory of Use):	Watewater Treatment
Release Source:	industrial effluent
Disposal /Treatment Method:	Standard
Environmental Media:	Air/Water
Release or Emission Factor:	ND-48.1 ug/L
Release Estimation Method:	EPA Method 8240B

EVALUATION

Domain	Metric	Rating	MWF★	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	EPA Method 8240B
Domain 2: Representative					
	Metric 2: Geographic Scope	Low	× 1	3	Taiwan
	Metric 3: Applicability	Medium	× 2	4	Workplace indirectly connected to Methylene Chloride
	Metric 4: Temporal Representativeness	Medium	× 2	4	2008, 10 years old
	Metric 5: Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	Lacking in critical metadata
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	None addressed.
Overall Quality Determination[†]		Low		2.3	

★ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Zhang, K.. 2010. Characterization and Uncertainty Analysis of VOCs Emissions from Industrial Wastewater Treatment Plants. Environmental Progress and Sustainable Energy.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	2630164

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Life Cycle Description (Subcategory of Use):	Industrial Wastewater Treatment
Release Source:	industrial effluent
Environmental Media:	Air/Water
Release Estimation Method:	WATER9 and TOXCHEM +V3
Daily Release Quantity (kg/day):	2.590 - 2.822 lb/day
Release Days per Year:	365?
Number of Sites:	1

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	WATER9 and TOXCHEM +V3
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Workplace indirectly connected to Methylene Chloride
	Metric 4:	Temporal Representativeness	High	× 2	2	2010, 8 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	High	× 1	1	Uncertainty in data/estimations is addressed in detail.
Overall Quality Determination†			High		1.6	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	McCulloch, A.,Midgley, P. M.. 1996. The production and global distribution of emissions of trichloroethene, tetrachloroethene and dichloromethane over the period 1988"1992. Atmospheric Environment.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3026800

EXTRACTION

Parameter	Data
Life Cycle Stage:	Global Emissions
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Environmental Media:	Air
Release Estimation Method:	Discussed, but not named.
Annual Release Quantity (kg/yr):	513,000 - 592,000 metric tons

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Process explained and cited.
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Europe
	Metric 3:	Applicability	Medium	× 2	4	Workplace that produces Methylene Chloride, but only relates to environmental emissions
	Metric 4:	Temporal Representativeness	Low	× 2	6	1995, 23 years old
	Metric 5:	Sample Size	Low	× 1	3	not provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	High	× 1	1	Uncertainty in data/estimations is addressed in detail.
Overall Quality Determination[†]			Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1978. OAQPS guideline series: Control of volatile organic emissions from manufacture of synthesized pharmaceutical products.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3970050

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	pharmaceutical manufacture
Release Source:	fugitive and stack
Disposal /Treatment Method:	Incineration
Environmental Media:	Air
Release Estimation Method:	Based on purchase and recovery numbers
Annual Release Quantity (kg/yr):	5,310 metric tons
Number of Sites:	>26

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA document
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Workplace that produces Methylene Chloride, but only relates to environmental emissions
	Metric 4:	Temporal Representativeness	Low	× 2	6	1978, 40 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.
Overall Quality Determination[†]			Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Japanese Ministry of, Environment. 2009. Overview of PRTR data in fiscal year 2009: Top 10 chemicals of reported release, release outside notification of PRTR.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3986513

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use/Manufacture
Life Cycle Description (Subcategory of Use):	Use/Manufacture
Annual Release Quantity (kg/yr):	14,763 tons/year (2009)

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Ministry of the Environment (UK)
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Europe
	Metric 3:	Applicability	Medium	× 2	4	Workplace that produces Methylene Chloride, but only relates to environmental emissions
	Metric 4:	Temporal Representativeness	High	× 2	2	2009, 9 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No Comment.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1997. Pharmaceutical production NESHAP.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3970121

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Pharmacuetical Manufacture
Environmental Media:	Air, Water
Annual Release Quantity (kg/yr):	1992, industry wide:Air: 7,128,769 lb/yrWater: 496,917 lb/yr

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	US EPA - but data is pulled from surveys, reporting, and extrapolation
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Industry that works with methylene chloride, but is focused on industry -wide big picture.
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997, 21 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No Comment.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed
Overall Quality Determination[†]			Low		2.4	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 2017. Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Methylene Chloride.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3986757

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use/Manufacture
Life Cycle Description (Subcategory of Use):	Use/Manufacture
Release Source:	21 manufacture8 import146 processing202 other uses
Environmental Media:	All
Release Estimation Method:	Reported Releases
Annual Release Quantity (kg/yr):	2015: 153,707,292 lbs/yr.

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Office of Chemical Safety and Pollution Prevention (OCSPP) Report
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Industry that works with methylene chloride, but is focused on industry -wide big picture.
	Metric 4:	Temporal Representativeness	High	× 2	2	2017, 1 year old
	Metric 5:	Sample Size	High	× 1	1	Well characterized.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Well documented.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Not applicable
Overall Quality Determination[†]			High		1.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
    High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Japanese Ministry of, Environment. 2004. Manual for PRTR release estimation models: Part II materials.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3986511

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use/Manufacture
Life Cycle Description (Subcategory of Use):	Use/Manufacture
Release Source:	Manufacture, storage, solvent use, cleaning
Environmental Media:	Atmosphere
Release or Emission Factor:	Manufacture: 0.002 kg/tStorage: 0.26 kg/tSolvent: 336 kg/tCleaning: 891 kg/t

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	not specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Likely Japan
	Metric 3:	Applicability	Medium	× 2	4	Industry that works with methylene chloride, but is focused on industry -wide big picture.
	Metric 4:	Temporal Representativeness	Low	× 2	6	Unknown
	Metric 5:	Sample Size	Low	× 1	3	Not well characterized
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Well documented.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Not applicable
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Japanese Ministry of, Environment. 2004. Manual for PRTR release estimation models: Part II materials.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	3986511

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Use
Release Source:	Degreasing/steam washing
Environmental Media:	Atmosphere: 0.8Water: 0Unit: Release/handled quantity
Release or Emission Factor:	With solvent recovery device: 0.4Without solvent recovery device: 0.75

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	not specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Likely Japan
	Metric 3:	Applicability	Medium	× 2	4	Industry that works with methylene chloride, but is focused on industry -wide big picture.
	Metric 4:	Temporal Representativeness	Low	× 2	6	Unknown
	Metric 5:	Sample Size	Low	× 1	3	Not well characterized
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Well documented.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Not applicable
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Gilbert, D.,Goyer, M.,Lyman, W.,Magil, G.,Walker, P.,Wallace, D.,Wechsler, A.,Yee, J.. 1982. An exposure and risk assessment for tetrachloroethylene.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	732615

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Dry Cleaning
Environmental Media:	air+++++water
Release or Emission Factor:	extimated 121,000 MT of PCE released to the atmosphere; the industry emits roughly one-half of the PCE it uses, mostly in the form of evaporative losses. Levels at the vents are between 6,800 and 680,000 ug/m3++++++++10 MT to sewer systems (table 2; pg 27 of 152).
Waste Treatment Method:	Carbon adsorption systems are being used increasingly to treat waste materials. In the process, solvents are routed through "chillers" to reduce relative temperatures.

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	dry cleaning data
	Metric 4:	Temporal Representativeness	Low	× 2	6	Data from greater than 20 years (1982)
	Metric 5:	Sample Size	Medium	× 1	2	Distribution of sample is characterized by a range with uncertain statistics
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Data sources clearly described
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed.
Overall Quality Determination†			Medium		1.8	

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Source Citation:	Gilbert, D.,Goyer, M.,Lyman, W.,Magil, G.,Walker, P.,Wallace, D.,Wechsler, A.,Yee, J.. 1982. An exposure and risk assessment for tetrachloroethylene.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	732615

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Gilbert, D.,Goyer, M.,Lyman, W.,Magil, G.,Walker, P.,Wallace, D.,Wechsler, A.,Yee, J.. 1982. An exposure and risk assessment for tetrachloroethylene.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	732615

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	metal degreasing
Environmental Media:	waterTetrachloroethylene is decomposed by contact with hot metals, certain inorganic acids, hot carbon, and certain alkaline metals or compounds of them. Unstabilized tetrachloroethylene can be corrosive to metals; this has obvious implications for the "terminal" disposal of waste solutions and sludges (containing the chemical) in unlined metal drums. TABLE 5. DEGRADATION OF TETRACHLOROETHYLENE UNDER VARIOUS CONDITIONS
Release or Emission Factor:	40 MT to water15-62.5 percent of the solvent consumed results in waste.Data for Tetrachloroethvlene (PCE) concentrations in wastewaters before and after teratment are shown in Table 8. Combined sewage may contain up to 2412 ug/l, although influent levels were typically below 100 ug/l. Effluents were much lower, usually below 5 ug/l, indicating removal efficiencies usually above 90 percent .
Release Estimation Method:	Largest release from cold metal cleaning is waste solvent evaporation. Evaporation from a vapor degreaser is less than from a cold cleaner of similar capacity because vapor degreasing wastes have a higher boiling point, volatilizing less rapidly, and vapor degreasing solvents contain expensive halogens, which are recycled. Distillation is used to recycle wastes in half of open-top vapor degreasers.
Daily Release Quantity (kg/day):	1300

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US

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Source Citation:	Gilbert, D.,Goyer, M.,Lyman, W.,Magil, G.,Walker, P.,Wallace, D.,Wechsler, A.,Yee, J.. 1982. An exposure and risk assessment for tetrachloroethylene.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	732615

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
	Metric 3:	Applicability	High	× 2	2	degreasing data
	Metric 4:	Temporal Representativeness	Low	× 2	6	Data from greater than 20 years (1982)
	Metric 5:	Sample Size	Medium	× 1	2	Distribution of sample is characterized by a range with uncertain statistics
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Data sources clearly described
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed.
Overall Quality Determination†			Medium		1.8	

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* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Gilbert, D.,Goyer, M.,Lyman, W.,Magil, G.,Walker, P.,Wallace, D.,Wechsler, A.,Yee, J.. 1982. An exposure and risk assessment for tetrachloroethylene.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	732615

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Dry Cleaning - Industrial Plant
Environmental Media:	air
Release or Emission Factor:	Release(see Table 16 for additional details)
Release Estimation Method:	model
Daily Release Quantity (kg/day):	22606
Annual Release Quantity (kg/yr):	13,004,483
Release Days per Year:	6
Number of Sites:	270

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	EPA
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	dry cleaning data
Metric 4:	Temporal Representativeness	Low	× 2	6	Data from greater than 20 years (1982)
Metric 5:	Sample Size	Medium	× 1	2	Distribution of sample is characterized by a range with uncertain statistics
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	Data sources clearly described
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed.
Overall Quality Determination[†]		Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Gilbert, D.,Goyer, M.,Lyman, W.,Magil, G.,Walker, P.,Wallace, D.,Wechsler, A.,Yee, J.. 1982. An exposure and risk assessment for tetrachloroethylene.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	732615

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Dry Cleaning - Commercial plant
Environmental Media:	air
Release or Emission Factor:	Release(see Table 16 for additional details); see page 96 of 152 for information on discharges to POTWs.
Release Estimation Method:	model
Daily Release Quantity (kg/day):	35002
Annual Release Quantity (kg/yr):	48,262,189
Release Days per Year:	5
Number of Sites:	18750

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	dry cleaning data
	Metric 4:	Temporal Representativeness	Low	× 2	6	Data from greater than 20 years (1982)
	Metric 5:	Sample Size	Medium	× 1	2	Distribution of sample is characterized by a range with uncertain statistics
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Data sources clearly described
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed.
Overall Quality Determination†			Medium		1.8	

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Source Citation:	Gilbert, D.,Goyer, M.,Lyman, W.,Magil, G.,Walker, P.,Wallace, D.,Wechsler, A.,Yee, J.. 1982. An exposure and risk assessment for tetrachloroethylene.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	732615

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Gilbert, D.,Goyer, M.,Lyman, W.,Magil, G.,Walker, P.,Wallace, D.,Wechsler, A.,Yee, J.. 1982. An exposure and risk assessment for tetrachloroethylene.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	732615

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	metal degreasing
Environmental Media:	water
Release or Emission Factor:	Release(see Table 16 for additional details); see page 96 of 152 for information on discharges to POTWs.
Release Estimation Method:	EXAMS model
Daily Release Quantity (kg/day):	58163
Annual Release Quantity (kg/yr):	8.76

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	degreasing data
	Metric 4:	Temporal Representativeness	Low	× 2	6	Data from greater than 20 years (1982)
	Metric 5:	Sample Size	Medium	× 1	2	Distribution of sample is characterized by a range with uncertain statistics
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Data sources clearly described
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed.
Overall Quality Determination[†]			Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	International Association for Soaps Detergents and Maintenance Products. 2012. AISE SPERC fact sheet - wide dispersive use of cleaning and maintenance products.
Type of Data Source	Releases to the Environment; Environmental Release Data;
Hero ID	5099141

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	aerosols
Environmental Media:	air
Release or Emission Factor:	100 percent

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	not specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	EU
	Metric 3:	Applicability	High	× 2	2	Aerosols
	Metric 4:	Temporal Representativeness	N/A		N/A	NA - assumption
	Metric 5:	Sample Size	N/A		N/A	NA - assumption
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	N/A		N/A	NA - assumption
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	N/A		N/A	NA - assumption
Overall Quality Determination†			Medium		1.8	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Occupational Exposure

Source Citation:	White, R. F.,Proctor, S. P.,Echeverria, D.,Schweikert, J.,Feldman, R. G.. 1995. Neurobehavioral effects of acute and chronic mixed-solvent exposure in the screen printing industry. American Journal of Industrial Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	7671

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Screen Printing
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	25-100ppm
Number of Samples:	3
Number of Sites:	1
Type of Measurement or Method:	short term
Worker Activity:	washing screens
Type of Sampling:	area
Exposure Duration:	20 min.
Exposure Frequency:	6x/day

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	No method, but sampling equimpent mentioned in addition to being reliable source: Department of Neurology, Boston University School of Medicine
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposes employees to Methylene Chloride
Metric 4:	Temporal Representativeness	Low	× 2	6	1995, 23 years old and prior to most recent PEL
Metric 5:	Sample Size	Medium	× 1	2	Characterized by a range.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Does not have baseline metadata
Domain 4: Variability and Uncertainty					

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Source Citation:	White, R. F.,Proctor, S. P.,Echeverria, D.,Schweikert, J.,Feldman, R. G.. 1995. Neurobehavioral effects of acute and chronic mixed-solvent exposure in the screen printing industry. American Journal of Industrial Medicine.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	7671				

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
	Metric 7: Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Lash, A. A.,Becker, C. E.,So, Y.,Shore, M.. 1991. Neurotoxic effects of methylene chloride: Are they long lasting in humans?. Occupational and Environmental Medicine.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	13509

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Many year range 1975 - 1986.97 - 236 ppm
Number of Samples:	155
Number of Sites:	1
Type of Measurement or Method:	varies
Worker Activity:	Varies
Number of Workers:	1,758
Type of Sampling:	personal, area
Sampling Location:	hanger

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	No analytical method given
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposed employees to Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1991, 27 years old
	Metric 5:	Sample Size	Low	× 1	3	Not characterized
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Well documented
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data

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Source Citation:	Lash, A. A.,Becker, C. E.,So, Y.,Shore, M.. 1991. Neurotoxic effects of methylene chloride: Are they long lasting in humans?. Occupational and Environmental Medicine.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	13509

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Overall Quality Determination†		Medium		2.2	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	McCammon, CS, Jr; Glaser, RA; Wells, VE; Phipps, FC; Halperin, WE. 1991. nan. Applied Occupational and Environmental Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	13526

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	15 - 366 ppm
Number of Samples:	14
Number of Sites:	5
Type of Measurement or Method:	TWA
Worker Activity:	Stripping furniture (stripping, washing, refinishing)
Number of Workers:	14
Type of Sampling:	Personal
PPE:	rubber gloves, rubber aprons, safety glasses, rubber boots

EVALUATION

Domain		Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH Study
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	5 furniture strippers in U.S.
	Metric 3:	Applicability	High	× 2	2	Furniture Stripping
	Metric 4:	Temporal Representativeness	Low	× 2	6	1991 - more than 20 years old and prior to most recent PEL
	Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	provided key information
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Study was conducted in summer, and shop doors were open, allowing increased ventilation. These exposures may be among the lowest for the work year if all else is equal.

Source Citation:	McCammon, CS, Jr; Glaser, RA; Wells, VE; Phipps, FC; Halperin, WE. 1991. nan. Applied Occupational and Environmental Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	13526

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Ghittori, S.,Marraccini, P.,Franco, G.,Imbriani, M.. 1993. Methylene chloride exposure in industrial workers. AIHA Journal.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	13832

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Pharmaceutical
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	50.3 mg/m3 (mean)
Worker Activity:	washing gelatine capsules
Type of Sampling:	Personal
Exposure Duration:	half shift (4 hr)

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	AIHA Journal Article
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Italy
	Metric 3:	Applicability	High	× 2	2	Pharmaceutical factory - washing gelatine capsules
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993, prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	only provided mean, range, and SD
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	personal samples, taken over 4 hr period
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	no discussion of uncertainy for air concentration data
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Ott, M. G.,Skory, L. K.,Holder, B. B.,Bronson, J. M.,Williams, P. R.. 1983. Health evaluation of employees occupationally exposed to methylene chloride. Scandinavian Journal of Work, Environment and Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	29149

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cellulose Triacetate and Film Base Production - preparation and extrusion
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	140-475 ppm (median)
Worker Activity:	Cellulose Triacetate and Film Base Production - preparation and extrusion
Type of Sampling:	PBZ

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	not described
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	1983, prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	Range and median given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	sample type given, no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tates, A. D.,Grummt, T.,Van Dam, F. J.,De Zwart, F.,Kasper, F. J.,Rothe, R.,Stirn, H.,Zwinderman, A. H.,Natarajan, A. T.. 1994. Measurement of frequencies of HPRT mutants, chromosomal aberrations, micronuclei, sister-chromatid exchanges and cells with high frequencies of SCEs in styrene/dichloromethane-exposed workers. DNA Repair.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	51622

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	industrial styrene contianers and boards
Physical Form:	Liquid,Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	0-742 mg/m$\hat{3}$
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Equipment Cleaning
Number of Workers:	46
Type of Sampling:	ambient air

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	Unknown method
Domain 2: Representative					
Metric 2:	Geographic Scope	Medium	× 1	2	Former German Democratic Republic
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1994, 24 years old and prior to most recent PEL
Metric 5:	Sample Size	Medium	× 1	2	Only provides mean and range
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Very basic metadata
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Medium	× 1	2	Offers limited discussion regarding potentials for variability.
Overall Quality Determination[†]		Medium		2.2	

Source Citation:	Tates, A. D.,Grummt, T.,Van Dam, F. J.,De Zwart, F.,Kasper, F. J.,Rothe, R.,Stirn, H.,Zwinderman, A. H.,Natarajan, A. T.. 1994. Measurement of frequencies of HPRT mutants, chromosomal aberrations, micronuclei, sister-chromatid exchanges and cells with high frequencies of SCEs in styrene/dichloromethane-exposed workers. DNA Repair.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	51622

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Friedlander, B. R.,Hearne, T.,Hall, S.. 1978. Epidemiologic investigation of employees chronically exposed to methylene chloride: Mortality analysis. Journal of Occupational and Environmental Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	65067

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	cleaning solvent - film acetate
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	0-350 ppm
Number of Samples:	307
Number of Sites:	1
Type of Sampling:	Spot Samples, personal monitoring

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	not described
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
	Metric 4:	Temporal Representativeness	Low	× 2	6	1978, 40 years old and prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	Only provides mean and range
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	sample type given, no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Offers limited discussion regarding potentials for variability.
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Vincent, R.,Poirot, P.,Subra, I.,Rieger, B.,Cicolella, A.. 1994. Occupational exposure to organic solvents during paint stripping and painting operations in the aeronautical industry. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	76565

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Airplane stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	299.2-1888.9 mg/m3
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Stripping aircraft paint
Type of Sampling:	personal
Exposure Duration:	up to 8 hours
PPE:	None worn.

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Not defined, but clearly described
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	France
	Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposes employees to Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old and prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	Characterized by a range.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Has baseline metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Data utilizes SD, but does not discuss variability much beyond that.

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69

Source Citation:	Vincent, R.,Poirot, P.,Subra, I.,Rieger, B.,Cicolella, A.. 1994. Occupational exposure to organic solvents during paint stripping and painting operations in the aeronautical industry. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	76565

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		2.0	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Vincent, R.,Poirot, P.,Subra, I.,Rieger, B.,Cicolella, A.. 1994. Occupational exposure to organic solvents during paint stripping and painting operations in the aeronautical industry. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	76565

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Airplane stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Stripping: 86 - 1,239.5 mg/m3 (8-hr TWA); Masking: 97.2-174.6 mg/m3 (8-hr TWA)
Number of Samples:	45
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	stripping (direct exposure); masking (indirect exposure)
Type of Sampling:	personal
Exposure Duration:	various

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	unclear- equipment information provided
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	France
	Metric 3:	Applicability	High	× 2	2	Aircraft stripping
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993 - more than 20 years old and prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	ranges provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	details not provided for each sample
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	limited discussion on variability

71

– continued from previous page

Source Citation:	Vincent, R.,Poirot, P.,Subra, I.,Rieger, B.,Cicolella, A.. 1994. Occupational exposure to organic solvents during paint stripping and painting operations in the aeronautical industry. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	76565

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		2.0	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Ukai, H.,Okamoto, S.,Takada, S.,Inui, S.,Kawai, T.,Higashikawa, K.,Ikeda, M.. 1998. Monitoring of occupational exposure to dichloromethane by diffusive vapor sampling and urinalysis. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	667565

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Printing
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	1-180 ppm
Number of Sites:	unclear
Worker Activity:	cleaning up of printingrolls with DCM and application of DCM as a solvent in theproduction of industrial materials, among other processes
Number of Workers:	61 (unclear how many sites)
Type of Sampling:	personal (carbon-cloth di"usive sampler)
Exposure Duration:	8 hr

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	carbon-cloth di"usive sampler - unclear the validity of the method
Domain 2: Representative					
Metric 2:	Geographic Scope	Medium	× 1	2	Data from Japan (OECD country)
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	study performed in 1997, after most recent PEL
Metric 5:	Sample Size	Medium	× 1	2	range, geometric mean, geometric standard deviation given, no discrete data
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	not discussed

Source Citation:	Ukai, H.,Okamoto, S.,Takada, S.,Inui, S.,Kawai, T.,Higashikawa, K.,Ikeda, M.. 1998. Monitoring of occupational exposure to dichloromethane by diffusive vapor sampling and urinalysis. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	667565

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Hein, M. J.,Waters, M. A.,Ruder, A. M.,Stenzel, M. R.,Blair, A.,Stewart, P. A.. 2010. Statistical modeling of occupational chlorinated solvent exposures for case-control studies using a literature-based database. Annals of Occupational Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	729521

EXTRACTION

Parameter	Data
Life Cycle Stage:	Multi-Industry
Life Cycle Description (Subcategory of Use):	Multi-Industry
Physical Form:	Vapor, liquid, aerosol
Exposure Concentration (Unit):	Range: 0.0004 - 2200 ppmMedian: 7.0 ppm
Number of Samples:	1272 reported measurements from 1970 - 2011
Type of Measurement or Method:	All converted to 8 hour TWA
Worker Activity:	Varies
Number of Workers:	Varies
Type of Sampling:	Personal, Area, Short Term
Engineering Control & percent Exposure Reduction:	Varies: looked at impact of local exhaust ventilation and industrial mechanical dilution
Analytic Method:	Varies

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH document
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Unacceptable	× 2	8	Does not indicate specific exposure scenarios for any of the data
Metric 4:	Temporal Representativeness	Medium	× 2	4	2010, but utilizes decades old data for analysis.
Metric 5:	Sample Size	Low	× 1	3	Gives summary of data, no detailed points with characterization
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Does not quite fit the metadata completeness for the monitoring section, but cearly states how the metadata has been accounted for.

Continued on next page

75

Source Citation:	Hein, M. J.,Waters, M. A.,Ruder, A. M.,Stenzel, M. R.,Blair, A.,Stewart, P. A.. 2010. Statistical modeling of occupational chlorinated solvent exposures for case-control studies using a literature-based database. Annals of Occupational Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	729521

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	High	$\times$ 1	1	Variability and uncertainty are addressed in the document in the discussion of the methods.
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 2.3.

[**] Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Cherry, N.,Venables, H.,Waldron, H. A.,Wells, G. G.. 1981. Some observations on workers exposed to methylene chloride. British Journal of Industrial Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730498

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	acetate film manufacturing
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	75-100ppm(given, untested)
Number of Sites:	1
Number of Workers:	76

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	None Noted
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Focuses on medical impact not work environment.
	Metric 4:	Temporal Representativeness	Low	× 2	6	1981 - 37 years old and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	Limited
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 2.7.

Source Citation:	Cherry, N.,Venables, H.,Waldron, H. A.,Wells, G. G.. 1981. Some observations on workers exposed to methylene chloride. British Journal of Industrial Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730498

EVALUATION

Domain	Metric	Rating	MWF* Score	Comments

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Anundi, H.,Lind, M. L.,Friis, L.,Itkes, N.,Langworth, S.,Edling, C.. 1993. High exposures to organic solvents among graffiti removers. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730504

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Graffiti Removal
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	18 - 1,188 mg/m3; geometric mean = 127 mg/m3; geo SD = 3.6 mg/m3; mean = 260 mg/m3; 15-min samples: 6 -5,315 mg/m3; geometric mean = 400 mg/m3; geometric SD = 5.59 mg/m3; mean = 1,117 mg/m3
Number of Samples:	12
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Graffiti cleaning (spray solvent on surfaces and swab with tissue, or apply thickened solvent with brush and wash with heated (70oC) high-pressure water spray)
Number of Workers:	12
Type of Sampling:	Personal
PPE:	leather gloves; no respirators; sometimes confined spaces

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	unclear - methods provided, conducted by Swedish Department of Occupational Medicine
Domain 2: Representative					
Metric 2:	Geographic Scope	Medium	× 1	2	Sweden
Metric 3:	Applicability	High	× 2	2	Graffiti Remover
Metric 4:	Temporal Representativeness	Low	× 2	6	1993 - more than 20 years old and prior to most recent PEL
Metric 5:	Sample Size	Medium	× 1	2	range, geometric mean, mean
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	8-hr TWA personal samples

Source Citation:	Anundi, H.,Lind, M. L.,Friis, L.,Itkes, N.,Langworth, S.,Edling, C.. 1993. High exposures to organic solvents among graffiti removers. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730504

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	limited discussion on variability
Overall Quality Determination[†]		Medium		2.0	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Dell, L. D.,Mundt, K. A.,McDonald, M.,Tritschler, J. P.,Mundt, D. J.. 1999. Critical review of the epidemiology literature on the potential cancer risks of methylene chloride. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730507

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Triacetate film base production
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	30-120ppm
Type of Measurement or Method:	TWA
Worker Activity:	various
Type of Sampling:	personal/area

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	1959-1975, prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Missing sample time, exposure duration, and exposure frequency but results presented as 8-hr TWAs
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Dell, L. D.,Mundt, K. A.,McDonald, M.,Tritschler, J. P.,Mundt, D. J.. 1999. Critical review of the epidemiology literature on the potential cancer risks of methylene chloride. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730507

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Triacetate film base production
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	5-380 ppm (preparation area); 50-590 ppm (extrusion area)
Type of Measurement or Method:	TWA
Worker Activity:	various
Type of Sampling:	personal

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	1954-1977, prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Missing sample time, exposure duration, and exposure frequency but results presented as 8-hr TWAs
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Dell, L. D.,Mundt, K. A.,McDonald, M.,Tritschler, J. P.,Mundt, D. J.. 1999. Critical review of the epidemiology literature on the potential cancer risks of methylene chloride. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730507

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Triacetate film base production
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	32325
Type of Measurement or Method:	TWA
Worker Activity:	various
Type of Sampling:	personal

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	UK
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	1980-1988, prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Missing sample time, exposure duration, and exposure frequency but results presented as 8-hr TWAs
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Hearne, F. T.,Pifer, J. W.. 1999. Mortality study of two overlapping cohorts of photographic film base manufacturing employees exposed to methylene chloride. Journal of Occupational and Environmental Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730525

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	photographic film support
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	0-520 ppm (data same as 730524 and 730507)
Number of Samples:	1500 area, 2500 personal over 50 years
Number of Sites:	1
Type of Measurement or Method:	8 hour TWA
Worker Activity:	Various
Number of Workers:	1,070
Type of Sampling:	personal, area

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Unknown method
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Focuses on medical impact not work environment.
	Metric 4:	Temporal Representativeness	Low	× 2	6	Data runs from 1946-1994, prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	Limited
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Limited
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination†			Low		2.6	

Source Citation:	Hearne, F. T.,Pifer, J. W.. 1999. Mortality study of two overlapping cohorts of photographic film base manufacturing employees exposed to methylene chloride. Journal of Occupational and Environmental Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730525

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Estill, C. F.,Spencer, A. B.. 1996. Case study: Control of methylene chloride exposures during furniture stripping. American Industrial Hygiene Association Journal.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730528

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation, dermal
Exposure Concentration (Unit):	21-2160 ppm
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Stripping furniture
Type of Sampling:	personal
Engineering Control & percent Exposure Reduction:	Some local exhaust ventilation and a makeup air unit outside stripping area.
Analytic Method:	NIOSH Method 1005

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH Method 1005
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposes employees to Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1996, 22 years old and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	Datapoints given as a range in many cases. Very little characterization
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Basic metadata present.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.

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Source Citation:	Estill, C. F.,Spencer, A. B.. 1996. Case study: Control of methylene chloride exposures during furniture stripping. American Industrial Hygiene Association Journal.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730528

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		2.0	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Gibbs, G. W.,Amsel, J.,Soden, K.. 1996. A cohort mortality study of cellulose triacetate-fiber workers exposed to methylene chloride. Journal of Occupational and Environmental Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730533

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cellulose Triacetate-Fiber
Exposure Concentration (Unit):	50-1250 ppm
Number of Sites:	1
Number of Workers:	3,211

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not mentioned
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Canada
	Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposed employees to Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1996, but utilizes decades old data for analysis (prior to PEL)
	Metric 5:	Sample Size	Medium	× 1	2	Gives summary of basic data and a basic range, but nothing too detailed
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	discussed personal sampling data from another source
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Hearne, F. T.,Pifer, J. W.,Grose, F.. 1990. Absence of adverse mortality effects in workers exposed to methylene chloride: An update. Journal of Occupational Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730543

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	photographic film support
Physical Form:	vapor
Route of Exposure:	inhalation
Number of Samples:	1200 area, 900 personal over 40 years
Number of Sites:	1
Worker Activity:	Various
Number of Workers:	1,013
Type of Sampling:	personal, area

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Unknown method
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Focuses on medical impact not work environment.
	Metric 4:	Temporal Representativeness	Low	× 2	6	Data runs from 1946-1988, prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	Limited
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Limited
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]			Low		2.6	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Lanes, S. F.,Rothman, K. J.,Dreyer, N. A.,Soden, K. J.. 1993. Mortality update of cellulose fiber production workers. Scandinavian Journal of Work, Environment and Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730555

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	cellulose triacetate fiber
Route of Exposure:	inhalation
Exposure Concentration (Unit):	ND-1700 ppm
Number of Sites:	1
Type of Measurement or Method:	8 hr TWA
Number of Workers:	1,271

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Low	× 1	3	None given, references data from sampling done by Williams PR, et al.
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US data
	Metric 3: Applicability	High	× 2	2	Workplace that has potential exposure to employees
	Metric 4: Temporal Representativeness	Low	× 2	6	1993, 25 years old and prior to most recent PEL
	Metric 5: Sample Size	Medium	× 1	2	range given, but no other statistics
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	sample type given, no other metadata
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]		Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Mahmud, M.,Kales, S. N.. 1999. Methylene chloride poisoning in a cabinet worker. Environmental Health Perspectives.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730564

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	laminating cabinetry
Physical Form:	vapor, liquid
Route of Exposure:	inhalation, dermal
Exposure Concentration (Unit):	300-500 ppm
Number of Sites:	1
Worker Activity:	Laminating - spraying contact cement
Number of Workers:	10
Type of Sampling:	Area
Exposure Duration:	Varies
Exposure Frequency:	Varies
PPE:	None used

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	None Noted
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Focuses on medical impact not work environment.
	Metric 4:	Temporal Representativeness	Medium	× 2	4	1999, 19 years old but collected after most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	Limited
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Limited
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination†			Low		2.3	

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Source Citation:	Mahmud, M.,Kales, S. N.. 1999. Methylene chloride poisoning in a cabinet worker. Environmental Health Perspectives.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730564

EVALUATION

Domain	Metric	Rating	MWF★	Score	Comments

★ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tomenson, J. A.,Bonner, S. M.,Heijne, C. G.,Farrar, D. G.,Cummings, T. F.. 1997. Mortality of workers exposed to methylene chloride employed at a plant producing cellulose triacetate film base. Occupational and Environmental Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730586

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Film Production
Exposure Concentration (Unit):	2-165 ppm10 ppm average
Number of Sites:	1
Type of Measurement or Method:	8 hr TWA
Worker Activity:	Varies
Number of Workers:	1,473

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Explained exposure estimation philosophy but unable to verify credibility
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	UK
	Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposed employees to Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997, but utilizes decades old data for analysis (prior to PEL)
	Metric 5:	Sample Size	Medium	× 1	2	Gives summary of basic data and a basic range, but nothing too detailed
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Does not quite fit the metadata completeness for the monitoring section, but cearly states how the metadata has been accounted for.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.
Overall Quality Determination†			Low		2.3	

Source Citation:	Tomenson, J. A.,Bonner, S. M.,Heijne, C. G.,Farrar, D. G.,Cummings, T. F.. 1997. Mortality of workers exposed to methylene chloride employed at a plant producing cellulose triacetate film base. Occupational and Environmental Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	730586

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Soden, K. J.. 1993. An evaluation of chronic methylene chloride exposure. Journal of Occupational Medicine.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	730597

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Triacetate Fiber Manufacture
Exposure Concentration (Unit):	475 ppm avg.
Number of Sites:	1
Number of Workers:	1,271

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Low	× 1	3	No analytical method given
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Workplace scenario that exposed employees to Methylene Chloride
	Metric 4: Temporal Representativeness	Low	× 2	6	1993, 25 years old
	Metric 5: Sample Size	Low	× 1	3	Not characterized
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Unacceptable	× 1	4	personal samples. 8-hr TWA
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	Not discussed - focused on health effects
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 2.4.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tomenson, J. A.. 2011. Update of a cohort mortality study of workers exposed to methylene chloride employed at a plant producing cellulose triacetate film base. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	787813

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Film Production
Exposure Concentration (Unit):	19ppm average
Number of Sites:	1
Type of Measurement or Method:	8 hr TWA
Worker Activity:	Varies
Number of Workers:	1,473

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Method referenced to journal article, but not fully expressed
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	UK
	Metric 3:	Applicability	High	× 2	2	Workkplace scenario that exposed employees to Methylene Chloride
	Metric 4:	Temporal Representativeness	Medium	× 2	4	2010, but utilizes decades old data for analysis.
	Metric 5:	Sample Size	Medium	× 1	2	Gives summary of data and a basic range, but nothing too detailed.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Does not quite fit the metadata completeness for the monitoring section, but cearly states how the metadata has been accounted for.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.
Overall Quality Determination†			Medium		2.1	

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Source Citation:	Tomenson, J. A.. 2011. Update of a cohort mortality study of workers exposed to methylene chloride employed at a plant producing cellulose triacetate film base. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	787813

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

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* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Thrall, K. D.,Callahan, P. J.,Weitz, K. K.,Edwards, J. A.,Brinkman, M. C.,Kenny, D. V.. 2001. Design and evaluation of a breath-analysis system for biological monitoring of volatile compound. AIHAJ.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	819357

EXTRACTION

Parameter	Data
Life Cycle Stage:	Environment
Life Cycle Description (Subcategory of Use):	Waste Repackaging
Route of Exposure:	inhalation
Exposure Concentration (Unit):	ND-573 ppm
Number of Samples:	27
Number of Sites:	1
Worker Activity:	Waste Repackaging
Type of Sampling:	personal
Exposure Duration:	varies
Exposure Frequency:	varies
Analytic Method:	NIOSH Method 1500 and others

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method 1500 and new methods for better Biological Exposure indexing
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Medium	× 2	4	2001, 17 years old
Metric 5:	Sample Size	Medium	× 1	2	personal samples
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Basic Meta data given.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data

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Source Citation:	Thrall, K. D.,Callahan, P. J.,Weitz, K. K.,Edwards, J. A.,Brinkman, M. C.,Kenny, D. V.. 2001. Design and evaluation of a breath-analysis system for biological monitoring of volatile compound. AIHAJ.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	819357

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Overall Quality Determination†		Medium		1.7	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Kersemaekers, W. M.,Roeleveld, N.,Zielhuis, G. A.. 1995. Reproductive disorders due to chemical exposure among hairdressers. Scandinavian Journal of Work, Environment and Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	1333689

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Hair Salon (Hair spray)
Physical Form:	Aerosol
Route of Exposure:	inhalation
Exposure Concentration (Unit):	TWA Area: 4-8ppmTWA Personal: 18ppmPeak:400ppm
Type of Measurement or Method:	Peak, TWA
Worker Activity:	Hair Styling
Type of Sampling:	Personal, area
Sampling Location:	Ambient salon air and around chair

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	No methodology given
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	The Netherlands
	Metric 3:	Applicability	High	× 2	2	Hair salon, representative of workplace use.
	Metric 4:	Temporal Representativeness	Low	× 2	6	1995, prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	ranges and averages provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Possible 2, has basic information regarding overall findings
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Lee, E. G.,Harper, M.,Bowen, R. B.,Slaven, J.. 2009. Evaluation of COSHH essentials: methylene chloride, isopropanol, and acetone exposures in a small printing plant. Annals of Occupational Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	1612579

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Printing press cleaning
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Estimated average exposure: 6.9ppm
Number of Samples:	7
Number of Sites:	1
Worker Activity:	Cleaning print press rollers
Exposure Duration:	8 hr

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	No methodology given
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Representative of a workplace use.
Metric 4:	Temporal Representativeness	Low	× 2	6	Published 2009, but utilizes much older data (1993-2000, data from pre- and post-most recent PEL; therefore scored a "3")
Metric 5:	Sample Size	Low	× 1	3	Range of data points on graph, but not expressly detailed
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No information as to sample type in exposure data/estimations
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination†		Unacceptable		4	Metric Mean Score: 2.4.

Source Citation:	Lee, E. G.,Harper, M.,Bowen, R. B.,Slaven, J.. 2009. Evaluation of COSHH essentials: methylene chloride, isopropanol, and acetone exposures in a small printing plant. Annals of Occupational Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	1612579

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Reh, C. M.,Mortimer, V. D.,Nemhauser, J. B.,Trout, D.. 2002. NIOSH Health Hazard Evaluation Report: HETA No. 98-0153-2883, Custom Products, Inc. Mooresville, NC.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	1737898

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Solvent Based Adhesives

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Unacceptable	× 2	8	HHE of facility that recently transitioned from methylene chloride to 1-bromopropane (1-BP)
Metric 4:	Temporal Representativeness	Medium	× 2	4	2002, 16 years old
Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No Comment.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 2.7.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Kumagai, S.,Kurumatani, N.,Arimoto, A.,Ichihara, G.. 2013. Cholangiocarcinoma among offset colour proof-printing workers exposed to 1,2-dichloropropane and/or dichloromethane. Occupational and Environmental Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	1936441

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Offset Printing
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Estimated: 1991-1993: 120-430ppm1993-1998: 190-540ppm
Number of Sites:	1
Worker Activity:	Cleaning ink from print plates
Number of Workers:	62
Exposure Duration:	8 hr
Exposure Frequency:	150-400 times
PPE:	plastic gloves

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	No methodology given
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Japan
	Metric 3:	Applicability	High	× 2	2	Representative of a workplace use.
	Metric 4:	Temporal Representativeness	Low	× 2	6	Published 2015, but utilizes much older (pre-PEL) data and firsthand accounts
	Metric 5:	Sample Size	Medium	× 1	2	Range of data, no specific data points
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No information as to sample type in exposure data/estimations
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data

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104

Source Citation:	Kumagai, S.,Kurumatani, N.,Arimoto, A.,Ichihara, G.. 2013. Cholangiocarcinoma among offset colour proof-printing workers exposed to 1,2-dichloropropane and/or dichloromethane. Occupational and Environmental Medicine.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	1936441

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 2.4.

⋆⋆ Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

⋆ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Chan, C.,Lee, S. C.,Chan, W.,Ho, K.,Tian, L.,Lai, S.,Li, Y.,Huang, Y. u. 2011. Characterisation of Volatile Organic Compounds at Hotels in Southern China. Indoor and Built Environment.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	1978790

EXTRACTION

Parameter	Data
Life Cycle Stage:	Ambient Environment (hotel)
Life Cycle Description (Subcategory of Use):	Various
Physical Form:	vapor
Exposure Concentration (Unit):	0-35 ug/m3
Number of Samples:	26
Number of Sites:	13
Type of Measurement or Method:	8 hour
Type of Sampling:	area
Sampling Location:	non-smoking guest room
Exposure Duration:	continuous
Exposure Frequency:	varies
Analytic Method:	US EPA Compendium Method TO-14a

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	US EPA Compendium Method TO-14a
Domain 2: Representative					
Metric 2:	Geographic Scope	Low	× 1	3	China
Metric 3:	Applicability	Low	× 2	6	Focused on ambient air quality in a hotel, but relevent to workers in any ambient built environment
Metric 4:	Temporal Representativeness	High	× 2	2	2011
Metric 5:	Sample Size	Low	× 1	3	Provides basic summary and difficult to understand bar graph
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	Has baseline metadata
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.

Source Citation:	Chan, C.,Lee, S. C.,Chan, W.,Ho, K.,Tian, L.,Lai, S.,Li, Y.,Huang, Y. u. 2011. Characterisation of Volatile Organic Compounds at Hotels in Southern China. Indoor and Built Environment.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	1978790

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Overall Quality Determination†		Medium		2.1	

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* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Colborn, T.,Schultz, K.,Herrick, L.,Kwiatkowski, C.. 2014. An exploratory study of air quality near natural gas operations. Human and Ecological Risk Assessment.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2108438

EXTRACTION

Parameter	Data
Life Cycle Stage:	Mining/Drilling
Life Cycle Description (Subcategory of Use):	Closed loop hydraulic fracturing well
Physical Form:	vapor
Exposure Concentration (Unit):	Mean: 206.2 ppbRange: 2.7-1730
Number of Samples:	48
Number of Sites:	1
Type of Measurement or Method:	24 hour samples once a week
Worker Activity:	Drilling, fracturing, other
Type of Sampling:	Area
Sampling Location:	.7 miles from well pad of interest.
Exposure Duration:	continuous
Exposure Frequency:	continuous
Analytic Method:	USEPA Method TO-15

EVALUATION

Domain	Metric	Rating	MWF★	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	EPA Methods TO-15
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Medium	× 2	4	Focused on ambient monitoring of a workplace that has exposure to Methylene chloride
Metric 4:	Temporal Representativeness	High	× 2	2	2010
Metric 5:	Sample Size	High	× 1	1	Presented as Range, but includes mean and standard deviation and other metrics
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	Has metadata in tables and within the text.
Domain 4: Variability and Uncertainty					

Source Citation:	Colborn, T.,Schultz, K.,Herrick, L.,Kwiatkowski, C.. 2014. An exploratory study of air quality near natural gas operations. Human and Ecological Risk Assessment.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2108438

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
	Metric 7:	Metadata Completeness	High	× 1	1	Addresses variability and uncertainty.
Overall Quality Determination†			High		1.2	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Porter, E.. 2006. OSHA compliance issues - Evaluation of worker exposure to TDI, MOCA, and methylene chloride. Journal of Occupational and Environmental Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2277546

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polyurethane Mold Release Agent
Exposure Concentration (Unit):	8.1-72.5 ppm
Number of Samples:	8 - STEL1 - 8 Hr TWA
Number of Sites:	1
Type of Measurement or Method:	STEL, TWA
Worker Activity:	Mold Release Agent, Occasional Part Cleaning
Number of Workers:	11
Type of Sampling:	Personal
Sampling Location:	various
Exposure Duration:	workday
Exposure Frequency:	varies
Engineering Control & percent Exposure Reduction:	Limited efficiency vents

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	sampling conducted by OSHA, assumed OSHA method used
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposed employees to Methylene Chloride
Metric 4:	Temporal Representativeness	Medium	× 2	4	2007, 11 years old and after most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variability and Uncertainty					

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110

Source Citation:	Porter, E.. 2006. OSHA compliance issues - Evaluation of worker exposure to TDI, MOCA, and methylene chloride. Journal of Occupational and Environmental Hygiene.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	2277546				

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
	Metric 7: Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination†		High		1.6	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Fairfield, C. L.,Jensen, P. A.,Jones, J. H.,Fischbach, T. J.. 1990. In-Depth Survey Report: The Control of Methylene Chloride in Furniture Stripping at Kwick Kleen Industrial Solvents, Inc., Vincennes, Indiana.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2531020

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Mean area: 68-667 ppmMean personal: 193-599 ppm
Number of Samples:	44
Number of Sites:	3
Worker Activity:	Stripping furniture
Type of Sampling:	personal, area
Analytic Method:	NIOSH Method 1005

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH Method 1005
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Experiment that uses Methylene Chloride as it would be done in the workplace.
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990, 28 years old and prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	Characterized by a range, but also provides mean.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Data is presented in a range, incomplete metadata.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]			Medium		2.0	

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112

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Source Citation:	Fairfield, C. L.,Jensen, P. A.,Jones, J. H.,Fischbach, T. J.. 1990. In-Depth Survey Report: The Control of Methylene Chloride in Furniture Stripping at Kwick Kleen Industrial Solvents, Inc., Vincennes, Indiana.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2531020

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	McCammon, C. S.. 1990. Health Hazard Evaluation Report HETA 89-199-2033, Enseco, Inc., Rocky Mountain Analytical Laboratory, Arvada, Colorado.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2531033

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Laboratory solvent
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	0.8-8.5 ppm (personal); 3.1-4.9 ppm (area)
Type of Measurement or Method:	TWA
Worker Activity:	various
Type of Sampling:	personal
Sampling Location:	various
Exposure Duration:	various
Analytic Method:	charcoal tubes/GS

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Lab uses in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	1989, prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete samples available
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Exposure frequency not given, other metadata available
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†		Medium		1.8	

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Source Citation:	McCammon, C. S.. 1990. Health Hazard Evaluation Report HETA 89-199-2033, Enseco, Inc., Rocky Mountain Analytical Laboratory, Arvada, Colorado.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2531033

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Hall, R. M.,Sheehy, J. W.. 1992. Walk-Through Survey Report: Control of Methylene Chloride in Furniture Stripping at Jet Strip, Boulder, Colorado, August 1, 1991.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2531076

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	25-68
Number of Samples:	3
Number of Sites:	1
Worker Activity:	Stripping furniture
Type of Sampling:	personal, area
Analytic Method:	NIOSH Method 1005

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method 1005
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that uses Methylene Chloride
Metric 4:	Temporal Representativeness	Low	× 2	6	1995, 26 years old and prior to most recent PEL
Metric 5:	Sample Size	Low	× 1	3	Poorly characterized
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	No sampling time or other pertinent metadata
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination†		Medium		2.1	

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Source Citation:	Hall, R. M.,Sheehy, J. W.. 1992. Walk-Through Survey Report: Control of Methylene Chloride in Furniture Stripping at Jet Strip, Boulder, Colorado, August 1, 1991.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2531076

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Mccammon, CS; Goldfield, J. 1993. Health Hazard Evaluation Report HETA 92-0360-2372, Ackerman and Sons, Littleton, Colorado. NTIS/02989953_2.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2531126

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	liquid,vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Before controls: 37 = 445 After Controls: ND - 110
Number of Samples:	Area: 28Personal: 14
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Paint/finish stripping furniture, cleaning it post stripping
Number of Workers:	5
Type of Sampling:	personal, area
Sampling Location:	Stripping and washing station
Exposure Duration:	3-4 hours a day max
Exposure Frequency:	Generally a few hours per week.
Engineering Control & percent Exposure Reduction:	Added exhaust ventilation
PPE:	Rubber aprons, gauntlets, full shields,
Analytic Method:	NIOSH Method 1005

EVALUATION

Domain	Metric		Rating	MWF★	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH Method 1005
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old and prior to most recent PEL
	Metric 5:	Sample Size	High	× 1	1	Appropriate characterization included
Domain 3: Accessibility/Clarity						

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Source Citation:	Mccammon, CS; Goldfield, J. 1993. Health Hazard Evaluation Report HETA 92-0360-2372, Ackerman and Sons, Littleton, Colorado. NTIS/02989953_2.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	2531126

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
	Metric 6: Metadata Completeness	High	× 1	1	Complete Metadata
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method
Overall Quality Determination[†]		High		1.6	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Golsteijn, L.,Huizer, D.,Hauck, M.,van Zelm, R.,Huijbregts, M. A.. 2014. Including exposure variability in the life cycle impact assessment of indoor chemical emissions: the case of metal degreasing. Environment International.
Type of Data Source	Occupational Exposure; Published Models for Exposures or Releases;
Hero ID	2537636

EXTRACTION

Parameter	Data
Life Cycle Stage:	Life Cycle Assessment
Life Cycle Description (Subcategory of Use):	Indoor chemical emissions
Physical Form:	vapor
Worker Activity:	vapor degreasing - modeling

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Peer reviewed, well referenced.
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	EU
	Metric 3:	Applicability	High	× 2	2	Encompasses workplace exposure
	Metric 4:	Temporal Representativeness	High	× 2	2	2014
	Metric 5:	Sample Size	N/A		N/A	N/A - modeling approach
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Rationale and approach are well detailed.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Unclear in the data how it is characterized, but there is a significant analysis of the limitations of the model.
Overall Quality Determination†			High		1.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Kowalska, J.,Gierczak, T.. 2013. Qualitative and Quantitative Analyses of the Halogenated Volatile Organic Compounds Emitted from the Office Equipment Items. Indoor and Built Environment.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	2655630

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Offgassing
Physical Form:	Gas
Route of Exposure:	inhalation
Exposure Concentration (Unit):	0.04 - 1.24 ug/m3Mean: 0.51 ug/m3
Number of Samples:	16
Worker Activity:	Standard Office Supplies
Sampling Location:	Lab
Exposure Duration:	Full-shift
Exposure Frequency:	Continuous
Analytic Method:	Described, but not named

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Described, but not named
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Poland
	Metric 3:	Applicability	Medium	× 2	4	Workplace scenario that indirectly exposes employees to Methylene Chloride
	Metric 4:	Temporal Representativeness	High	× 2	2	2013, 5 years old
	Metric 5:	Sample Size	Medium	× 1	2	Decent characterization
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Well documented
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.

Source Citation:	Kowalska, J.,Gierczak, T.. 2013. Qualitative and Quantitative Analyses of the Halogenated Volatile Organic Compounds Emitted from the Office Equipment Items. Indoor and Built Environment.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	2655630

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Yamada, K.,Kumagai, S.,Nagoya, T.,Endo, G.. 2014. Chemical exposure levels in printing workers with cholangiocarcinoma. Journal of Occupational Health.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	2797854

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Print Blanket Cleaning
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Estimated:0-340 ppm
Number of Sites:	3
Type of Measurement or Method:	Retrospective Estimations
Worker Activity:	Solvent based cleaning

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	Estimated based on Near Field /Far Field Model
Domain 2: Representative					
Metric 2:	Geographic Scope	Medium	× 1	2	Japan
Metric 3:	Applicability	Low	× 2	6	Retroactive look at a workplace scenario
Metric 4:	Temporal Representativeness	Low	× 2	6	2014, but uses old data
Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No sampling technique used - no metadata as a result.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.
Overall Quality Determination†		Unacceptable		4	Metric Mean Score: 2.8.

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Source Citation:	Yamada, K.,Kumagai, S.,Nagoya, T.,Endo, G.. 2014. Chemical exposure levels in printing workers with cholangiocarcinoma. Journal of Occupational Health.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	2797854

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Yamada, K.,Kumagai, S.,Kubo, S.,Endo, G.. 2015. Chemical exposure levels in printing and coating workers with cholangio-carcinoma (third report). Journal of Occupational Health.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3064878

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Print Blanket Cleaning
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Estimated:20-470 ppmEstimated Max: 300-980 ppm
Number of Samples:	N/a
Number of Sites:	2
Type of Measurement or Method:	Retrospective Estimations
Worker Activity:	Solvent based cleaning
Number of Workers:	5

EVALUATION

Domain	Metric	Rating	MWF★	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	Estimated based on Near Field /Far Field Model
Domain 2: Representative					
	Metric 2: Geographic Scope	Medium	× 1	2	Japan
	Metric 3: Applicability	Low	× 2	6	Retroactive look at a workplace scenario
	Metric 4: Temporal Representativeness	Low	× 2	6	2015, but estimates old data
	Metric 5: Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Unacceptable	× 1	4	No sampling technique used - no metadata as a result.
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.
Overall Quality Determination†		Unacceptable		4	Metric Mean Score: 2.8.

Source Citation:	Yamada, K.,Kumagai, S.,Kubo, S.,Endo, G.. 2015. Chemical exposure levels in printing and coating workers with cholangio-carcinoma (third report). Journal of Occupational Health.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3064878

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Yamada, K.,Kumagai, S.,Endo, G.. 2015. Chemical exposure levels in printing workers with cholangiocarcinoma (second report). Journal of Occupational Health.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3064883

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Print Making
Exposure Concentration (Unit):	Estimated: 0-440 ppm
Number of Workers:	7

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	No analytical method given
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Japan
	Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposed employees to Methylene Chloride
	Metric 4:	Temporal Representativeness	High	× 2	2	2015
	Metric 5:	Sample Size	Low	× 1	3	Not characterized
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Hazy understanding of where statistics come from.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Discuss variability and uncertainty
Overall Quality Determination†			Medium		1.9	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	NIOSH. 1995. Health hazard evaluation report HETA 91-0040-2510, Kraft General Foods, Inc., Maxwell House Coffee, Co., Houston, Texas. Technical Report NIOSH/00228254.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3102344

EXTRACTION

Parameter	Data
Worker Activity:	Coffee Decaffeinating

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Unacceptable	× 1	4	No relevant methodology for DCM
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	Unacceptable	× 2	8	Methylene Chloride discontinued in operation years earlier
	Metric 4: Temporal Representativeness	Low	× 2	6	1990
	Metric 5: Sample Size	Low	× 1	3	range provided from previous study
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	8-hr TWA personal samples
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	Does not address variability and uncertainty.
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 3.1.

[**] Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tsukahara, T.,Miyauchi, H.,Kuwada, D.,Kikuchi, T.,Tsuda, Y.,Yanagiba, Y.,Arito, H.,Nomiyama, T.. 2016. Control banding assessment of exposure of offset printing workers to organic solvents. Journal of Occupational Health.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3419932

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Print Blanket Cleaning
Physical Form:	liquid, vapor

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Techniques not specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Japan
	Metric 3:	Applicability	Unacceptable	× 2	8	Retroactive look at a workplace scenario but only examines chemicals purchased
	Metric 4:	Temporal Representativeness	High	× 2	2	2016
	Metric 5:	Sample Size	N/A		N/A	N/A - no sample data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No sampling technique used - no metadata as a result.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination†			Unacceptable		4	Metric Mean Score: 2.8.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tobiszewski, M.,NamieÅnik, J.. 2013. Distribution of volatile organohalogen compounds in petrochemical plant water streams. Chemistry and Ecology.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3490937

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cleaning solvent (Petroleum Industry)
Physical Form:	liquid
Exposure Concentration (Unit):	1-270 ug/L
Number of Samples:	55
Number of Sites:	11
Analytic Method:	Described, but not named

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Described, but not named
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Poland
	Metric 3:	Applicability	Low	× 2	6	Workplace scenario that exposes employees to Methylene Chloride, but is focused on environmental sampling
	Metric 4:	Temporal Representativeness	High	× 2	2	2013, 5 years old
	Metric 5:	Sample Size	Low	× 1	3	Little Charcterization
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Not always clear.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Limited Discussion.
Overall Quality Determination†			Medium		2.1	

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* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niu, Z. G.,Xu, S. Y.,Gong, Q. C.. 2014. Health risk assessment of odors emitted from urban wastewater pump stations in Tianjin, China. Environmental Science and Pollution Research.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3492550

EXTRACTION

Parameter	Data
Life Cycle Stage:	Ambient Environment
Life Cycle Description (Subcategory of Use):	Wastewater treatment
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	7.4-89.95 ug/m$\hat{3}$
Number of Samples:	16
Number of Sites:	1
Type of Sampling:	area
Sampling Location:	Waste Water Pump Storage Tank
Exposure Duration:	Continous
Exposure Frequency:	Varies
Analytic Method:	USEPA1999

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	USEPA1999
Domain 2: Representative					
Metric 2:	Geographic Scope	Low	× 1	3	China
Metric 3:	Applicability	Low	× 2	6	Environmental sampling of waste water pump
Metric 4:	Temporal Representativeness	High	× 2	2	2014
Metric 5:	Sample Size	Low	× 1	3	Limited
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Limited
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Medium	× 1	2	Addressed in USEPA method

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Source Citation:	Niu, Z. G.,Xu, S. Y.,Gong, Q. C.. 2014. Health risk assessment of odors emitted from urban wastewater pump stations in Tianjin, China. Environmental Science and Pollution Research.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3492550

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Beaucham, C. C.,Fent, K.,Wiegand, D.,Seaton, M.. 2016. Hazard Evaluation Report: HHE-2012-0238-3257, August 2016. Evaluation of Forensic Crime Lab Employees' Chemical Exposures, Job Stress, and Work-Related Health Concerns.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3520311

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Use of Adhesives in Crime Scene Model Building
Physical Form:	Liquid, Vapor
Route of Exposure:	Inhalation, dermal
Exposure Concentration (Unit):	None Detected
Number of Sites:	1
Worker Activity:	Transferring methylene chloride, using methylene chloride to bond plastics.
Number of Workers:	800
Sampling Location:	Operational Projects Unit, Latent Prints Operational Unit
Exposure Duration:	Varies
Exposure Frequency:	Varies
PPE:	Use proper gloves

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	No listed methods
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Low	× 2	6	Certain departments used Methylene Chloride on a regular bases to build their projects, but not representative of commercial/industrial adhesive use.
Metric 4:	Temporal Representativeness	High	× 2	2	2016
Metric 5:	Sample Size	Low	× 1	3	Unknown amount of samples or further details.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	No clear statement about any of the methods, data, etc.
Domain 4: Variability and Uncertainty					

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Source Citation:	Beaucham, C. C.,Fent, K.,Wiegand, D.,Seaton, M.. 2016. Hazard Evaluation Report: HHE-2012-0238-3257, August 2016. Evaluation of Forensic Crime Lab Employees' Chemical Exposures, Job Stress, and Work-Related Health Concerns.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	3520311				

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
	Metric 7: Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]		Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Perbellini, L.,Brugnone, F.,Grigolini, L.,Cunegatti, P.,Tacconi, A.. 1977. ALVEOLAR AIR AND BLOOD DICHLOROMETHANE CONCENTRATION IN SHOE SOLE FACTORY-WORKERS. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3586319

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polyurethane shoe sole production
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	39-730 mg/m$\hat{3}$
Number of Samples:	15
Type of Measurement or Method:	grasp samples - short term?
Worker Activity:	molds filling, soles extraction, and soles polishing
Number of Workers:	15
Type of Sampling:	area
Sampling Location:	moulds filling, soles extraction, and soles polishing stations

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	Methods qualitatively explained but not clear nor current
Domain 2: Representative					
Metric 2:	Geographic Scope	Medium	× 1	2	Italy
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1977 - prior to most recent PEL
Metric 5:	Sample Size	Medium	× 1	2	Some sampling areas were just given as a range
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	very basic meta data
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data

Source Citation:	Perbellini, L.,Brugnone, F.,Grigolini, L.,Cunegatti, P.,Tacconi, A.. 1977. ALVEOLAR AIR AND BLOOD DICHLOROMETHANE CONCENTRATION IN SHOE SOLE FACTORY-WORKERS. International Archives of Occupational and Environmental Health.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3586319

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Overall Quality Determination†		Low		2.3	

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* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	He, P.,Tang, J.,Zhang, D.,Zeng, Y.,Shao, L.. 2010. Release of volatile organic compounds during bio-drying of municipal solid waste. Journal of Environmental Sciences.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3587321

EXTRACTION

Parameter	Data
Life Cycle Stage:	Ambient Environment
Life Cycle Description (Subcategory of Use):	Municipal Solid Waste Drying
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	ND-2.01 mg/m$\hat{3}$
Type of Sampling:	area
Sampling Location:	Waste site
Exposure Duration:	Varies
Exposure Frequency:	Varies
Analytic Method:	Described, but not named

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	None Noted
Domain 2: Representative						
	Metric 2:	Geographic Scope	Low	× 1	3	China
	Metric 3:	Applicability	Medium	× 2	4	Focuses on medical impact not work environment.
	Metric 4:	Temporal Representativeness	High	× 2	2	2010
	Metric 5:	Sample Size	Low	× 1	3	Limited
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Limited
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]			Low		2.3	

Source Citation:	He, P.,Tang, J.,Zhang, D.,Zeng, Y.,Shao, L.. 2010. Release of volatile organic compounds during bio-drying of municipal solid waste. Journal of Environmental Sciences.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3587321

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Enander, R. T.,Cohen, H. J.,Gute, D. M.,Brown, L. C.,Desmaris, A. M.,Missaghian, R.. 2004. Lead and methylene chloride exposures among automotive repair technicians. Journal of Occupational and Environmental Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3588270

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Physical Form:	Liquid, Vapor
Route of Exposure:	Inhalation, dermal
Exposure Concentration (Unit):	26-120 ppm
Number of Samples:	2 TWA, 3 short term
Number of Sites:	3
Type of Measurement or Method:	8hr TWA and short term
Worker Activity:	Paint stripping
Number of Workers:	1
Type of Sampling:	Personal
Exposure Duration:	N/a
Analytic Method:	NIOSH method P&CAM 127

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH method P&CAM 127
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Automotive Paint Stripping
Metric 4:	Temporal Representativeness	Medium	× 2	4	2004, 14 years old
Metric 5:	Sample Size	Medium	× 1	2	Limited data to work with.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Very basic metadata
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Medium	× 1	2	Addressed in NIOSH method

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139

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Source Citation:	Enander, R. T.,Cohen, H. J.,Gute, D. M.,Brown, L. C.,Desmaris, A. M.,Missaghian, R.. 2004. Lead and methylene chloride exposures among automotive repair technicians. Journal of Occupational and Environmental Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3588270

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Estill, C. F.,Watkins, D. S.,Shulman, S. A.,Kurimo, R. W.,Kovein, R. J.. 2002. Engineering controls for furniture strippers to meet the OSHA methylene chloride PEL. AIHAJ.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3588505

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Pre-ventilation: geometric mean 39-332 ppmPost-ventilation: geo. Mean: 5.6 ppm
Number of Samples:	105
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Furniture Stripping
Type of Sampling:	personal, area
Engineering Control & percent Exposure Reduction:	No controls in the first 4 sampling events, but new ventilation system on the 5th.
Analytic Method:	NIOSH 1005 and OSHA 80

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH 1005 and OSHA 80
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposes employees to Methylene Chloride
Metric 4:	Temporal Representativeness	Medium	× 2	4	2002, 16 years old
Metric 5:	Sample Size	Medium	× 1	2	Characterized by a range, but also provides geometric mean.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Has baseline metadata
Domain 4: Variability and Uncertainty					

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141

Source Citation:	Estill, C. F.,Watkins, D. S.,Shulman, S. A.,Kurimo, R. W.,Kovein, R. J.. 2002. Engineering controls for furniture strippers to meet the OSHA methylene chloride PEL. AIHAJ.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3588505

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
	Metric 7:	Metadata Completeness	Medium	× 1	2	Method addresses variability and uncertainty.
Overall Quality Determination†			High		1.6	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Uang, S. N.,Shih, T. S.,Chang, C. H.,Chang, S. M.,Tsai, C. J.,Deshpande, C. G.. 2006. Exposure assessment of organic solvents for aircraft paint stripping and spraying workers. Science of the Total Environment.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3589081

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Airplane stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Personal Average: 116.09 ppm w/SD of 40.21 ppmArea Average: 84.07 ppm w/SD of 64.86
Number of Samples:	33
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Stripping aircraft paint
Type of Sampling:	personal, area
Exposure Duration:	12 hour shifts
Exposure Frequency:	varies
Engineering Control & percent Exposure Reduction:	Ceiling and floor fans/exhaust.
PPE:	Respirators
Analytic Method:	CLA-1210 (council of labor affairs)

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	Method cited and described.
Domain 2: Representative					
Metric 2:	Geographic Scope	Low	× 1	3	Taiwan
Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposes employees to Methylene Chloride
Metric 4:	Temporal Representativeness	Medium	× 2	4	2005, 13 years old
Metric 5:	Sample Size	Medium	× 1	2	Provides an average for a series of data sets.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Has baseline metadata

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143

Source Citation:	Uang, S. N.,Shih, T. S.,Chang, C. H.,Chang, S. M.,Tsai, C. J.,Deshpande, C. G.. 2006. Exposure assessment of organic solvents for aircraft paint stripping and spraying workers. Science of the Total Environment.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3589081

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination†		Medium		1.9	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Ryan, T. J.. 2002. Survey of waste comminglers' VOC exposures. Journal of the Air and Waste Management Association (1990-1992).
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3589795

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Life Cycle Description (Subcategory of Use):	Laboratory disposal
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	personal: 0.4 - 557.0 ppmarea: 0.1 - 809.9
Number of Samples:	personal: 33area: 32
Number of Sites:	12
Type of Measurement or Method:	TWA
Worker Activity:	dumping lab waste into 55 gal drums
Type of Sampling:	personal, area
Sampling Location:	Hazardous Waste Container Sites
Exposure Duration:	varies
Exposure Frequency:	varies
Engineering Control & percent Exposure Reduction:	varies
PPE:	varies
Analytic Method:	EPA Method 8260B

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA Method 8260B
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
	Metric 4:	Temporal Representativeness	Medium	× 2	4	Report form 2002
	Metric 5:	Sample Size	Medium	× 1	2	Were not provided with each data point
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	meta data was given as ranges (time, exposure, etc.)

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Source Citation:	Ryan, T. J.. 2002. Survey of waste comminglers' VOC exposures. Journal of the Air and Waste Management Association (1990-1992).				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	3589795				

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	Discussion on limitations and variations.
Overall Quality Determination†		Medium		1.7	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Grevenkamp, A.,Occupational, Safety,Health, Administration. 2007. Overexposure and control of methylene chloride in a furniture stripping operation. Journal of Occupational and Environmental Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3590014

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	First visit: 108 ppm (8-hr TWA); 153-634 ppm (STEL); Follow up: 61 ppm (8-hr TWA); 330-380 ppm (STEL) – additional data for various visits
Number of Samples:	various
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	furniture stripping
Number of Workers:	1
Type of Sampling:	personal
PPE:	full-face elastomeric respiratorwith organic vapor cartridges and impervious gloves and an apron

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Furniture Stripping
	Metric 4:	Temporal Representativeness	Medium	× 2	4	2007 - more than 10 years old
	Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	provided key information

Source Citation:	Grevenkamp, A.,Occupational, Safety,Health, Administration. 2007. Overexposure and control of methylene chloride in a furniture stripping operation. Journal of Occupational and Environmental Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3590014

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion on uncertainty and variability
Overall Quality Determination†		High		1.4	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Lewis, F. A.. 1980. Health Hazard Evaluation Determination, Report No. HHE-79-141-711, Fischer and Porter Company, Warminster, Pennsylvania.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3653519

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Epoxy use for wire coating (instrumentation inside of water pipes)
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Undetected
Number of Samples:	16
Number of Sites:	1
Type of Measurement or Method:	8 hr TWA
Worker Activity:	Mixing Epoxy
Type of Sampling:	Personal, Area
Exposure Duration:	8 hour shift
Engineering Control & percent Exposure Reduction:	Laboratory Hood Fans
PPE:	Protective Gloves
Analytic Method:	NIOSH Method P&CAM #127

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method P&CAM #127
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1979, 39 years old and prior to most recent PEL
Metric 5:	Sample Size	Low	× 1	3	No methylene chloride was detected, no specific data about where samples were taken.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Missing sample durations and other metadata
Domain 4: Variability and Uncertainty					

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149

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Source Citation:	Lewis, F. A.. 1980. Health Hazard Evaluation Determination, Report No. HHE-79-141-711, Fischer and Porter Company, Warminster, Pennsylvania.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	3653519				

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
	Metric 7: Metadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method
Overall Quality Determination[†]		Medium		1.9	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

150

Source Citation:	Hall, RM; Martinez, KF; Jensen, PA. 1995. Control of methylene chloride"furniture stripping dip tank. Applied Occupational and Environmental Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3808905

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	7 - 67 ppm 8-hr TWA
Number of Samples:	27
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	furniture dip stripping
Number of Workers:	2
Type of Sampling:	personal
Exposure Duration:	various

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	furniture dip stripping
Metric 4:	Temporal Representativeness	Low	× 2	6	1995 - more than 20 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	concentration ranges and sampling time provided
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Medium	× 1	2	Some discussion of uncertainty and variability

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151

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Source Citation:	Hall, RM; Martinez, KF; Jensen, PA. 1995. Control of methylene chloride"furniture stripping dip tank. Applied Occupational and Environmental Hygiene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3808905

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	IARC. 2010. Occupational exposure as a painter. IARC monographs on the evaluation of carcinogenic risks to humans.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3808946

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	633-1,017 mg/m3 (TWA)
Number of Samples:	7
Type of Measurement or Method:	TWA
Worker Activity:	Paint Stripping - Non-Specific Workplace Settings
Number of Workers:	3
Type of Sampling:	personal

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	IARC, 2010
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Paint Stripping
Metric 4:	Temporal Representativeness	Low	× 2	6	1980 - more than 20 years old
Metric 5:	Sample Size	Medium	× 1	2	ranges provided
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	range provided - breathing zone
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	uncertainy and variability not discussed
Overall Quality Determination†		Medium		2.0	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Eu,. 2007. Impact assessment of potential restrictions on the marketing and use of dichloromethane in paint strippers. Revised final report-Annexes.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3808951

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	2.2-428 mg/m3 (8-hr TWA)
Number of Samples:	4
Type of Measurement or Method:	TWA
Worker Activity:	Non-Specific Workplace Settings - Unknown
Type of Sampling:	personal

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EU, 2007
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Finland
	Metric 3:	Applicability	High	× 2	2	Paint Stripping
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997-1998 - more than 20 years old
	Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	personal samples
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Some discussion of uncertainty and variability
Overall Quality Determination[†]			Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Oecd,. 2011. SIDS initial assessment profile: Dichloromethane (methylene chloride).
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3808975

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	All uses
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	0.004-318 mg/m3
Worker Activity:	All uses

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	SIDS Initial Assessment Profile
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Europe
	Metric 3:	Applicability	Medium	× 2	4	no particular OES specified
	Metric 4:	Temporal Representativeness	Low	× 2	6	unknown
	Metric 5:	Sample Size	Low	× 1	3	range provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	no discussion of data
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	no discussion of uncertainy or variability
Overall Quality Determination†			Unacceptable		4	Metric Mean Score: 2.6.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	NIOSH. 1991. In-depth survey report. The control of methylene chloride in furniture stripping at Association for Retarded Citizens Washington County Chapter, Inc. Technical Report ECTB number: 170-18a.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3808979

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	613-1,152 ppm (various sample times, existing ventilation); 13-27 ppm (8-hr TWA, modified ventilation)
Number of Samples:	12
Number of Sites:	1
Worker Activity:	furniture stripping
Type of Sampling:	personal
Sampling Location:	various
Exposure Duration:	various

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Furniture Stripping
Metric 4:	Temporal Representativeness	Low	× 2	6	1991 - more than 20 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	provides key information
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Medium	× 1	2	Some discussion of uncertainty and variability

Source Citation:	NIOSH. 1991. In-depth survey report. The control of methylene chloride in furniture stripping at Association for Retarded Citizens Washington County Chapter, Inc. Technical Report ECTB number: 170-18a.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3808979

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		High		1.6	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 2014. TSCA work plan chemical risk assessment, methylene chloride: paint stripping use.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809029

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	EPA Risk Assessment
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US facilities
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	High	× 2	2	data from 2014
Metric 5:	Sample Size	Medium	× 1	2	statistics given, discrete data not available
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	use in scope
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	High	× 1	1	detailed uncertainty section
Overall Quality Determination†		High		1.1	

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* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 1992. Health Hazard Evaluation.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3809433

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	ND-523 ppm
Number of Samples:	42
Number of Sites:	1
Type of Measurement or Method:	short term and TWA
Worker Activity:	Stripping furniture
Number of Workers:	5
Type of Sampling:	Personal, area
Exposure Duration:	Variable
Exposure Frequency:	Variable
PPE:	rubber aprons, full length rubber gauntlets, a face shield, and plastic upper arm covers
Analytic Method:	NIOSH method #1005

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	Niosh Method #1005
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace scenario that exposes employees to Methylene Chloride
Metric 4:	Temporal Representativeness	Low	× 2	6	1995, 23 years old and prior to most recent PEL
Metric 5:	Sample Size	Medium	× 1	2	Decent characterization
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	Complete Metadata

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Source Citation:	Niosh,. 1992. Health Hazard Evaluation.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3809433

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	Method addresses variability and uncertainty.
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID 3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	219-374 mg/m3
Worker Activity:	Maintenance

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	manufacturing in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	3.5->35 mg/mg3 (8-hr TWA)
Worker Activity:	Production personnelPlant & packagingpersonnel

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	manufacturing in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID 3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Formulation of Products
Physical Form:	Aerosols
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	<180 mg/m3
Worker Activity:	Filling and packing

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	formulation in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Adhesives
Physical Form:	aerosol
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	3.5 to 1,500 mg/m3
Worker Activity:	Spray Adhesives

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	Adhesive use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Consumer Paint Stripping
Physical Form:	Aerosols
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	35-14,100 mg/m3; majority <1770 mg/m3
Worker Activity:	Consumer Paint Stripping

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	No Comment.
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Consumer Paint Stripping with good ventilation (assumed to be same for occuapational exposures in report)
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	460-2980 mg/m3 (8-hr TWA) unventilated; 60-400 mg/m3 (8-hr TWA) ventilated
Worker Activity:	Consumer Paint Stripping with good ventilation

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	No Comment.
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Stripping
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	18-7000 mg/m3 (8-hr TWA)
Worker Activity:	Immersion stripping of wood

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	No Comment.
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Physical Form:	Aerosols
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	98-321 mg/m3 (8-hr TWA)
Worker Activity:	Aircraft paint stripping

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	No Comment.
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source: Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID: 3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Stripping
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	<350 mg/m3
Worker Activity:	Immersion stripping of metal (with appropriate protection measures)

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	No Comment.
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID   3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	25-3812 mg/m3 (8-hr TWA)
Worker Activity:	Furniture Stripping (without adequate control measures)

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative					
Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
Metric 3:	Applicability	High	× 2	2	No Comment.
Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†		Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

170

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cleaning agent in foam industry or aux blowing agent, releasing agent in PU molding
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	7-1,770 mg/m3
Worker Activity:	Cleaning agent in foam industry or aux blowing agent, releasing agent in PU molding

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	PU foam
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source   Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID   3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Pharmaceuticals
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	3.5-106 mg/m3
Worker Activity:	Pharmaceutical processing

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	pharmaceuticals in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cellulose Triacetate and Film Base Production
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	0-350 mg/m3 (8-hr TWA)

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture/Distribution
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	3.5-63 mg/mg3 (8-hr TWA)
Worker Activity:	Production personnelPlant & packagingpersonnelTanker drivers:

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	manufacturing in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Other Chemical Processing (closed systems)
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	23 mg/m3 (8-hr TWA)

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Degreasing
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	14-1000 mg/m3; mean 280 mg/m3
Worker Activity:	Cold Degreasing

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	degreasing in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Food extraction (also similar to other open industrial applications such as printing, gauze and fabric coating)
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	110 mg/m3
Worker Activity:	Food extraction (also similar to other open industrial applications such as printing, gauze and fabric coating)

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Personal care aerosol use (hairspray, insect repellent)
Physical Form:	aerosol
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	7 mg/m3 (8-
Worker Activity:	Personal care aerosol use (hairspray, insect repellent)

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Aerosols in unventilated room (Dow)
Physical Form:	aerosol
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	77.7 mg/m3
Worker Activity:	Aerosols in unventilated room (Dow)

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative					
Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]		Low		2.3	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tno,. 1999. Methylene chloride: Advantages and Drawbacks of Possible Market Restrictions in the EU.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3809449

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Hair Care Products
Physical Form:	aerosol
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	3.5-17.7 mg/m3 (8-hr TWA)
Worker Activity:	Professional salon use

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from EU
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	Report from 1999 but many data sources are from earlier
	Metric 5:	Sample Size	Medium	× 1	2	Range and mean given, but no discrete data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 1990. Walk-through survey report: Control of methylene chloride in furniture stripping at Colonial Furniture Stripping, Cincinnati, Ohio.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3809453

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	2 personal: 77, 100 ppm3 area: 90, 20, 63
Number of Samples:	5
Number of Sites:	1
Type of Measurement or Method:	1-hour TWA
Worker Activity:	Stripping furniture
Number of Workers:	1
Type of Sampling:	personal, area

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH 1005
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that uses Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990, 28 years old and prior to most recent PEL
	Metric 5:	Sample Size	Medium	× 1	2	Reasonably well characterized.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Has baseline metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]			Medium		1.9	

– continued from previous page

Source Citation:	Niosh,. 1990. Walk-through survey report: Control of methylene chloride in furniture stripping at Colonial Furniture Stripping, Cincinnati, Ohio.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3809453

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 1990. Walk-through survey report: Control of methylene chloride in furniture stripping at Colonial Furniture Stripping, Cincinnati, Ohio.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3809453

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	77-100 ppm (1-hr TWA)
Number of Samples:	2
Number of Sites:	1
Type of Measurement or Method:	1-hr TWA
Worker Activity:	furniture dip stripping
Number of Workers:	1
Type of Sampling:	personal
Exposure Duration:	various

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	furniture dip stripping
Metric 4:	Temporal Representativeness	Low	× 2	6	1990 - more than 20 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	Indicates sample type but no other metadata
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data

Source Citation:	Niosh,. 1990. Walk-through survey report: Control of methylene chloride in furniture stripping at Colonial Furniture Stripping, Cincinnati, Ohio.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3809453

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3827786

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	39-332 ppm; 6 ppm (with controls installed)
Worker Activity:	stripping and rinsing using tank
Type of Sampling:	not specified in review

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Estill et al. 2002, method not specified in IARC
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Medium	× 2	4	data older than 10 years but after PEL
	Metric 5:	Sample Size	Low	× 1	3	range given but no other statistics
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3827786

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	vapor/aerosol
Route of Exposure:	inhalation
Exposure Concentration (Unit):	44-647 ppm TWA; <2ppm (with controls installed)
Worker Activity:	spray stripping using compressed air
Type of Sampling:	not specified in review

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Fairfax & Grevenkamp et al. 2007, method not specified in IARC
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	High	× 2	2	data less than 10 years old (2007)
	Metric 5:	Sample Size	Low	× 1	3	range given but no other statistics
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		1.9	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3827786

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Physical Form:	vapor/aerosol
Route of Exposure:	Inhalation

EVALUATION

Domain	Metric	Rating	MWF★	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	method not specified in IARC
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US data
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Medium	× 2	4	data older than 10 years but after PEL
Metric 5:	Sample Size	Low	× 1	3	range given but no other statistics
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]		Medium		2.1	

★ MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3827786

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	26-120 ppm TWA
Type of Measurement or Method:	TWA
Worker Activity:	chemical paint stripping
Type of Sampling:	not specified in review

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Enander et al. 2004, method not specified in IARC
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Medium	× 2	4	data older than 10 years but after PEL
	Metric 5:	Sample Size	Low	× 1	3	range given but no other statistics
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3827786

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	14-84 ppm (4-hr average)
Type of Measurement or Method:	TWA
Worker Activity:	Aircraft paint stripping
Type of Sampling:	not specified in review

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Uang et al. 2006, method not specified in IARC
Domain 2: Representative						
	Metric 2:	Geographic Scope	Low	× 1	3	data from China and Taiwan (non-OECD)
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	High	× 2	2	data 10 years old (2006)
	Metric 5:	Sample Size	Low	× 1	3	range given but no other statistics
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
 High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3827786

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polyurethane Foam Blowing
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	8 ppm TWA
Type of Measurement or Method:	TWA
Worker Activity:	mix and heat ingredients in oven
Type of Sampling:	not specified in review

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Fairfax & Porter 2006, method not specified in IARC
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	× 2	2	PU foam
	Metric 4:	Temporal Representativeness	High	× 2	2	data 10 years old (2006)
	Metric 5:	Sample Size	Low	× 1	3	single exposure concentration given, unclear if it is average, max, min, or single discrete value
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		1.9	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3827786

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Printing
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	7 ppm
Worker Activity:	cleaning presses
Type of Sampling:	not specified in review

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Lee et al. 2009, method not specified in IARC
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	× 2	2	printing use in scope
	Metric 4:	Temporal Representativeness	High	× 2	2	data less than 10 years old (2009)
	Metric 5:	Sample Size	Low	× 1	3	single exposure concentration given, unclear if it is average, max, min, or single discrete value
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		1.9	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3827786

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Laboratory solvent
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	below LOD (1ppm)
Worker Activity:	no details
Type of Sampling:	not specified in review

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	IARC 2016 - references Nomura et al. 2006 method not specified in IARC
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	data from Japan (OECD country)
	Metric 3:	Applicability	High	× 2	2	Lab uses in scope
	Metric 4:	Temporal Representativeness	Medium	× 2	4	data older than 10 years but after PEL
	Metric 5:	Sample Size	Low	× 1	3	Olny indicated as below LOD, no range, statistics, number of samples, etc.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only sample and exposure type given
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3827786

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	All
Number of Workers:	1.4 million workers in USA in 1980s and 1990s

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	IARC document assumed to use appropriate methodology for data gathering
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	High	× 2	2	applies to US workers
	Metric 4:	Temporal Representativeness	Low	× 2	6	data over 20 years old
	Metric 5:	Sample Size	Low	× 1	3	Only states "over 1.4 million workers" no other quantitative data given
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	industry breakdown not provided, only gives total US workers exposed
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Benaise, L. G.,Harrison, J. M.,Pearce, T. A.. 2006. Health hazard evaluation report no. HETA-2003-0300-2993, West Virginia Department of Health and Human Resources - Webster Springs District Office.

Type of Data Source: Occupational Exposure; Monitoring Data;

Hero ID: 3859371

EXTRACTION

Parameter	Data
Life Cycle Stage:	Environment
Life Cycle Description (Subcategory of Use):	Office Work
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	lower than estimated limit of qatification of 1 ppb
Type of Sampling:	area
Sampling Location:	general office
Analytic Method:	NIOSH Method 2549

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	NIOSH Method 2549
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	Unacceptable	× 2	8	Not an applicable work scenario
	Metric 4: Temporal Representativeness	Medium	× 2	4	2003, 15 years old
	Metric 5: Sample Size	Low	× 1	3	only indicated lower than LOD
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	Very basic metadata
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 2.6.

Source Citation:	Benaise, L. G.,Harrison, J. M.,Pearce, T. A.. 2006. Health hazard evaluation report no. HETA-2003-0300-2993, West Virginia Department of Health and Human Resources - Webster Springs District Office.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3859371

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Love, J. R.,Kern, M.. 1981. Health hazard evaluation report no. HETA-81-065-938, METRO Bus Maintenance Shop, Washington, DC.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3859376

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Dip tank Cleaning
Physical Form:	vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	None Detected
Number of Samples:	33
Number of Sites:	1
Worker Activity:	Painting and degreasing parts at a bus maintenance shop
Number of Workers:	17
Type of Sampling:	personal, area
Sampling Location:	Paint, Degreasing, Welding, and soldering rooms.
Exposure Duration:	Varies
Exposure Frequency:	Varies
Engineering Control & percent Exposure Reduction:	Better ventilation suggeseted in all operations.
Analytic Method:	NIOSH Method S-329

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method S-329
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1981, 37 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete samples given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Missing exposure frequency and exposure duration per day but has other key metadata (sample type and exposure type)

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196

PEER REVIEW DRAFT - DO NOT CITE OR QUOTE

Source Citation:	Love, J. R.,Kern, M.. 1981. Health hazard evaluation report no. HETA-81-065-938, METRO Bus Maintenance Shop, Washington, DC.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3859376

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]		Medium		1.8	

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* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Love, J. R.,Kern, M.. 1981. Health hazard evaluation report no. HETA-81-065-938, METRO Bus Maintenance Shop, Washington, DC.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3859376

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Painting
Physical Form:	vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	None Detected
Number of Samples:	33
Number of Sites:	1
Worker Activity:	Painting and degreasing parts at a bus maintenance shop
Number of Workers:	17
Type of Sampling:	personal, area
Sampling Location:	Paint, Degreasing, Welding, and soldering rooms.
Exposure Duration:	Varies
Exposure Frequency:	Varies
Engineering Control & percent Exposure Reduction:	Better ventilation suggeseted in all operations.
Analytic Method:	NIOSH Method S-329

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH Method S-329
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
	Metric 4:	Temporal Representativeness	Low	× 2	6	1981, 37 years old and prior to most recent PEL
	Metric 5:	Sample Size	High	× 1	1	discrete samples given
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Missing exposure frequency and exposure duration per day but has other key metadata (sample type and exposure type)

Continued on next page

Source Citation:	Love, J. R.,Kern, M.. 1981. Health hazard evaluation report no. HETA-81-065-938, METRO Bus Maintenance Shop, Washington, DC.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3859376

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]		Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	2017. Pollution prevention search results, envirofacts database.
Type of Data Source	Occupational Exposure; Environmental Release Data;
Hero ID	3860453

EXTRACTION

Parameter	Data
Life Cycle Stage:	Everything
Life Cycle Description (Subcategory of Use):	Everything

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	Envirofacts, US EPA
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Many workplaces relating to the scope of this occupational scenario
	Metric 4: Temporal Representativeness	High	× 2	2	Variety of releases documented from 2015 and earlier.
	Metric 5: Sample Size	Medium	× 1	2	Variety of release numbers from various companies with details regarding industry and previous year's releases
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	Maybe a 2. Release data is quantified per year, but has some details about past year and process changes.
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]		High		1.6	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1994. National emission standards for hazardous air pollutants: Halogenated solvent cleaning – Background information for final standards.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3860538

EXTRACTION

Parameter	Data

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Unacceptable	× 1	4	No methodology
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	Unacceptable	× 2	8	Discussion and Public Comment on 1994 NESHAP Halogenated Solvent Rules
	Metric 4: Temporal Representativeness	Low	× 2	6	1994
	Metric 5: Sample Size	Low	× 1	3	no exposure data
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Unacceptable	× 1	4	no exposure data
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	no exposure data
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 3.2.

[**] Consistent with our *Application of Systematic Review in TSCA Risk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1994. Chemical summary for methylene chloride (dichloromethane).
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3860545

EXTRACTION

Parameter	Data
Life Cycle Stage:	EPA
Life Cycle Description (Subcategory of Use):	Chemical Summary

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	EPA - though there is a line that states: No attempt has been made to verify information in these databases and secondary sourced.
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Low	× 2	6	Overview of the DCM, production use, fate, etc.
Metric 4:	Temporal Representativeness	Low	× 2	6	1994, 24 years old
Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	No Comment.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination†		Low		2.6	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1991. Waste minimization assessment for a manufacturer of outdoor illuminated signs.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3860552

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Sign Painting
Physical Form:	liquid

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA study
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Workplace that has potential exposure to employees
	Metric 4:	Temporal Representativeness	Low	× 2	6	1991, 27 years old and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No sampling was done.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 2.4.

[**] Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

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Source Citation:	U.S, E. P. A.. 1995. Determination of landfill gas composition and pollutant emission rates at Fresh Kills Landfill.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970170

EXTRACTION

Parameter	Data
Life Cycle Stage:	Post-use
Life Cycle Description (Subcategory of Use):	Landfill
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	ND - 11.08 ppm
Number of Samples:	100+
Number of Sites:	1
Worker Activity:	None - landfill
Type of Sampling:	Area
Sampling Location:	Landfill
Exposure Duration:	Constant
Exposure Frequency:	Constant

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	None Noted
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Low	× 2	6	Focuses on air quality leaving landfill
Metric 4:	Temporal Representativeness	Low	× 2	6	1995, 13 years old and prior to most recent PEL
Metric 5:	Sample Size	Low	× 1	3	Limited
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Limited
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Limited
Overall Quality Determination†		Low		2.8	

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Source Citation: U.S, E. P. A.. 1995. Determination of landfill gas composition and pollutant emission rates at Fresh Kills Landfill.
Type of Data Source Occupational Exposure; Monitoring Data;
Hero ID 3970170

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	ToxNet Hazardous Substances Data, Bank. 2017. HSDB: Methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3970276

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	All
Number of Workers:	1,438,196 workers in USA 1981-1983

EVALUATION

Domain	Metric		Rating	MWF★	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	HSDB (per NOES 1981-1983)
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Total workers in USA
	Metric 4:	Temporal Representativeness	Low	× 2	6	1981-1983
	Metric 5:	Sample Size	Low	× 1	3	no exposure data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	no exposure data
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	no exposure data
Overall Quality Determination†			Low		2.3	

★ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Kanwal, R.,Boylstein, R. J.. 2006. Health hazard evaluation report no. HETA 2006-0059-3009, DaimlerChrysler Jefferson North Assembly Plant, Detroit, Michigan.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970547

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Automobile assembly
Physical Form:	vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	0.001 ppm
Worker Activity:	Field blanks for manual welding, welding repair

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	autmotive assembly
	Metric 4:	Temporal Representativeness	Medium	× 2	4	2006
	Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	instantaneous sample
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	no discusion of uncertainty and variability
Overall Quality Determination[†]			Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Tubbs, R. L.,Miller, A. K.. 1994. Health hazard evaluation report no. HETA 93-0608-2423 Unitron Industires, Inc., Port Huron, Michigan.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970555

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Hearing aid mold making
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	9.76-74.60 ppm
Number of Samples:	4
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Hearing aid mold making
Number of Workers:	12
Type of Sampling:	personal
Sampling Location:	hearing aid mold making areas
Exposure Duration:	8 hour shift
Exposure Frequency:	daily
Engineering Control & percent Exposure Reduction:	exhaust fans
Analytic Method:	NIOSH Methods 1003

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Methods 1003,
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1994, 24 years old and prior to most recent PEL
Metric 5:	Sample Size	Medium	× 1	2	Were not provided with each data point
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Basic Meta data given.

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Source Citation: Tubbs, R. L.,Miller, A. K.. 1994. Health hazard evaluation report no. HETA 93-0608-2423 Unitron Industires, Inc., Port Huron, Michigan.
Type of Data Source: Occupational Exposure; Monitoring Data;
Hero ID: 3970555

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method
Overall Quality Determination[†]		Medium		1.8	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Kiefer, M.,Driscoll, R. J.. 1998. Health hazard evaluation report no. HETA 97-0185-2675, McGregor Loudspeaker Manufacturing Company, Prarie du Chien, Wisconsin.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970559

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Loudspeaker Manufacture
Exposure Concentration (Unit):	0-LOD
Number of Samples:	21
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Speaker Assembly, various
Number of Workers:	160
Type of Sampling:	Personal
Sampling Location:	various
Exposure Duration:	workday
Exposure Frequency:	continuous
PPE:	infrequent glove use
Analytic Method:	NIOSH 1300, 1500, 1005 and/or 1501

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH 1300, 1500, 1005 and/or 1501
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Medium	× 2	4	1998, 20 years old but after most recent PEL
Metric 5:	Sample Size	High	× 1	1	Data is well characterized.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	Complete Metadata
Domain 4: Variability and Uncertainty					

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Source Citation:	Kiefer, M.,Driscoll, R. J.. 1998. Health hazard evaluation report no. HETA 97-0185-2675, McGregor Loudspeaker Manufacturing Company, Prarie du Chien, Wisconsin.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	3970559				

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
	Metric 7: Metadata Completeness	Medium	× 1	2	EPA methods used discuss variability and uncetainty.
Overall Quality Determination[†]		High		1.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	McCammon, C.. 1990. Health hazard evaluation report no.HETA 89-199-2033, Enesco, Inc., Rocky Mountain Analytical Laboratory, Arvada, Colorado.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970566

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Standards Preparation (Laboratory)
Physical Form:	vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	.8-8.5ppm with peak at 4000ppm
Number of Samples:	23 breathing zone, 2 area
Number of Sites:	1
Type of Measurement or Method:	TWA and short term
Worker Activity:	Standards preparation
Type of Sampling:	Personal, Area
Sampling Location:	Waste Dump, Wash Sink, Sample Storage Refrigerators
Exposure Duration:	8 hour shift
Exposure Frequency:	Varies
Engineering Control & percent Exposure Reduction:	Laboratory Hood Fans
PPE:	Varies
Analytic Method:	NIOSH Methods

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Methods
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1989, 29 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Data is well characterized.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	Complete Metadata

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Source Citation:	McCammon, C.. 1990. Health hazard evaluation report no.HETA 89-199-2033, Enesco, Inc., Rocky Mountain Analytical Laboratory, Arvada, Colorado.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	3970566				

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	Variability and uncertainty not discussed.
Overall Quality Determination†		Medium		1.7	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Burr, G. A.,Richardson, F. D.. 1988. Health hazard evaluation report no. HETA 87-250-1888, GTE Products Corporation, Williamsport, Pennsylvania.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970567

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	SEM Assembly and Testing
Physical Form:	vapor
Route of Exposure:	Inhalation
Number of Samples:	0, looked at company's previous IH sampling data
Number of Sites:	1
Number of Workers:	45
Analytic Method:	Accepted Industrial Hygiene Procedures

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Accepted Industrial Hygiene Procedures
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
	Metric 4:	Temporal Representativeness	Low	× 2	6	1988, 30 years old and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	Only referenced results from a private industrial hygenist, but no specific samples mentioned.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	A couple points of data were pulled from private IH dataset, but with no background data.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Variability and uncertainty not discussed.
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 2.4.

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Source Citation:	Burr, G. A.,Richardson, F. D.. 1988. Health hazard evaluation report no. HETA 87-250-1888, GTE Products Corporation, Williamsport, Pennsylvania.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970567

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments

⋆⋆ Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Kiefer, M.,Driscoll, R. J.. 1998. Health hazard evaluation report no. HETA 97-0185-2675, McGregor Loudspeaker Manufacturing Company, Prarie du Chien, Wisconsin, Part 2.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970568

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Solvent use
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	conc. below detectable limit
Number of Samples:	11
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Speaker Assembly
Number of Workers:	6
Type of Sampling:	Personal, Area
Sampling Location:	workers on the assembly line
Exposure Duration:	8 hour shift
Exposure Frequency:	M-F
Analytic Method:	NIOSH Methods

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH method
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Medium	× 2	4	1997, 21 years old but after most recent PEL
Metric 5:	Sample Size	High	× 1	1	11 samples taken
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Was not documented how long workers were working with Methylene Chloride.

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216

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Source Citation:	Kiefer, M.,Driscoll, R. J.. 1998. Health hazard evaluation report no. HETA 97-0185-2675, McGregor Loudspeaker Manufacturing Company, Prarie du Chien, Wisconsin, Part 2.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970568

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	Expressed uncertainty regarding conditions at different times of the year.
Overall Quality Determination†		High		1.4	

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* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Reh, C. M.,Lushniak, B. D.. 1990. Health hazard evaluation report no. HETA 87-350-2084, Trailmobile, Inc., Charleston, Illinois.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970570

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polyurethane Foam Blowing
Physical Form:	Liquid, vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	1.3-5.1 ppm
Number of Samples:	5
Number of Sites:	1
Worker Activity:	foam operators
Type of Sampling:	Personal
Sampling Location:	Foaming
Exposure Duration:	8 hour shift
PPE:	Coveralls, Gloves, half face respirators with organic vapor cartridges
Analytic Method:	NIOSH Method 1005

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method 1005
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1990, 28 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Not clear how frequently foaming operation (exposure activity) is being done.
Domain 4: Variability and Uncertainty					

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Source Citation:	Reh, C. M.,Lushniak, B. D.. 1990. Health hazard evaluation report no. HETA 87-350-2084, Trailmobile, Inc., Charleston, Illinois.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970570

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
	Metric 7: Metadata Completeness	Medium	× 1	2	Unceratainty addressed in NIOSH Method
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

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Source Citation:	Kiefer, M.,Bresler, F.,Salisbury,. 1993. Health hazard evaluation report no. HETA 92-0101-2341, Robins Air Force Base, Warner Robins, Georgia.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970572

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Degreasing and Metal Cleaning for Aircraft
Number of Sites:	1

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Unacceptable	× 1	4	Does not test for Methylene Chloride
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Unacceptable	× 2	8	Methylene Chloride not referenced.
Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old and prior to most recent PEL
Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No Comment.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 3.2.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Harney, J. M.,Hess, J.,Reh, C. M.,Trout, D.. 2002. Health hazard evaluation report no. HETA 2000-0410-2891, STN Cusion company, Thomasville, North Carolina.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970574

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Sofa Cushions
Number of Sites:	1

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Unacceptable	× 1	4	Does not test for Methylene Chloride
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Unacceptable	× 2	8	Methylene Chloride not referenced.
	Metric 4:	Temporal Representativeness	Medium	× 2	4	2002, 16 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No Comment.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 3.0.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Bicknell, R.,McManus, K. P.,Kaiser, E. A.,Konig, J. Fidler A. T.. 1989. Health hazard evaluation report no. HETA 87-075-1988, American cyanamid, Wallingford, Connecticut.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970576

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Epoxy carrier (5 percent by volume), used on graphite fibers
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Air Concentration from 13.9-74.4 mg/m$\hat{3}$. Respirators were used so does not represent worker exposure
Number of Samples:	6 Breathing Zone, 8 area
Number of Sites:	1
Type of Measurement or Method:	8 hr TWA
Worker Activity:	Accessing mixing booth and sizing tanks that contain methylene chloride
Number of Workers:	56 participated in study, 19 currently exposed, 6 previously exposed.
Type of Sampling:	Personal, Area
Sampling Location:	8 locations around process unit
Exposure Duration:	Various
Exposure Frequency:	Not on daily basis, but as needed for special orders
Engineering Control & percent Exposure Reduction:	Air Supplied Respirators
PPE:	Hard Hat, Glasses, Safety Shoes, Air Supplied Respirators, Gloves, Disposable Coveralls, and Aprons
Analytic Method:	NIOSH 1003

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH 1003
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	metal coated fibers
Metric 4:	Temporal Representativeness	Low	× 2	6	1989, 28 years old and prior to most recent PEL

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Source Citation:	Bicknell, R.,McManus, K. P.,Kaiser, E. A.,Konig, J. Fidler A. T.. 1989. Health hazard evaluation report no. HETA 87-075-1988, American cyanamid, Wallingford, Connecticut.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	3970576				

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
	Metric 5:	Sample Size	High	× 1	1	Sampling was done from a variety of places and workers, but only on one occasion.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	all methods and equipment used are described and seem legitimate
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Variability and uncertainty not discussed.
Overall Quality Determination[†]			Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Ahrenholz, S. H.. 1980. Health hazard evaluation report no. HHE 80-18-691, Looart Press Incorporate, Colorado Springs,Colorado.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970580

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Printing Plate Cleaning
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	17mg/M$\hat{3}$
Number of Samples:	2
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Cleaning the step and repeat machine
Number of Workers:	4
Type of Sampling:	Personal
Sampling Location:	workers using the step and repeat machine
Exposure Duration:	Unkown
Exposure Frequency:	once/day
Analytic Method:	NIOSH P&CAM 127

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH P&CAM 127
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	data from US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1980, 37 years old, and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration

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224

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Source Citation:	Ahrenholz, S. H.. 1980. Health hazard evaluation report no. HHE 80-18-691, Looart Press Incorporate, Colorado Springs,Colorado.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	3970580				

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method
Overall Quality Determination[†]		Medium		1.7	

⋆ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Sussell, A. L.,Lushniak, B. D.. 1990. Health hazard evaluation report no. HETA 90-172-2076, Bussman/Cooper Industries, MPH, Elizabethtown, Kentucky.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970589

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Print Roller Cleaning
Physical Form:	Liquid/Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	4.02-4.24 mg/m$\hat{3}$
Number of Samples:	2
Number of Sites:	1
Worker Activity:	Clean Print Rollers
Number of Workers:	226
Type of Sampling:	Area
Sampling Location:	Blister Pack Machine
Exposure Duration:	8 hrs
Exposure Frequency:	varies
Analytic Method:	NIOSH Method 1500

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	$\times$ 1	1	NIOSH Method 1500 (on review, it seems this method is not currently used for Methylene Chloride).
Domain 2: Representative					
Metric 2:	Geographic Scope	High	$\times$ 1	1	US
Metric 3:	Applicability	High	$\times$ 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	$\times$ 2	6	1990, 28 years old and prior to most recent PEL
Metric 5:	Sample Size	High	$\times$ 1	1	discrete data given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	$\times$ 1	2	Unclear how frequently workers are performing part cleaning activities

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Source Citation:	Sussell, A. L.,Lushniak, B. D.. 1990. Health hazard evaluation report no. HETA 90-172-2076, Bussman/Cooper Industries, MPH, Elizabethtown, Kentucky.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970589

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	Variability and uncertainty not discussed.
Overall Quality Determination[†]		Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Ruhe, R. L.,Watanabe, A.,Stein, G.. 1981. Health hazard evaluation report no. HHE 80-49-808, Superior Tube Company, Collegeville, Pennsylvania.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970617

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Vapor Degreasing
Physical Form:	Liquid, vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	undetectable - 141mg/M$\hat{3}$
Number of Samples:	6 breathing zone, 1 area sample
Number of Sites:	1
Type of Measurement or Method:	8-hour TWA and short term
Worker Activity:	operators
Type of Sampling:	Personal, Area
Sampling Location:	Hot and cold degreasers
Exposure Duration:	Assumed 8 hour shift
Exposure Frequency:	varies
Engineering Control & percent Exposure Reduction:	Suggests new ventilation system.
Analytic Method:	NIOSH P & CAM 127

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH Method P & CAM 127
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
	Metric 4:	Temporal Representativeness	Low	× 2	6	1980, 38 years old and prior to most recent PEL
	Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Unclear how frequently workers are performing degreasing activities

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Source Citation:	Ruhe, R. L.,Watanabe, A.,Stein, G.. 1981. Health hazard evaluation report no. HHE 80-49-808, Superior Tube Company, Collegeville, Pennsylvania.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970617

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Vandervort, R.,Polakoff, P. L.. 1973. Health hazard evaluation report no. HHE 72-84-31, Dunham-Bush, Incroprated, West Hartford, Connecticut, Part 2.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970657

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Spray Painting
Physical Form:	aerosol
Route of Exposure:	inhalation
Exposure Concentration (Unit):	1-74 mg/m3
Number of Samples:	Area: 15Personal: 28
Number of Sites:	1
Worker Activity:	Spray painting in spray booths
Type of Sampling:	personal, area
Sampling Location:	spray booth

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	Method described and NIOSH HHE; therefore, assumed to be a NIOSH method
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1977, 41 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	Complete Metadata
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No uncertainty addressed
Overall Quality Determination†		Medium		1.7	

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Source Citation:	Vandervort, R.,Polakoff, P. L.. 1973. Health hazard evaluation report no. HHE 72-84-31, Dunham-Bush, Incroprated, West Hartford, Connecticut, Part 2.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970657

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Vandervort, R.,Polakoff, P. L.. 1973. Health hazard evaluation report no. HHE 72-84-31, Dunham-Bush, Incroprated, West Hartford, Connecticut, Part 2.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970657

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Spray Painting
Physical Form:	aerosol
Route of Exposure:	inhalation
Exposure Concentration (Unit):	1-74 mg/m3
Number of Samples:	Area: 15Personal: 28
Number of Sites:	1
Worker Activity:	Spray painting
Type of Sampling:	personal, area
Sampling Location:	spray booth

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Method described and NIOSH HHE; therefore, assumed to be a NIOSH method
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
	Metric 4:	Temporal Representativeness	Low	× 2	6	1977, 41 years old and prior to most recent PEL
	Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Complete Metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]			Medium		1.7	

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Source Citation:	Vandervort, R.,Polakoff, P. L.. 1973. Health hazard evaluation report no. HHE 72-84-31, Dunham-Bush, Incroprated, West Hartford, Connecticut, Part 2.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970657

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Echa,. 2017. Uses at industrial sites: Dichloromethane.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970727

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture, Use, and Exposure Review
Physical Form:	Varies
Route of Exposure:	Varies
Worker Activity:	Varies

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Unacceptable	× 1	4	No Comment.
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	European Chemicals Agency
	Metric 3:	Applicability	Unacceptable	× 2	8	Synopsis of where the chemical is used, not an occupational scenario
	Metric 4:	Temporal Representativeness	Low	× 2	6	No Comment.
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No Comment.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 3.3.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Echa,. 2017. Uses by professional workers: Dichloromethane.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3970728

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture, Use, and Exposure Review
Physical Form:	Varies
Route of Exposure:	Varies
Worker Activity:	Varies

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Unacceptable	× 1	4	No Comment.
Domain 2: Representative					
	Metric 2: Geographic Scope	Medium	× 1	2	European Chemicals Agency
	Metric 3: Applicability	Unacceptable	× 2	8	Synopsis of where the chemical is used, not an occupational scenario
	Metric 4: Temporal Representativeness	Low	× 2	6	No Comment.
	Metric 5: Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Unacceptable	× 1	4	No Comment.
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 3.3.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 1978. Occupational health guideline for methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3974864

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Health Guidline
Physical Form:	liquid, vapor
Route of Exposure:	inhalation, dermal, ingestion

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Low	× 2	6	Occupational Health Guidline for Methylene Chloride in the workplace.
	Metric 4:	Temporal Representativeness	Low	× 2	6	1978, 40 years old
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Well documented, but little to no citations inline with the text.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	N/a
Overall Quality Determination[†]			Low		2.4	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 1980. Extent of exposure survey of methylene chloride.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3974901

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Personal: 15.7 - 268 ppm (avg. conc. 64 ppm)
Number of Samples:	Personal: 12
Number of Sites:	1
Type of Measurement or Method:	8 Hour TWA
Worker Activity:	Stripping paint
Number of Workers:	106
Type of Sampling:	personal
Sampling Location:	around aircraft
Exposure Duration:	8 hr/day
Exposure Frequency:	everyday
Engineering Control & percent Exposure Reduction:	Better ventilation in new facility
PPE:	Coveralls, monogoggles, rubber gloves, etc.
Analytic Method:	NIOSH S239

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1980, 38 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Excellent charcterization of all measurements and data points
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Durations of shifts/exposure were not completely captured

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237

Source Citation:	Niosh,. 1980. Extent of exposure survey of methylene chloride.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3974901

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	High	× 1	1	Variability is addressed within the experiment in regards to some of the sampling. Variability and uncertainty is further addressed by the NIOSH method.
Overall Quality Determination†		High		1.6	

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 1980. Extent of exposure survey of methylene chloride.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3974901

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Triacetate fiber production
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Personal: 31-561 ppmArea: 409-950ppm
Number of Samples:	Personal: 46Area: 16
Number of Sites:	1
Type of Measurement or Method:	8 Hour TWA
Worker Activity:	Exposure to solvent directly or through residue left on textile.
Number of Workers:	1950 (920 potentially exposed to Methylene Chloride)
Type of Sampling:	personal
Sampling Location:	Production, Extrusion, Bobbin Stores, and Textile work area
Exposure Duration:	variable up to 8hr/day
Exposure Frequency:	variable
Engineering Control & percent Exposure Reduction:	Ventilation, negative pressure areas
PPE:	Varies from none to occasional use of gloves, aprons, goggles, etc.
Analytic Method:	NIOSH S239

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1980, 38 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Excellent charcterization of all measurements and data points
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Durations of shifts/exposure were not completely captured

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239

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Source Citation:	Niosh,. 1980. Extent of exposure survey of methylene chloride.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3974901

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	High	× 1	1	Variability is addressed within the experiment in regards to some of the sampling. Variability and uncertainty is further addressed by the NIOSH method.
Overall Quality Determination†		High		1.6	

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 1980. Extent of exposure survey of methylene chloride.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3974901

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Decaffenation of Coffee
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	Personal: 0.3-33.2 ppm (avg. conc. 2.9 ppm)Area: 0.05 - 2.08 ppm
Number of Samples:	Personal: 36Short Term: 3Area: 7
Number of Sites:	1
Type of Measurement or Method:	8 hour, short term, peak
Worker Activity:	Running the decaffeinating facility
Number of Workers:	55-58
Type of Sampling:	personal, area
Sampling Location:	decaffeinating facility
Exposure Duration:	variable up to 8hr/day
Exposure Frequency:	everyday
PPE:	Company supplied work clothing, safety glasses, hard hats, etc.
Analytic Method:	NIOSH S239

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1980, 38 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Excellent charcterization of all measurements and data points
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Durations of shifts/exposure were not completely captured

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241

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Source Citation:	Niosh,. 1980. Extent of exposure survey of methylene chloride.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3974901

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	High	× 1	1	Variability is addressed within the experiment in regards to some of the sampling. Variability and uncertainty is further addressed by the NIOSH method.
Overall Quality Determination[†]		High		1.6	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Niosh,. 1990. Preliminary survey report: Control of methylene chloride in furniture stripping at Strip-Ease Co. Of Cincinnati.
Type of Data Source: Occupational Exposure; Monitoring Data;
Hero ID: 3974903

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	200-1500 ppm
Number of Samples:	6
Number of Sites:	1
Worker Activity:	Stripping furniture
Number of Workers:	3
Type of Sampling:	area

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	NIOSH survey, but had limited qualitative sampling available.
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that uses Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990, 28 years old and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	Poorly characterized
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Missing sample durations and other metadata
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]			Low		2.3	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 2004. In-depth survey report: Assisting furniture strippers in reducing the risk from methylene chloride stripping fomulations at The Strip Joint, Inc.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3974904

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	11-1052 ppmTWA: 38 - 496 ppm
Number of Samples:	13 personal, 9 area
Number of Sites:	1
Type of Measurement or Method:	TWA
Worker Activity:	Stripping furniture
Type of Sampling:	personal, area
Analytic Method:	NIOSH Method 1005

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	NIOSH Method 1005
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Workplace that uses Methylene Chloride
	Metric 4: Temporal Representativeness	Medium	× 2	4	2004, 14 years old
	Metric 5: Sample Size	Medium	× 1	2	Reasonably well characterized.
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Medium	× 1	2	Has baseline metadata
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	High	× 1	1	Discussion addresses some of the limitations and variability in the test. NIOSH method also contains this discussion.

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Source Citation:	Niosh,. 2004. In-depth survey report: Assisting furniture strippers in reducing the risk from methylene chloride stripping fomulations at The Strip Joint, Inc.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3974904

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Overall Quality Determination†		High		1.4	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 1985. Health hazard evaluation report no. HETA-84-214-1633, Sheldahl, Inc., Northfield, Minnesota.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3974905

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Use of Adhesives in Flexible circuit board Mfg
Physical Form:	Liquid, vapor
Route of Exposure:	Inhalation, dermal
Exposure Concentration (Unit):	TWA 25-132ppm, short term 112-1752 ppm
Number of Samples:	14
Number of Sites:	1
Type of Measurement or Method:	8-hour TWA, short term
Worker Activity:	Lamination of flexible circuitry
Number of Workers:	650
Type of Sampling:	Personal, Area
Sampling Location:	Laminator, Adhesive Mixer, Tape Machine,
Exposure Duration:	8-hour shift
Engineering Control & percent Exposure Reduction:	local exhaust ventilation at several processes
PPE:	Safey Glasses.Inadequate air purifying respirators and neoprene gloves for various tasks.
Analytic Method:	NIOSH P & CAM 127

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method P & CAM 127
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1985, 33 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete samples given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	all metadata given

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246

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Source Citation:	Niosh,. 1985. Health hazard evaluation report no. HETA-84-214-1633, Sheldahl, Inc., Northfield, Minnesota.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3974905

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	Uncertainty addressed in NIOSH Method
Overall Quality Determination[†]		High		1.6	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Wages, R. obert,Markowitz, S. teven,Kieding, S. ylvia,Griffon, M. ark,Ellenbecker, M. ichael. 1998. Former worker medical surveillance program at Idaho National Engineering and Environmental Laboratory (INEEL) Phase I: Needs assessment.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3974967

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Laboratory and Research Facility
Worker Activity:	Parts degreasing, painting,
Number of Workers:	11
Type of Sampling:	General Survey of past employees

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	DOE contractor
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Unacceptable	× 2	8	Retroactive look at a workplace scenario
	Metric 4:	Temporal Representativeness	Low	× 2	6	1998, but uses survey data
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	No sampling technique used - no metadata as a result.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 2.9.

[**] Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Doe,. 2003. A needs assessment for medical screening of construction workers at the Portsmouth and Paducah gaseous diffusion plants.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3974976

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Gaseous Diffusion Plant Construction
Number of Sites:	2
Worker Activity:	Degreasing
Number of Workers:	>1000

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	University of Cincinnati, NIOSH, DOE
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Unacceptable	× 2	8	Retroactive look at a workplace scenario
	Metric 4:	Temporal Representativeness	Low	× 2	6	2003, but uses old data
	Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Well documented, but little to no citations inline with the text.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 2.7.

** Consistent with our *Application of Systematic Review in TSCA Risk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Doe,. 1999. Advanced mixed waste treatment project: Appendices.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3974977

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Life Cycle Description (Subcategory of Use):	Waste Incineration
Physical Form:	Vapor

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	Contractor for DOE
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Unacceptable	× 2	8	Estimations for future incineration emissions - not related to direct worker exposure.
Metric 4:	Temporal Representativeness	Low	× 2	6	1999, 19 years old
Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Not well documented.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination†		Unacceptable		4	Metric Mean Score: 2.9.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Doe,. 1992. Summary of clean up site at Glass Melter thermal Treatment Unit at Monsanto Research Corporation.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3974994

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Life Cycle Description (Subcategory of Use):	Waste Incineration
Physical Form:	Vapor
Number of Sites:	1
Engineering Control & percent Exposure Reduction:	Controls to prevent inefficient waste burning

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	DOE, EPA, DOI
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Unacceptable	× 2	8	Synopsis of a scenario where methylene chloride could be introduced in the workplace, but focused solely on efficiency of the incinerator
Metric 4:	Temporal Representativeness	Low	× 2	6	1988, 30 years old
Metric 5:	Sample Size	Low	× 1	3	No Comment.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	Well documented
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	None addressing data
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 2.6.

[**] Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,,Niosh,. 2013. Hazard alert methylene chloride hazards for bathtub refinishers.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978131

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Bathtub Refinishing/Stripping
Physical Form:	Liquid, Vapor
Route of Exposure:	Inahaltion, Dermal
Worker Activity:	Bathtub refinishing
Engineering Control & percent Exposure Reduction:	Test the air, provide local exhaust ventilation
PPE:	Full face respirator, PE or EVOH gloves, DCM resistant clothing, goggles

EVALUATION

Domain	Metric		Rating	MWF★	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Unacceptable	× 1	4	No methodology
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Unacceptable	× 2	8	NIOSH Methylene Chloride Hazard Alert - Focused on health effects and PPE
	Metric 4:	Temporal Representativeness	High	× 2	2	2012
	Metric 5:	Sample Size	Low	× 1	3	no exposure data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Unacceptable	× 1	4	no exposure data
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	no exposure data
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 2.8.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

★ MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 2014. Methylene chloride current intelligence bulletin.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978133

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Film Base Manufacturing
Physical Form:	vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	0 to 350 ppm; mean exposure of 118.8 ppm in 1966 to 40.3 ppm in 197 (reported in other sources citing Friedlander et al, 1978

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	NIOSH Intelligence Bulletin - references Friedlander 1978
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	CTA film manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1956-1976
	Metric 5:	Sample Size	Medium	× 1	2	range provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	personal samples
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion on uncertainty and variability
Overall Quality Determination†			Medium		2.2	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 2014. Methylene chloride current intelligence bulletin.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978133

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Manufacture of synthetic fibers
Physical Form:	vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	5 to 900 ppm (reported by other sources citing Ott et al, 1983)

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	NIOSH Intelligence Bulletin - references Ott 1983
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	CTA film manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1954-1977
	Metric 5:	Sample Size	Medium	× 1	2	range provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	personal samples
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion on uncertainty and variability
Overall Quality Determination[†]			Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 2014. Methylene chloride current intelligence bulletin.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978133

EXTRACTION

Parameter	Data
Life Cycle Stage:	All
Life Cycle Description (Subcategory of Use):	Mfg, use as solvent, aerosol propellant or fumigant, and blowing agent in flexible urethane foams.
Number of Workers:	1 million (1986)

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	NIOSH Intelligence Bulletin
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Total workers in USA
	Metric 4:	Temporal Representativeness	Low	× 2	6	1986
	Metric 5:	Sample Size	N/A		N/A	n/a - not exposure data
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	N/A		N/A	n/a - not exposure data
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	N/A		N/A	n/a - not exposure data
Overall Quality Determination†			Low		2.3	

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 2012. Occupational safety and health standards: Toxic and hazardous substances: Methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978279

EXTRACTION

Parameter	Data
Life Cycle Stage:	Regulation
Life Cycle Description (Subcategory of Use):	OSHA 29 CFR Part 1910

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Unacceptable	× 1	4	No Comment.
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	Unacceptable	× 2	8	OSHA standard discussing workplace safety. No exposure data.
	Metric 4: Temporal Representativeness	Low	× 2	6	n/a - not exposure data
	Metric 5: Sample Size	Low	× 1	3	n/a - not exposure data
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Unacceptable	× 1	4	n/a - not exposure data
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	n/a - not exposure data
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 3.2.

[**] Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Route of Exposure:	Inhalation
Number of Sites:	4
Number of Workers:	84

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of DCM
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing/Use
Life Cycle Description (Subcategory of Use):	Pesticide Manufacturing and Formulation
Route of Exposure:	Inhalation
Number of Sites:	60
Number of Workers:	120

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Pesticide Manufacturing and Formulation
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Distribution/Formulation
Route of Exposure:	Inhalation
Number of Sites:	320
Number of Workers:	1,701

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Distribution/Formulation
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Aerosol Packaging
Route of Exposure:	Inhalation
Number of Sites:	52
Number of Workers:	520

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Aerosol Packaging
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Paint Remover Manufacturing
Route of Exposure:	Inhalation
Number of Sites:	80
Number of Workers:	200

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Paint Remover Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Paint Manufacturing
Route of Exposure:	Inhalation
Number of Sites:	49
Number of Workers:	229

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Paint Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Adhesive Production
Route of Exposure:	Inhalation
Number of Sites:	165
Number of Workers:	497

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Adhesive Production
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Ink and Ink Solvent Manufacturing
Route of Exposure:	Inhalation
Number of Sites:	15
Number of Workers:	58

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Ink and Ink Solvent Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Solvent Recovery
Route of Exposure:	Inhalation
Number of Sites:	34
Number of Workers:	137

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Solvent Recovery
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Open Top Vapor Degreasing
Route of Exposure:	Inhalation
Number of Sites:	278
Number of Workers:	608

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Open Top Vapor Degreasing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Conveyorized Vapor Degreasing
Route of Exposure:	Inhalation
Number of Sites:	45
Number of Workers:	75

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Conveyorized Vapor Degreasing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainity not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cold Degreasing and Other Cold Cleaning:
Route of Exposure:	Inhalation
Number of Sites:	23717
Number of Workers:	94,537

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Cold Degreasing and Other Cold Cleaning:
	Metric 4: Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5: Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Adhesive Use
Route of Exposure:	Inhalation
Number of Sites:	1753
Number of Workers:	5,269

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Adhesive Use
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping: Aircraft
Route of Exposure:	Inhalation
Number of Sites:	300
Number of Workers:	2,470

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Paint Stripping: Aircraft
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Route of Exposure:	Inhalation
Number of Sites:	6152
Number of Workers:	7,872

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Furniture Stripping
Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Other Industrial Paint Stripping
Route of Exposure:	Inhalation
Number of Sites:	35041
Number of Workers:	46,605

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Other Industrial Paint Stripping
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Flexible Polyurethane Foam Manufacturing
Route of Exposure:	Inhalation
Number of Sites:	100
Number of Workers:	600

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Flexible Polyurethane Foam Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Electronics
Route of Exposure:	Inhalation
Number of Sites:	239
Worker Activity:	semiconductor
Number of Workers:	1,392

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Electronics
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Electronics
Route of Exposure:	Inhalation
Number of Sites:	141
Worker Activity:	Printed Circuit Boards
Number of Workers:	298

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Electronics
Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source: Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID: 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing/Use
Life Cycle Description (Subcategory of Use):	Pharmaceutical Manufacturing
Route of Exposure:	Inhalation
Number of Sites:	108
Number of Workers:	1,431

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Pharmaceutical Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Film Base Manufacturing
Route of Exposure:	Inhalation
Number of Sites:	1
Number of Workers:	500

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	$\times$ 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	$\times$ 1	1	US
	Metric 3:	Applicability	High	$\times$ 2	2	Film Base Manufacturing
	Metric 4:	Temporal Representativeness	Low	$\times$ 2	6	pre 1997
	Metric 5:	Sample Size	Low	$\times$ 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	$\times$ 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	$\times$ 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Plastics Manufacturing
Route of Exposure:	Inhalation
Number of Sites:	80
Worker Activity:	Injection Molding
Number of Workers:	240

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Plastics Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Plastics Manufacturing
Route of Exposure:	Inhalation
Number of Sites:	1323
Worker Activity:	Lamination
Number of Workers:	4,070

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Plastics Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Plastics Manufacturing
Route of Exposure:	Inhalation
Number of Sites:	165
Worker Activity:	Mold Release
Number of Workers:	497

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Plastics Manufacturing
Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polycarbonate Manufacturing
Route of Exposure:	Inhalation
Number of Sites:	4
Number of Workers:	67

EVALUATION

Domain	Metric		Rating	MWF★	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Polycarbonate Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination†			Medium		2.1	

★ MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Ink Solvent Use in Printing
Route of Exposure:	Inhalation
Number of Sites:	11869
Number of Workers:	39,481

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Ink Solvent Use in Printing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	construction
Route of Exposure:	Inhalation
Number of Sites:	9504
Worker Activity:	paint stripping and foamblowing are essential operations of many of the jobs in which they are used
Number of Workers:	24,896

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	construction
Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Shipyards
Route of Exposure:	Inhalation
Number of Sites:	25
Number of Workers:	3,040

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA - Final Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Shipyards
Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1997
Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	European Chlorinated Solvents, Association. 2015. Health profile on dichloromethane.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982133

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industry Association Brief
Life Cycle Description (Subcategory of Use):	European Chlorinated Solvent Assoc.

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Unacceptable	× 1	4	No Comment.
Domain 2: Representative					
	Metric 2: Geographic Scope	Medium	× 1	2	Europe
	Metric 3: Applicability	Unacceptable	× 2	8	Industry advocacy brief, no data.
	Metric 4: Temporal Representativeness	High	× 2	2	2015
	Metric 5: Sample Size	Low	× 1	3	no exposure data
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Unacceptable	× 1	4	no exposure data
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	no exposure data
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 2.9.

[**] Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, three of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Hsia,. 2013. TSCA work plan chemicals program.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3982141

EXTRACTION

Parameter	Data

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Unacceptable	× 1	4	No methodology
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Unacceptable	× 2	8	An industry argument against regulation of trichloroethylene.
Metric 4:	Temporal Representativeness	High	× 2	2	2013
Metric 5:	Sample Size	Low	× 1	3	no exposure data
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	no exposure data
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	no exposure data
Overall Quality Determination†		Unacceptable		4	Metric Mean Score: 2.7.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.
* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Atsdr,. 2009. Health consultation: Indoor air quality: Raytheon area: St. Petersburg, Pinellas County, Florida: EPA facility ID: FLD004100152, Part 2.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3982212

EXTRACTION

Parameter	Data
Life Cycle Stage:	Ambient Environment
Life Cycle Description (Subcategory of Use):	Disposal (hazardous waste site)
Physical Form:	vapor
Route of Exposure:	inhalation, ingestion, dermal
Exposure Concentration (Unit):	None-Detected - 24 ug/m3
Number of Samples:	23
Number of Sites:	1
Type of Measurement or Method:	12-hour
Worker Activity:	Ambient indoor air testing
Type of Sampling:	Area
Sampling Location:	Multiple buildings adjacent to former Ratheon production site.
Exposure Duration:	varies
Exposure Frequency:	everyday
Analytic Method:	EPA Method Total Organic 15

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	EPA Methods
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Low	× 2	6	Focuses on ambient indoor air quality surrounding a former manufacturing site.
Metric 4:	Temporal Representativeness	Medium	× 2	4	2008, 10 years old
Metric 5:	Sample Size	Medium	× 1	2	Limited data characterization - not necessarily relatable to work scenario
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Detailed metadata is non-existent due to limited relevance of the sample set to workplace exposure.

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Source Citation:	Atsdr,. 2009. Health consultation: Indoor air quality: Raytheon area: St. Petersburg, Pinellas County, Florida: EPA facility ID: FLD004100152, Part 2.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3982212

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	Sample addresses the variability and limitations of the analysis well.
Overall Quality Determination†		Medium		2.0	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Oehha,. 2007. Occupational health hazard risk assessment project for California: Identification of chemicals of concern, possible risk assessment methods, and examples of health protective occupational air concentrations.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	3982225

EXTRACTION

Parameter	Data
Life Cycle Stage:	California Risk Assessment

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	Mixed, NIOSH,OEHHA,OSHA
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	Unacceptable	× 2	8	Does not address Methylene Chloride in study.
	Metric 4: Temporal Representativeness	Medium	× 2	4	2007
	Metric 5: Sample Size	Low	× 1	3	no exposure data
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Unacceptable	× 1	4	no exposure data
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	no exposure data
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 2.7.

[**] Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, two of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Life Cycle Description (Subcategory of Use):	Waste Repackaging
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	<573 ppm (exhaled breath
Type of Sampling:	Personal

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	references Thrall et al 2001
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	waste repackaging
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre-2001
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source   Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	All
Life Cycle Description (Subcategory of Use):	All
Route of Exposure:	Inhalation
Worker Activity:	All
Number of Workers:	1,438,196

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	based on NIOSH 1990
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	overall DCM industry
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre-1990
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Low		2.3	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Atsdr,. 2000. Toxicological profile for methylene chloride.
Type of Data Source   Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982337

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	general work area and breathing zone (1968-1982)
Physical Form:	Vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	0.086-1411 ppm
Worker Activity:	general work area and breathing zone (1968-1982)
Type of Sampling:	personal, area

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	references IARC 1986
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Medium	× 2	4	no specific workplace (general work area)
Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1982
Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination†		Low		2.6	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	6
Worker Activity:	Drum filling
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of DCM
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Aerosol Packing
Physical Form:	Aerosol
Route of Exposure:	Inhalation
Number of Sites:	217
Number of Workers:	2,182
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Aerosol Packing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Manufacture of Paints
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	390
Number of Workers:	2
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric	Rating	MWF★	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Manufacture of Paints
	Metric 4: Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5: Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination†		Medium		2.1	

★ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Manufacture of Paint Removers
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	293
Number of Workers:	760
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of Paint Removers
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Proc/Use
Life Cycle Description (Subcategory of Use):	Ink Manufacturing
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	37 ink manufacturers
Number of Workers:	143 at ink manufacturers
PPE:	lists standard PPE

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Ink Manufacturing
Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Solvent recovery
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	40
Number of Workers:	161
PPE:	lists standard PPE

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Solvent recovery
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Degreasing and Metal Cleaning
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	22,652 cold degreasers; 129 open top degreasers; 111 conveyorized vapor degreasers
Number of Workers:	90,293 at cold degreasers; 271 at open top degreasers; 177 at conveyorized vapor degreasers
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Degreasing and Metal Cleaning
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

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* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	75 large aircraft strippers; 225 small air craft strippers; 4,000 furniture strippers; 1,930 industrial firms
Number of Workers:	1,671 at large aircraft strippers; 799 at small air craft strippers; 5,720 at furniture strippers; 6,942 industrial firms
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Paint Stripping
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source   Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polyurethane Foam Blowing
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	180
Worker Activity:	pouring, cooling/curing
Number of Workers:	1,169
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Polyurethane Foam Blowing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cellulose Triacetate and Film Base Production
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	1
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Cellulose Triacetate and Film Base Production
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source   Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Electronics
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	1059
Number of Workers:	4,720
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Electronics
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

303

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Proc/Use
Life Cycle Description (Subcategory of Use):	Printing
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	10,482 printers
Number of Workers:	34,868 at printers
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Printing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertanity not discussed
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polycarbonate Resin Manufacturing
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	4
Number of Workers:	67
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Polycarbonate Resin Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Low		2.3	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Pharmaceuticals Manufacturing
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	76
Worker Activity:	Pill coating
Number of Workers:	1,007
Engineering Control & percent Exposure Reduction:	Provides various options for engineernig control to reach OSHA PEL
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Pharmaceuticals Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Low		2.3	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Proc/Use
Life Cycle Description (Subcategory of Use):	Food extraction
Physical Form:	Vapor
Route of Exposure:	Inhalation
Number of Sites:	3 food processing companies
PPE:	lists standard PPE

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA - Proposed Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Food extraction
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1991
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Ec,. 2009. Recommendation from the scientific committee on occupational exposure limits from methylene chloride (dichloromethane).
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982443

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	EC report - References Friedlander 1978 (HEROID 65067), Hearne and Pifer 1999 (HEROID 730525), Ott et al 1983 (HERO ID29149), Gibbs 1996 (730533) (see tab)
Domain 2: Representative					
Metric 2:	Geographic Scope	Medium	× 1	2	Europe
Metric 3:	Applicability	High	× 2	2	Covers various industries
Metric 4:	Temporal Representativeness	Low	× 2	6	Most data >20 years old
Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination†		Medium		2.2	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	CalEpa,. 2005. Appendix D.3 Chronic RELS and toxicity summaries using the previous version of Hot Spots Risk Assessment guidelines (OEHHA 1999).
Type of Data Source	Occupational Exposure; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982628

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Film Base Manufacturing
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	30-125 ppm (reported in other sources citing Friedlander et al, 1978)
Type of Measurement or Method:	8-hr TWA
Number of Workers:	751

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	cites Friedlander et al, 1978
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	CTA film manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	pre 1978
	Metric 5:	Sample Size	Low	× 1	3	no statistics provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	methodology unclear
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	variability or uncertainty not discussed
Overall Quality Determination[†]			Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Dhhs,. 1992. In- Depth Survey Report: The Control of Methylene Chloride in Furniture Stripping at The JM Murray Center, Inc.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3986433

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Physical Form:	liquid, vapor
Route of Exposure:	inhalation, dermal
Exposure Concentration (Unit):	Personal: 1-160 ppmArea: 1-189 ppm
Number of Samples:	Personal: 27Area: 108
Number of Sites:	1
Type of Measurement or Method:	short-term
Type of Sampling:	Personal, Area
Sampling Location:	Around Prototype stripper
Exposure Duration:	varies
Exposure Frequency:	everyday
Engineering Control & percent Exposure Reduction:	New Stripping Station with better airflow
PPE:	shoulder length gloves, full-face mask
Analytic Method:	NIOSH 1005

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	Niosh 1005
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that has potential exposure to employees
Metric 4:	Temporal Representativeness	Low	× 2	6	1992, 26 years old and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Excellent charcterization of all measurements and data points
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Was run as a preliminary test of a prototype system. Actual worker exposure data was not present.

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Source Citation:	Dhhs,. 1992. In- Depth Survey Report: The Control of Methylene Chloride in Furniture Stripping at The JM Murray Center, Inc.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	3986433

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	NIOSH Method has uncertainty included.
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Cone Mills, Corp. 1981. HEALTH & SAFETY STUDY REPORT (EPA 40 CFR PART 716).
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213651

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Adhesives and sealants
Physical Form:	spray, vapor from curing
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	from 25 - 33 ppm
Number of Samples:	3
Number of Sites:	1
Type of Measurement or Method:	NIOSH P&CAM 127
Worker Activity:	Polyurathane chair molding (pg 8 of 17)
Number of Workers:	3
Type of Sampling:	personal
Sampling Location:	Three job operations or locations (i.e., flexible foam mold release spraying, rigid foam mold release spraying (small parts and large parts)).
Exposure Duration:	6 hrs
PPE:	not specified

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	A certified occupational hygienist from the company"s Industrial Hygiene Section conducted this study to determine exposure levels and appears to have followed an "EPA 40 CFR Part 716" survey protocol.
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	North Carolina - US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1982 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	all metedata described

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Source Citation: Cone Mills, Corp. 1981. HEALTH & SAFETY STUDY REPORT (EPA 40 CFR PART 716).
Type of Data Source Occupational Exposure; Monitoring Data;
Hero ID 4213651

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Cone Mills, Corp. 1981. SURVEY RESULTS OF PERSONAL EXPOSURE MONITORING WITH COVER LETTER.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213652

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Propellants and blowing agents
Physical Form:	spray, vapor from curing
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Personal: from 4 to 280 ppmArea: from 540 to 2,130 ppm
Number of Samples:	17
Number of Sites:	1
Type of Measurement or Method:	NIOSH P&CAM 127
Worker Activity:	Polyurathane foam production (pgs 5, 7, and 9 of 10)Data on page 9 was a repeat of data from HERO ID: 4213651
Number of Workers:	not specified
Type of Sampling:	personal and area
Sampling Location:	Job operations or locations (e.g., foam line operator, foam line assistant, cut-off saw operator, crane operator in foam storage room).
Exposure Duration:	Personal: from 4 and 5 hrsArea: from 1.5 to 5 hrs
PPE:	not specified

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	A certified occupational hygienist from the company"s Industrial Hygiene Section conducted this study to determine exposure levels and appears to have followed an "EPA 40 CFR Part 716" survey protocol.
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	North Carolina - US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1982 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					

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Source Citation:	Cone Mills, Corp. 1981. SURVEY RESULTS OF PERSONAL EXPOSURE MONITORING WITH COVER LETTER.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213652

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
	Metric 6: Metadata Completeness	High	× 1	1	all metadata given
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Burlington Indus, Inc. 1979. Solvent exposure monitoring results with cover letters.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213722

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Solvents (for cleaning or degreasing)
Physical Form:	spray and vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Personal: from 139 to 213 ppmArea: 708 ppm
Number of Samples:	10
Number of Sites:	1
Worker Activity:	Organic solvents are used in various operations at the Goldsboro plant" as a rust prevetative" to remove grease and oil" employees are exposed to the solvents in all of these operations.
Number of Workers:	not specified
Type of Sampling:	personal and area
Sampling Location:	Job operations or locations (e.g., machine cleaning).
Exposure Duration:	The sample durations varied from a few minutes to several hour, depending upon the duration of solvent usage in the operation.
PPE:	"Goldsboro plant emplyees using Solvex II did use organic vapor respirators while the spraying was done, but the data indicate that these respirators would have to be worn during the entire cleaning opeation to provide adequate protection" an alternative is to find another solvent..."

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	A certified occupational hygienist from the company"s Industrial Hygiene Section conducted this study to determine exposure levels and appears to have followed an "EPA 40 CFR Part 716" survey protocol.
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	North Carolina - US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1979 and prior to most recent PEL

Source Citation:	Burlington Indus, Inc. 1979. Solvent exposure monitoring results with cover letters.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	4213722				

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
	Metric 5:	Sample Size	Low	× 1	3	Sample statistics not discussed, however, since this is an IH survey it can be assumed that this was considered.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Assessment or report clearly documents its data sources, assessment methods, results, and assumptions.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		1.9	

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Burlington Indus, Inc. 1979. Solvent exposure monitoring results with cover letters.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213722

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Solvents (for cleaning or degreasing)
Physical Form:	spray and vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Personal: 312 ppmArea: from 117 to 227 ppm
Number of Samples:	3
Number of Sites:	1
Worker Activity:	End ring cleaning - screen engraving
Number of Workers:	not specified
Type of Sampling:	personal and area
Sampling Location:	Area sampling locations (i.e., where cleaning was done, on cover of wash tank)
Exposure Duration:	"the employee rotate thru this job and are exposed only one hour per day"
Engineering Control & percent Exposure Reduction:	No corrective action is required"
PPE:	not specified

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	A certified occupational hygienist from the company"s Industrial Hygiene Section conducted this study to determine exposure levels and appears to have followed an "EPA 40 CFR Part 716" survey protocol.
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	North Carolina - US
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1980 and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	Sample statistics not discussed, however, since this is an IH survey it can be assumed that this was considered.

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Source Citation:	Burlington Indus, Inc. 1979. Solvent exposure monitoring results with cover letters.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213722

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	High	× 1	1	Assessment or report clearly documents its data sources, assessment methods, results, and assumptions.
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Medium	× 1	2	Limited discussion on uncertainty
Overall Quality Determination†		Medium		1.8	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Ford Motor, Co. 1981. Industrial hygiene survey - spray booths, oil house, roll weld, bonderite deck, trimline.
Type of Data Source Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID 4213729

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Solvents (for cleaning or degreasing) - Aerosol spray degreaser/cleaner
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Kentucky Truck Plant - 1981* Spray Booths: 0.06 and 0.78 ppm (pg 21 of 25)* Oil House: 15-minute samples from 69.9 to 0.79 ppm (TWA=7.1 ppm) (pg 22 of 25).* Bonderite Car Wash Deck: 0.07 to 2.3
Number of Samples:	13
Number of Sites:	3
Type of Measurement or Method:	breathing zone
Worker Activity:	Spray application of a sealer to the outside of vehicle firewalls. Mixed solvent vapor employee; in many cases up to four soulvents are contained in a system.
Number of Workers:	13 total
Type of Sampling:	DuPont P-125 personal sampling pump with charcoal tube. Anaysis with gas chromatorgraphy.
Sampling Location:	Spray Booths, Oil House, Car Wash Deck
Exposure Duration:	ranged from all day to 15-minutes
Engineering Control & percent Exposure Reduction:	Subsequent to initial complints, the ventilation in the work area was upgraded by positioning two man-cooling fans to blow on the affected employee at an air velocity of 50 to 500 feet per minute" the operation of the man-cooling fans did not have a significant effect on overall emplye exposures (pg 10 of 25).
PPE:	Oil House: impervious gloves required for paint mixers (pg 16 of 25).Bonderite Car Wash Deck: impervious gloves with gauntlets required (pg 17 of 25).Oil House: impervious gloves were not worn buring the survey, but should be required to minimise skin contact... various forms of ventilation are employed in this area e.g., booth controlling emissions from pot spraying (pg 18 of 25).

EVALUATION

Domain	Metric	Rating	MWF* Score	Comments

Continued on next page

Source Citation:	Ford Motor, Co. 1981. Industrial hygiene survey - spray booths, oil house, roll weld, bonderite deck, trimline.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	4213729

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Data from user, who is also the author of the report
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	1982-1981
	Metric 5:	Sample Size	Low	× 1	3	Distribution characterized by no statistics.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Assessment or report clearly documents its data sources, assessment methods, results.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion on uncertainty and variability
Overall Quality Determination[†]			Medium		2.0	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Olin, Corp. 1977. DETERMINATION OF THE EMISSION LEVELS OF METHYLENE CHLORIDE FROM NEWLY FORMULATED AUTOPAK CHEM SYSTEMS WITH COVER LETTER.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213766

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Solvents (for cleaning or degreasing)
Physical Form:	spray and vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Personal: from 0.14 to 241 ppmArea: from 1.3 to 10.1 ppm
Number of Samples:	approx-imately 50
Number of Sites:	1
Worker Activity:	Exposure from the newly formulated Autopak" Chemical Systems" Breathing zone studies were made using a Bacharach Model TLV sniffer during simulated packaging operations (pg 5 of 68).Lab operations, purge operator, blend operator, etc. (pgs 10, 14, 19, 24, 27, 28, 30, 35, 40, 47, 51, 54, 57, 62, 64 of 68).
Number of Workers:	not specified
Type of Sampling:	personal and area
Sampling Location:	Breathing zone sampling events (i.e., initial injection, package closed).
Engineering Control & percent Exposure Reduction:	"Excellent progress has and is being made in regard to alleviating air contaminant concentrations through design and equipment changes" design changes in the foam" a new hood has been installed (pg 8 of 68)""Develop a housekeeping plan to keep rags containing solvents in closed (preferably ventilated) containers when not in use... (pg 44 of 68).""Container of methylene chloride and other solvents should be covered when not in use (pg 60 of 68)."

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	A certified occupational hygienist from the company"s Industrial Hygiene Section conducted these studies.
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US

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Source Citation:	Olin, Corp. 1977. DETERMINATION OF THE EMISSION LEVELS OF METHYLENE CHLORIDE FROM NEWLY FORMULATED AUTOPAK CHEM SYSTEMS WITH COVER LETTER.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	4213766				

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1977 and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	Sample statistics not discussed, however, since this is an IH survey it can be assumed that this was considered.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Assessment or report clearly documents its data sources, assessment methods, results, and assumptions.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Limited discussion on uncertainty
Overall Quality Determination†			Medium		1.8	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Olin, Corp. 1979. INDUSTRIAL HYGIENE SURVEY CORP PROTECTION AREA WITH COVER LETTER & MEMO.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213778

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Incorporated into formulation, mixture, or reaction product
Physical Form:	vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Operator exposure ranged from 0.15 to 21.77 ppmWhile drumming, 487.3 ppm (pg 13 of 28).
Number of Samples:	5
Number of Sites:	1
Type of Measurement or Method:	charcoal tube
Worker Activity:	Dichloromethane was not the focus of the study."The short term sample taken while an employee was drumming methyelene chlorine was a non-routine operation and proper respiratory protection was being worn."
Number of Workers:	not specified
Type of Sampling:	personal and area
Exposure Duration:	Short and long term samples collected (i.e., 1 and 5 hours).
Exposure Frequency:	non-routine operation
PPE:	The Safety Department should assist the Crop Protection Department in a thorough review with emplyees concerning the use of respiratory protection (pg 20 of 28).

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	not described
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US data
Metric 3:	Applicability	Medium	× 2	4	Use of DCM not clear in the study but assumed to be similar to industrial uses in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1979 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete samples given

Continued on next page

324

Source Citation:	Olin, Corp. 1979. INDUSTRIAL HYGIENE SURVEY CORP PROTECTION AREA WITH COVER LETTER & MEMO.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213778

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Unocal, Corporation. 1986. MEMORANDUM REGARDING UNOCAL TEMPORARY OCCUPATIONAL EXPOSURE LIMIT (TOEL) FOR DICHLOROMETHANE WITH ATTACHMENTS AND COVER LETTER DATED 110987.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213814

EXTRACTION

Parameter	Data
Life Cycle Stage:	Distribution in commerce
Life Cycle Description (Subcategory of Use):	Distribution
Physical Form:	vapor
Route of Exposure:	InhalationSkin exposure is minimal (pg 10 of 19)
Exposure Concentration (Unit):	truck loading - less than 30 ppm for drum loading, less than 3 ppm for (at La Miranda and Oakland LCL plants)truck loading - from 0.1 ppm to 94 ppm, with a mean of 28 ppm (from less than 25 percent of the Unocal Chemical Divisions LLC).
Number of Samples:	7
Number of Sites:	25DCM is handled at all 25 chemical distribution centers in the company.
Worker Activity:	filling drums/loading trucks; drumming solvent; transfer loading; truck loading
Number of Workers:	86 plant workers and 109 truck drivers
Type of Sampling:	personal and area
Exposure Duration:	8 hrs
PPE:	gloves, but respriators may not be routinely used.The use of respiratory protection and gloves during truck loading has been recommented to plant management based on these monitoring results.

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US data
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1979 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given

Continued on next page

326

PEER REVIEW DRAFT - DO NOT CITE OR QUOTE

Source Citation:	Unocal, Corporation. 1986. MEMORANDUM REGARDING UNOCAL TEMPORARY OCCUPATIONAL EXPOSURE LIMIT (TOEL) FOR DICHLOROMETHANE WITH ATTACHMENTS AND COVER LETTER DATED 110987.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	4213814				

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.0	

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Olin, Chemicals. 1977. ENVIRONMENTAL HYGIENE SURVEY OF THE OLIN CHEMICALS BROOK PARK, OHIO PLANT.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213837

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Solvents (for cleaning or degreasing)
Physical Form:	vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	From 0.1 to 633 ppm (pg 5 of 17)
Number of Samples:	14
Number of Sites:	1
Worker Activity:	purge operations, cylinder cleaing, blending, laboratory operations, kettle area, filter cleaning
Number of Workers:	not specified
Type of Sampling:	not specified
Sampling Location:	see worker activity
Exposure Duration:	not specified
Exposure Frequency:	not specified
Engineering Control & percent Exposure Reduction:	Recommend installing a self cleaning filter to overcome the necessity of opening and cleaning the system, laboratory work should be done in the hood, etc.

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	Described, but not named
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	Ohio - US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1977 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					

Source Citation:	Olin, Chemicals. 1977. ENVIRONMENTAL HYGIENE SURVEY OF THE OLIN CHEMICALS BROOK PARK, OHIO PLANT.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	4213837				

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
	Metric 6: Metadata Completeness	Medium	× 1	2	missing sample durations but indicated as a full-shift TWA, other metadata given
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		1.9	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Olin, Chemicals. 1982. ENVIRONMENTAL HYGIENE SURVEY OF THE BROOK PARK, OHIO OLIN CHEMICALS PLANT.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213838

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Solvents (for cleaning or degreasing)
Physical Form:	vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	From 1.3 to 57.6 ppm (pg 4 of 5)
Number of Samples:	11
Number of Sites:	1
Worker Activity:	blender operator, purge operator, shipper, cylinder cleaner, laboratory technician, caravan storage, lunch room
Number of Workers:	not specified
Type of Sampling:	personal and area
Sampling Location:	see worker activity
Exposure Duration:	not specified
Exposure Frequency:	not specified
Engineering Control & percent Exposure Reduction:	Recommend installing a self cleaning filter to overcome the necessity of opening and cleaning the system, laboratory work should be done in the hood, etc.

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	Data from manufacturer, who is also the author of the report
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	Ohio - US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1982 and prior to most recent PEL
Metric 5:	Sample Size	Low	× 1	3	characterized but no statistics.
Domain 3: Accessibility/Clarity					

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Source Citation:	Olin, Chemicals. 1982. ENVIRONMENTAL HYGIENE SURVEY OF THE BROOK PARK, OHIO OLIN CHEMICALS PLANT.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	4213838				

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
	Metric 6: Metadata Completeness	Low	× 1	3	Assessment or report provides results, but the underlying methods, data sources, and assumptions are not fully transparent.
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.2	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	General Electric, Co. 1989. MORBIDITY STUDY OF OCCUPATIONAL EXPOSURE TO METHYLENE CHLORIDE USING A COMPUTERIZED SURVEILLANCE SYSTERM (FINAL REPORT) WITH COVER LETTER DATED 073189.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213908

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Plastic Processing
Physical Form:	vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Workers at a plastic polymer plant were grouped into four exposure groups (i.e., 49 ppm, 10.9 ppm, 3.3 ppm, and <1.0 ppm); see page 21 for specific job categories.The heat exchanges require filter changes every 6 hours; up to 150 ppm has been measured during this separation. Air concentrations from 1-8 ppm have been measured during the final extrusion process.
Number of Samples:	=65+56+29(pg 23 of 95)
Number of Sites:	2
Type of Measurement or Method:	most personal air samples were performed using a 3M organic vapor monitor #3500 personal dosimeter (pg 22 of 95).
Worker Activity:	Several plants manufacure plastic polymers. Two of the plants use DMC. 1) BPA (bisphenol A) plant" Most occupational exposure occurs during sampling or maintenance and repair work. 2) Resin plant ... major exposures are around the centrifuges and heat exchanges.
Number of Workers:	1,300 people were employed at several plastic polymer plants. 896 workers were included in an occupational exposure study.
Type of Sampling:	personal and area
Exposure Duration:	We focused our analysis on a sampling duration of most of an entire 8-hr work day, calculated as an 8-hr TWA. Shorter-term monitoring often reflects a task-specific peak exposure.

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	method described and appears to be equivalent to NIOSH

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Source Citation:	General Electric, Co. 1989. MORBIDITY STUDY OF OCCUPATIONAL EXPOSURE TO METHYLENE CHLORIDE USING A COMPUTERIZED SURVEILLANCE SYSTERM (FINAL REPORT) WITH COVER LETTER DATED 073189.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213908

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	Indiana - US
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1989 and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	means given but no other statistics.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.0	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Vulcan, Chemicals. 1991. LETTER FROM VULCAN CHEMICALS TO USEPA SUBMITTING ENCLOSED INDUSTRIAL HYGIENE MONITORING REPORT ON METHYLENE CHLORIDE WITH ATTACHMENT.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213935

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Propellants and blowing agents
Physical Form:	spray, vapor from curing
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Personal TWA samples ranged from 188 to 223 and the area sample TWA was 414 ppm (pg 4 of 7).
Number of Samples:	16
Number of Sites:	1
Type of Measurement or Method:	Air samples were collected by charcoal tubes
Worker Activity:	Trinity Foams uses DMC as an auxiliary blowing agent in the production of flexible foam slabstock. Three job classes were monitored: quality contol operator, flat top operator, saw operator.
Number of Workers:	3
Type of Sampling:	personal and area
Engineering Control & percent Exposure Reduction:	recommendations: redesign exhaust system, add additional fans, use an emplyee education and training proram to reduce exposure, etc (pg 5 of 7).

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	Described, but not named
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	North Carolina - US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1989 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					

Continued on next page

334

Source Citation:	Vulcan, Chemicals. 1991. LETTER FROM VULCAN CHEMICALS TO USEPA SUBMITTING ENCLOSED INDUSTRIAL HYGIENE MONITORING REPORT ON METHYLENE CHLORIDE WITH ATTACHMENT.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	4213935				

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
	Metric 6: Metadata Completeness	Medium	× 1	2	missing sample durations but indicated as a full-shift TWA, other metadata given
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		1.9	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
    High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Texaco, Inc. 1993. I.h. monit. for pentane, ethyl ether, chloroform, acetone, t-butyl alcohol, carbon tetrachloride, total hydrocarbons, gasoline, isooctane, hexane, methylene chloride & toluene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213966

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Other Uses - Laboratory chemicals - all other chemical product and preparation manufacturing
Exposure Concentration (Unit):	<1ppm (pg 24 of 69).Full shift results for DMC were less than detectable (pg 5 of 69).
Number of Samples:	16
Type of Measurement or Method:	3M organic vapor monitors and through the use of 600 milligram charcoal media and calibrated sampling pumps.
Worker Activity:	Research lab staff
Type of Sampling:	personal
PPE:	"" a recommendation has been made with regards to work practices" Management should encourage workers to wear appropriate personal protective equipment (i.e., laboratory coats""

EVALUATION

Domain	Metric	Rating	MWF★	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	Methodology described and appears to be equivalent to NIOSH/OSHA methods
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1993 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variability and Uncertainty					

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Source Citation:	Texaco, Inc. 1993. I.h. monit. for pentane, ethyl ether, chloroform, acetone, t-butyl alcohol, carbon tetrachloride, total hydrocarbons, gasoline, isooctane, hexane, methylene chloride & toluene.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213966

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		1.9	

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[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Vulcan, Chemicals. 1993. INDUSTRIAL HYGIENE STUDY OF METHYLENE CHLORIDE/PERCHLOROETHYLENE/ METHYLCHLOROFORM BLENDED AEROSOL BRAKE CLEANERS.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4213974

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Automotive care products
Exposure Concentration (Unit):	all exposures were under 17 ppm
Number of Samples:	28(pg 32 of 36)
Number of Sites:	1
Type of Measurement or Method:	3M charcoal monitoring badges (#3520 passive dosimeters)
Worker Activity:	Break pad technicians using an aerosol brake cleaner were studied under normal use (formulations contained 5, 10, and 20 percent DMC with a balance of methylchloroform). The max. total DMC discharge was 655 grams per day or approximatly six 20 ounce cans of the 20 percent DMC.
Number of Workers:	5Subjects A through E
Type of Sampling:	personal
Engineering Control & percent Exposure Reduction:	recommendations: No more than 106 grams of methylene chloride should be discharged into the exposure zone during one 15 minute period.
PPE:	recommendations: PPE recommendations such as the use of safety glasses and gloves during application is advised.

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	Data from manufacturer, who is also the author of the report
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	USThe study was conducted at a single nationally franchised brake and muffler repair shop located in Wichita, Kansas.
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1992 and 1993 and prior to most recent PEL
Metric 5:	Sample Size	Low	× 1	3	characterized but no statistics.

Source Citation:	Vulcan, Chemicals. 1993. INDUSTRIAL HYGIENE STUDY OF METHYLENE CHLORIDE/PERCHLOROETHYLENE/ METHYLCHLOROFORM BLENDED AEROSOL BRAKE CLEANERS.				
Type of Data Source	Occupational Exposure; Monitoring Data;				
Hero ID	4213974				

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	Assessment or report provides results, but the underlying methods, data sources, and assumptions are not fully transparent.
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.2	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	hoechst celanese, corp. 1988. LETTER FROM HOECHST CELANESE CORP TO THE USEPA SUBMITTING PRELIMINARY INFORMATION ON A MORTALITY STUDY REGARDING WORKERS AT CELRIVER TRIACETATE PLANT IN ROCK HILL, SC.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214003

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	CTA manufacturing
Exposure Concentration (Unit):	140 - 475 ppm from a survey in the late 1970s (pg 23 of 66)
Number of Sites:	1
Worker Activity:	Preparation and extrusion (spinning) areas.Focus is long term health impact.
Number of Workers:	1,271 employees worked for at least 3-months in the extrusion department between 1954 and 1986.

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Data from manufacturer, who is also the author of the report
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	Rock Hill, North Carolina - US
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1970 and prior to most recent PEL
	Metric 5:	Sample Size	Low	× 1	3	characterized but no statistics.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Assessment or report provides results, but the underlying methods, data sources, and assumptions are not fully transparent.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.2	

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Source Citation:	hoechst celanese, corp. 1988. LETTER FROM HOECHST CELANESE CORP TO THE USEPA SUBMITTING PRELIM-INARY INFORMATION ON A MORTALITY STUDY REGARDING WORKERS AT CELRIVER TRIACETATE PLANT IN ROCK HILL, SC.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214003

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Us, E. P. A.. 1985. OCCUPATIONAL EXPOSURE AND ENVIRONMENTAL RELEASE ASSESSMENT OF METHYLENE CHLORIDE CONTRACT NO 68-02-3935.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214063

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacturing
Life Cycle Description (Subcategory of Use):	Domestic manufacturing
Physical Form:	spray, vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Calculated exposure from 12.6 to 13,950 ppm
Number of Sites:	6
Type of Measurement or Method:	Calculated; assumptions include flowrate and area.
Worker Activity:	Exposure calculated for 4 operations: 1) drum filling, 2) tank filling, 3) tank car filling, and 4) tap sampling.
Number of Workers:	1200pg 181 of 201

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	US EPA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1985 and prior to most recent PEL
	Metric 5:	Sample Size	High	× 1	1	Discrete samples given in appendix
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	fully transparent.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	High	× 1	1	discussion of variability or uncertainty
Overall Quality Determination[†]			High		1.4	

Source Citation:	Us, E. P. A.. 1985. OCCUPATIONAL EXPOSURE AND ENVIRONMENTAL RELEASE ASSESSMENT OF METHYLENE CHLORIDE CONTRACT NO 68-02-3935.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214063

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Us, E. P. A.. 1985. OCCUPATIONAL EXPOSURE AND ENVIRONMENTAL RELEASE ASSESSMENT OF METHYLENE CHLORIDE CONTRACT NO 68-02-3935.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214063

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Repackaging - Solvents (which become part of product formulation or mixture) for all other chemical product and preparation manufacturing
Physical Form:	spray, vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Calculated exposure from 101 to 1,890 with a geometric mean of 317 mg/m3.
Number of Samples:	measured: 10 packers(pg 104)
Number of Sites:	112
Type of Measurement or Method:	calculated
Worker Activity:	Exposure calculated for packerstable 2-3 (pg 24 of 201)
Number of Workers:	896

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	US EPA
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1985 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Discrete samples given in appendix
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	fully transparent.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	High	× 1	1	discussion of variability or uncertainty

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344

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Source Citation:	Us, E. P. A.. 1985. OCCUPATIONAL EXPOSURE AND ENVIRONMENTAL RELEASE ASSESSMENT OF METHYLENE CHLORIDE CONTRACT NO 68-02-3935.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214063

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		High		1.4	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Us, E. P. A.. 1985. OCCUPATIONAL EXPOSURE AND ENVIRONMENTAL RELEASE ASSESSMENT OF METHYLENE CHLORIDE CONTRACT NO 68-02-3935.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214063

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Solvents (for cleaning or degreasing) - Aerosol spray degreaser/cleaner
Physical Form:	spray, vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Calculated exposure from 7 to 270 with a geometric mean of 51 mg/m3 for all job categories.
Type of Measurement or Method:	calculated
Worker Activity:	Exposure calculated for 3 job categories: 1) spray painter , 2) mold release, and 3) other worker.table 2-5 (pg 27 of 201)
Number of Workers:	14,296 spray painters, 25,972 mold release, and 50,343 other worker.Table 3-2 (pg 89 of 201)

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	US EPA
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1985 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Discrete samples given in appendix
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	fully transparent.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	High	× 1	1	discussion of variability or uncertainty
Overall Quality Determination†		High		1.4	

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Source Citation:	Us, E. P. A.. 1985. OCCUPATIONAL EXPOSURE AND ENVIRONMENTAL RELEASE ASSESSMENT OF METHYLENE CHLORIDE CONTRACT NO 68-02-3935.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214063

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Us, E. P. A.. 1985. OCCUPATIONAL EXPOSURE AND ENVIRONMENTAL RELEASE ASSESSMENT OF METHYLENE CHLORIDE CONTRACT NO 68-02-3935.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214063

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Paints and coatings including paint and coating removers for commercial furniture stripping
Physical Form:	spray, vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Calculated exposure from 7 to 3,897 with a geometric mean of 106 mg/m3 for all job categories.
Number of Samples:	measured: 65 paint strippers, 20 water wash, 6 other(pg 104)
Number of Sites:	1280
Type of Measurement or Method:	calculated
Worker Activity:	Exposure calculated for 3 job categories: 1) spray painter , 2) water wash, and 3) other worker.table 2-8 (pg 33 of 201)
Number of Workers:	per plant: 6 paint strippers, 20 water wash, 3 other

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	US EPA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Use in scope
	Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1985 and prior to most recent PEL
	Metric 5:	Sample Size	High	× 1	1	Discrete samples given in appendix
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	fully transparent.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	High	× 1	1	discussion of variability or uncertainty

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Source Citation:	Us, E. P. A.. 1985. OCCUPATIONAL EXPOSURE AND ENVIRONMENTAL RELEASE ASSESSMENT OF METHYLENE CHLORIDE CONTRACT NO 68-02-3935.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214063

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Overall Quality Determination†		High		1.4	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Us, E. P. A.. 1985. OCCUPATIONAL EXPOSURE AND ENVIRONMENTAL RELEASE ASSESSMENT OF METHYLENE CHLORIDE CONTRACT NO 68-02-3935.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214063

EXTRACTION

Parameter	Data
Life Cycle Stage:	Industrial, commercial and consumer uses
Life Cycle Description (Subcategory of Use):	Propellants and blowing agents
Physical Form:	spray, vapor
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	Calculated exposure from 7 to 249 with a geometric mean of 74 mg/m3 for all job categories.
Number of Samples:	measured: 18 foam operator, 18 other(pg 104)
Number of Sites:	81
Type of Measurement or Method:	calculated
Worker Activity:	Exposure calculated for 2 job categories: 1) foam operator and 2) other worker.table 2-11 (pg 41 of 201)
Number of Workers:	per plant: 5 foam operator, 4 other

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	US EPA
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1985 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	Discrete samples given in appendix
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	fully transparent.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	High	× 1	1	discussion of variability or uncertainty

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Source Citation:	Us, E. P. A.. 1985. OCCUPATIONAL EXPOSURE AND ENVIRONMENTAL RELEASE ASSESSMENT OF METHYLENE CHLORIDE CONTRACT NO 68-02-3935.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	4214063

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Overall Quality Determination[†]		High		1.4	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Texaco, Inc. 1993. I.H. MONIT. FOR PENTANE, ETHYL ETHER, CHLOROFORM, ACETONE, T-BUTYL ALCOHOL, CARBON TETRACHLORIDE, TOTAL HYDROCARBONS, GASOLINE, ISOOCTANE, HEXANE, METHYLENE CHLORIDE & TOLUENE.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	4215915

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Laboratory chemicals for all other chemical product and preparation menufacturing
Physical Form:	Fumes
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	<1 pp
Number of Samples:	3
Number of Sites:	1
Type of Measurement or Method:	full-shift
Worker Activity:	Open column chromatography, composition, spectral and infrared analysis, liquid chromatography, washing glassware
Type of Sampling:	personal
Sampling Location:	Lab
Exposure Duration:	420-465 min

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	Methodology described and appears to be equivalent to NIOSH/OSHA methods
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	More than 20 years old i.e., 1993 and prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration

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Source Citation:	Texaco, Inc. 1993. I.H. MONIT. FOR PENTANE, ETHYL ETHER, CHLOROFORM, ACETONE, T-BUTYL ALCOHOL, CARBON TETRACHLORIDE, TOTAL HYDROCARBONS, GASOLINE, ISOOCTANE, HEXANE, METHYLENE CHLORIDE & TOLUENE.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	4215915

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		1.9	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	General Electric, Co. 1988. Health and Safety Studies on Methylene Chloride with Attachments and Cover Letter Dated 090688.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	4442312

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Processing as a reactant
Route of Exposure:	Inhalation
Exposure Concentration (Unit):	3 N.D.0.015 mg/l0.038 mg/l0.062 mg/l0.078 mg/l0.177 mg/l0.198 mg/l0.270 mg/l
Number of Samples:	10
Number of Sites:	10
Type of Measurement or Method:	full-shift
Number of Workers:	10
Type of Sampling:	personal blood levels before and after exposure
Sampling Location:	Control room, Resin workup, dryer and extruder, material and reactor feeds, end cap

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	Information is from trusted sources
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Medium	× 2	4	Likely within scope
Metric 4:	Temporal Representativeness	Low	× 2	6	1988
Metric 5:	Sample Size	Low	× 1	3	Distribution characterized by no statistics.
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	High	× 1	1	Assessment or report clearly documents its data sources, assessment methods, results.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion on uncertainty and variability

Source Citation:	General Electric, Co. 1988. Health and Safety Studies on Methylene Chloride with Attachments and Cover Letter Dated 090688.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	4442312

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Halogenated Solvents Industry Alliance, Inc.. 2018. Comment letter of Halogenated Solvents Industry Alliance, Inc. (HSIA) regarding Docket ID No. EPA-HQ-OPPT-2016-0742-0103. Personal Communication.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	5042167

EXTRACTION

Parameter	Data
Life Cycle Stage:	Mfg, Proc-Rxn, Plastcs

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	Methods not specified
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US facilities
Metric 3:	Applicability	High	× 2	2	Directy industrial scenarios
Metric 4:	Temporal Representativeness	High	× 2	2	most within the last 10 years
Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]		High		1.6	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Finkel, A.M.. 2017. Comment letter of Adam M. Finkel regarding Docket ID No. EPA-HQ-OPPT-2016-0231-0536. Personal Communication.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	5042391

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Spot Cleaning
Route of Exposure:	inhalation
Exposure Concentration (Unit):	0-88.7
Number of Samples:	6
Type of Measurement or Method:	TWA
Worker Activity:	unknown - industrial launderer sites
Type of Sampling:	personal
Exposure Duration:	various

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	data collected by OSHA, assumed ot use OSHA methods
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US data
Metric 3:	Applicability	Medium	× 2	4	Use in scope
Metric 4:	Temporal Representativeness	Low	× 2	6	1985/1997, prior to most recent PEL
Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]		Medium		2.0	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Finkel, A.M.. 2017. Comment letter of Adam M. Finkel regarding Docket ID No. EPA-HQ-OPPT-2016-0231-0536. Personal Communication.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	5042391

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Spot Cleaning
Route of Exposure:	inhalation
Exposure Concentration (Unit):	0-88.7
Number of Samples:	6
Type of Measurement or Method:	TWA
Worker Activity:	unknown - industrial launderer sites
Type of Sampling:	personal
Exposure Duration:	various

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	data collected by OSHA, assumed ot use OSHA methods
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US data
	Metric 3:	Applicability	Medium	× 2	4	Use in scope
	Metric 4:	Temporal Representativeness	Medium	× 2	4	2003 and after most recent PEL
	Metric 5:	Sample Size	High	× 1	1	discrete data given
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Most metadata given, missing exposure frequency and duration
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Medium		1.8	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	International Programme on Chemical Safet. 1996. Environmental Health Criteria 164. Methylene Chloride Second Edition.
Type of Data Source	Occupational Exposure; Completed Exposure or Risk Assessments;
Hero ID	5071459

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polyurethane Foam Blowing
Physical Form:	vapor
Route of Exposure:	inhalation
Exposure Concentration (Unit):	7.1 - 1,090
Number of Samples:	unknown
Number of Sites:	unknown
Type of Measurement or Method:	TWA
Worker Activity:	Moulding, unknown, various jobs

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Not Specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	World Health Organization
	Metric 3:	Applicability	High	× 2	2	Foam Blowing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1987 through 1992, prior to PEL
	Metric 5:	Sample Size	Medium	× 1	2	range given
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Type of measurement given, no other metadata provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not discussed.
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	OSHA. 2019. Dichloromethane Sampling Results, 2012-2016.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	5079093

EXTRACTION

Parameter	Data
Life Cycle Stage:	Various

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Assumed that OSHA used OSHA-approved methods
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Covers various industries direcly related to scope
	Metric 4:	Temporal Representativeness	High	× 2	2	2013-2016
	Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	sample times seem incorrect
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Uncertainty and variability not discussed
Overall Quality Determination[†]			High		1.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH). 2018. Email between DOD and EPA: RE: [Non-DoD Source] Update: DoD exposure data for EPA risk evaluation - EPA request for additional information. U.S. Department of Defense.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	5178607

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Laboratory
Exposure Concentration (Unit):	mg/m3

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH Method
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	DOD
	Metric 3:	Applicability	High	× 2	2	Laboratory
	Metric 4:	Temporal Representativeness	High	× 2	2	pre 2016
	Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	personal samples - sample times given; shift duration data is spotty
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Uncertainty and variability not discussed
Overall Quality Determination†			High		1.3	

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* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH). 2018. Email between DOD and EPA: RE: [Non-DoD Source] Update: DoD exposure data for EPA risk evaluation - EPA request for additional information. U.S. Department of Defense.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	5178607

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paints and Coatings
Exposure Concentration (Unit):	mg/m3

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	NIOSH Method
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	DOD
Metric 3:	Applicability	High	× 2	2	Paints and Coatings
Metric 4:	Temporal Representativeness	High	× 2	2	2016
Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	personal samples - sample times given; shift duration data is spotty
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	Uncertainty and variability not discussed
Overall Quality Determination†		High		1.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH). 2018. Email between DOD and EPA: RE: [Non-DoD Source] Update: DoD exposure data for EPA risk evaluation - EPA request for additional information. U.S. Department of Defense.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	5178607

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Waste Handling
Exposure Concentration (Unit):	mg/m3

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH Method
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	DOD
	Metric 3:	Applicability	High	× 2	2	Waste Handling
	Metric 4:	Temporal Representativeness	High	× 2	2	2017
	Metric 5:	Sample Size	High	× 1	1	Individual data points
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	personal samples - sample times given; shift duration data is spotty
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Uncertainty and variability not discussed
Overall Quality Determination†			High		1.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Bernstein, A.. 2017. Arkema Inc. Comments to Inform EPA's Rulemaking on the Problem Formulations for the Risk Evaluations for Certain of the First Ten Chemical Substances under the Lautenberg Chemical Safety Act (LCSA). EPA-HQ-OPPT-2016-0742-0079.
Type of Data Source	Occupational Exposure; Monitoring Data;
Hero ID	5355369

EXTRACTION

Parameter	Data
Life Cycle Stage:	Prox-Rxn

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Unknown method
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Processing as a reactant
	Metric 4:	Temporal Representativeness	High	× 2	2	2017
	Metric 5:	Sample Size	Medium	× 1	2	average provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	personal samples
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Uncertainty and variability not discussed
Overall Quality Determination[†]			Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Facility

Source Citation:	2017. Chemical data reporting: Dichloro-methane.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3860459

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture/Import
Life Cycle Description (Subcategory of Use):	Manufacture/Import of DCM
Total Annual U.S. Volume (and percent of PV):	261,469,894 lb/yr
Number of Sites:	12 (some CBI)

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	EPA Source
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Manufacture/Import of DCM
	Metric 4: Temporal Representativeness	High	× 2	2	2010, 2011
	Metric 5: Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		1.7	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Cmr,. 1979. Chemical profile on methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   730485

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Total Annual U.S. Volume (and percent of PV):	830,000,000 lb/yr (1979)
Number of Sites:	7

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	Chemical Marketing Reporter
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Manufacture of DCM
	Metric 4: Temporal Representativeness	Low	× 2	6	1979
	Metric 5: Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Cmr,. 1982. Chemical profile on methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 730486

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Total Annual U.S. Volume (and percent of PV):	722,000,000 lb/yr (1982)
Number of Sites:	7

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Chemical Marketing Reporter
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of DCM
	Metric 4:	Temporal Representativeness	Low	× 2	6	1982
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

⋆ MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Hall, A. H.,Rumack, B. H.. 1990. Methylene chloride exposure in furniture-stripping shops: Ventilation and respirator use practices. Journal of Occupational Medicine.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	730520

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Total Annual U.S. Volume (and percent of PV):	635,000,000 lb/yr (1980)

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Methodology not specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of DCM
	Metric 4:	Temporal Representativeness	Low	× 2	6	1980
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Hall, A. H.,Rumack, B. H.. 1990. Methylene chloride exposure in furniture-stripping shops: Ventilation and respirator use practices. Journal of Occupational Medicine.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	730520

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Formulation of Paint Strippers/Removers
Total Annual U.S. Volume (and percent of PV):	30 percent of PV

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	Methodology not specified
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Formulation of Paint Strippers/Removers
	Metric 4:	Temporal Representativeness	Low	× 2	6	1980
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	467,000,000 ;b (1988)520,000,000 lb (1987)735,000,000 lb/yr capacity (1987)607,000,000 lb (1984)
Number of Sites:	6

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of DCM
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polyurethane Foam Blowing
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	54,000,000 lb (1988)
Number of Sites:	180

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Polyurethane Foam Blowing
	Metric 4: Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5: Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source: Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID: 3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Distribution/Formulation
Total Annual U.S. Volume (and percent of PV):	250,000,000 lb (1988)

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Distribution/Formulation
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

⋆ MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Aerosols
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	106,000,000 lb (1988)
Number of Sites:	217

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Aerosols
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polycarbonate Resin
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	7,000,000 lb (1988)
Number of Sites:	4

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Polycarbonate Resin
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Pharmaceuticals
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	28,000,000 lb (1988)
Number of Sites:	76

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Pharmaceuticals
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Manufacture of Paints
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	28,000,000 lb (1988)
Number of Sites:	390

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of Paints
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Manufacture of Paint Removers
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	155,000,000 lb (1988)
Number of Sites:	293

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of Paint Removers
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	52,000,000 lb (1988)
Number of Sites:	75 large aircraft strippers; 225 small air craft strippers; 4,000 furniture strippers; 1,930 industrial firms

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Paint Stripping
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Degreasing and Metal Cleaning
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	41,000,000 lb (1988)
Number of Sites:	22,652 cold degreasers; 129 open top degreasers; 111 conveyorized vapor degreasers

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Degreasing and Metal Cleaning
	Metric 4: Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5: Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cellulose Triacetate and Film Base Production
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	11,000,000 lb (1988)
Number of Sites:	1

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Cellulose Triacetate and Film Base Production
Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Electronics
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	40,000,000 lb (1988)
Number of Sites:	1059

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Electronics
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Proc/Use
Life Cycle Description (Subcategory of Use):	Miscellaneous (Food extraction, pesticide formialtion, and ink)
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	38,000,000 lb (1988)
Number of Sites:	3 food processing companies; 37 ink manufacturers; 10,482 printers; Note that report later indicates that DCM is no longer used in food extraction and that use in pesticides and ink have already or will be phased out

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Miscellaneous (Food extraction, pesticide formialtion, and ink)
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1991. Proposed rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982430

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Solvent recovery
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	37,000,000 lb (1988)
Number of Sites:	40

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA report based on other sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Solvent recovery
	Metric 4:	Temporal Representativeness	Low	× 2	6	1984-1988
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Total Annual U.S. Volume (and percent of PV):	469,200,000 lb (1990)
Number of Sites:	4

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of DCM
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Distribution/Formulation
Total Annual U.S. Volume (and percent of PV):	189,650,000 lb (1990)
Number of Sites:	320

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Distribution/Formulation
Metric 4:	Temporal Representativeness	Low	× 2	6	1990
Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cold Degreasing and Other Cold Cleaning:
Total Annual U.S. Volume (and percent of PV):	32560000 lb (1990)
Number of Sites:	23717

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Cold Degreasing and Other Cold Cleaning:
	Metric 4: Temporal Representativeness	Low	× 2	6	1990
	Metric 5: Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Open Top Vapor Degreasing
Total Annual U.S. Volume (and percent of PV):	14870000 lb (1990)
Number of Sites:	278

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Open Top Vapor Degreasing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Conveyorized Vapor Degreasing
Total Annual U.S. Volume (and percent of PV):	1130000 lb (1990)
Number of Sites:	45

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Conveyorized Vapor Degreasing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Semiconductors
Total Annual U.S. Volume (and percent of PV):	400000 lb (1990)
Number of Sites:	239

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Semiconductors
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Printed Circuit Boards
Total Annual U.S. Volume (and percent of PV):	13980000 lb (1990)
Number of Sites:	141

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Printed Circuit Boards
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Aerosol Packaging
Total Annual U.S. Volume (and percent of PV):	25210000 lb (1990)
Number of Sites:	52

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Aerosol Packaging
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Paint Remover Manufacturing
Total Annual U.S. Volume (and percent of PV):	136850000 lb (1990)
Number of Sites:	80

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Paint Remover Manufacturing
	Metric 4: Temporal Representativeness	Low	× 2	6	1990
	Metric 5: Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Paint Manufacturing
Total Annual U.S. Volume (and percent of PV):	3540000 lb (1990)
Number of Sites:	49

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Paint Manufacturing
Metric 4:	Temporal Representativeness	Low	× 2	6	1990
Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Stripping: Aircraft
Total Annual U.S. Volume (and percent of PV):	13170000 lb (1990)
Number of Sites:	300

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Paint Stripping: Aircraft
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Total Annual U.S. Volume (and percent of PV):	23260000 lb (1990)
Number of Sites:	6152

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Furniture Stripping
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Other Industrial Paint Stripping
Total Annual U.S. Volume (and percent of PV):	59360000 lb (1990)
Number of Sites:	35041

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Other Industrial Paint Stripping
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Flexible Polyurethane Foam Manufacturing
Total Annual U.S. Volume (and percent of PV):	50320000 lb (1990)
Number of Sites:	100

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Flexible Polyurethane Foam Manufacturing
Metric 4:	Temporal Representativeness	Low	× 2	6	1990
Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing/Use
Life Cycle Description (Subcategory of Use):	Manufacturing and Use of Plastics and Adhesives
Total Annual U.S. Volume (and percent of PV):	41900000 lb (1990)
Number of Sites:	3487

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Manufacturing and Use of Plastics and Adhesives
	Metric 4: Temporal Representativeness	Low	× 2	6	1990
	Metric 5: Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Adhesive Production
Number of Sites:	165

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Adhesive Production
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Adhesive Use
Number of Sites:	1753

EVALUATION

Domain	Metric	Rating	MWF★	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Adhesive Use
	Metric 4: Temporal Representativeness	Low	× 2	6	1990
	Metric 5: Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.1	

★ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Injection Molding
Number of Sites:	80

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Injection Molding
	Metric 4: Temporal Representativeness	Low	× 2	6	1990
	Metric 5: Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Lamination
Number of Sites:	1323

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Lamination
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Mold Release
Number of Sites:	165

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Mold Release
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Ink and Ink Solvent Manufacturing
Total Annual U.S. Volume (and percent of PV):	3680000 lb (1990)
Number of Sites:	15

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Ink and Ink Solvent Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Ink Solvent Use in Printing
Total Annual U.S. Volume (and percent of PV):	3680000 lb (1990)
Number of Sites:	11869

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Ink Solvent Use in Printing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing/Use
Life Cycle Description (Subcategory of Use):	Pesticide Manufacturing and Formulation
Total Annual U.S. Volume (and percent of PV):	9580000 lb (1990)
Number of Sites:	60

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Pesticide Manufacturing and Formulation
Metric 4:	Temporal Representativeness	Low	× 2	6	1990
Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing/Use
Life Cycle Description (Subcategory of Use):	Pharmaceutical Manufacturing
Total Annual U.S. Volume (and percent of PV):	39530000 lb (1990)
Number of Sites:	108

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Pharmaceutical Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Solvent Recovery
Total Annual U.S. Volume (and percent of PV):	32100000 lb (1990)
Number of Sites:	34

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Solvent Recovery
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Film Base Manufacturing
Total Annual U.S. Volume (and percent of PV):	8900000 lb (1990)
Number of Sites:	1

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	$\times$ 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	$\times$ 1	1	US
	Metric 3:	Applicability	High	$\times$ 2	2	Film Base Manufacturing
	Metric 4:	Temporal Representativeness	Low	$\times$ 2	6	1990
	Metric 5:	Sample Size	Low	$\times$ 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	$\times$ 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	$\times$ 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polycarbonate Manufacturing
Total Annual U.S. Volume (and percent of PV):	6700000 lb (1990)
Number of Sites:	4

EVALUATION

Domain	Metric		Rating	MWF★	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Polycarbonate Manufacturing
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

★ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	construction
Total Annual U.S. Volume (and percent of PV):	2440000 lb (1990)
Number of Sites:	9504

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	construction
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Osha,. 1997. Final rules: Occupational exposure to methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3978298

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Shipyards
Total Annual U.S. Volume (and percent of PV):	470000 lb (1990)
Number of Sites:	25

EVALUATION

Domain	Metric		Rating	MWF★	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA Final Rule
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Shipyards
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

★ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Strippers and Removers
Total Annual U.S. Volume (and percent of PV):	30 percent

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Paint Strippers and Removers
Metric 4:	Temporal Representativeness	Medium	× 2	4	unknown (need to see Holbrook 2003) (at least 10 years old)
Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Adhesives
Total Annual U.S. Volume (and percent of PV):	20 percent

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Adhesives
	Metric 4:	Temporal Representativeness	Medium	× 2	4	unknown (need to see Holbrook 2003) (at least 10 years old)
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Propellant in Aerosols
Total Annual U.S. Volume (and percent of PV):	10 percent

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Propellant in Aerosols
	Metric 4:	Temporal Representativeness	Medium	× 2	4	unknown (need to see Holbrook 2003) (at least 10 years old)
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Solvent in the Manufacture of Pharmaceuticals and Drugs
Total Annual U.S. Volume (and percent of PV):	10 percent

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Solvent in the Manufacture of Pharmaceuticals and Drugs
	Metric 4:	Temporal Representativeness	Medium	× 2	4	unknown (need to see Holbrook 2003) (at least 10 years old)
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Chemical Processing
Total Annual U.S. Volume (and percent of PV):	10 percent

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Chemical Processing
	Metric 4:	Temporal Representativeness	Medium	× 2	4	unknown (need to see Holbrook 2003) (at least 10 years old)
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.1	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Metal Cleaning and Finishing Solvent
Total Annual U.S. Volume (and percent of PV):	10 percent

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Metal Cleaning and Finishing Solvent
	Metric 4:	Temporal Representativeness	Medium	× 2	4	unknown (need to see Holbrook 2003) (at least 10 years old)
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.1	

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Urethane Foam Blowing
Total Annual U.S. Volume (and percent of PV):	5 percent

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	Low	× 1	3	References Holbrook 2003 (Kirk Othmer)
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Urethane Foam Blowing
	Metric 4: Temporal Representativeness	Medium	× 2	4	unknown (need to see Holbrook 2003) (at least 10 years old)
	Metric 5: Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.1	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Number of Sites:	4

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	References SRI 2009
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of DCM
	Metric 4:	Temporal Representativeness	High	× 2	2	2009
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		1.9	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Nih,. 2016. Report on carcinogens: Dichloromethane.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3982330

EXTRACTION

Parameter	Data
Life Cycle Stage:	Distribution
Life Cycle Description (Subcategory of Use):	Distribution
Number of Sites:	58 U.S. Suppliers

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	References ChemSources 2009
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Distribution
	Metric 4:	Temporal Representativeness	High	× 2	2	2009
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		1.9	

* MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Atsdr,. 2000. Toxicological profile for methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982337

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture of DCM
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	545,000,000 lb capacity (1999)
Number of Sites:	4

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Manufacture of DCM
	Metric 4:	Temporal Representativeness	Low	× 2	6	>20 years old
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only results provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.0	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Atsdr,. 2000. Toxicological profile for methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982337

EXTRACTION

Parameter	Data
Life Cycle Stage:	Import
Life Cycle Description (Subcategory of Use):	Import
Total Annual U.S. Volume (and percent of PV):	132-145 milion pounds (1992-1996)

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	Produced by ATSDR
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Import
	Metric 4: Temporal Representativeness	Low	× 2	6	>20 years old
	Metric 5: Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	Only results provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.0	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Atsdr,. 2000. Toxicological profile for methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982337

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Paint Strippers and Removers
Total Annual U.S. Volume (and percent of PV):	25 percent

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	Produced by ATSDR
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Paint Strippers and Removers
	Metric 4: Temporal Representativeness	Low	× 2	6	>20 years old
	Metric 5: Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	Only results provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.0	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Atsdr,. 2000. Toxicological profile for methylene chloride.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3982337

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Propellant in Aerosols
Total Annual U.S. Volume (and percent of PV):	25 percent

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	Produced by ATSDR
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Propellant in Aerosols
	Metric 4: Temporal Representativeness	Low	× 2	6	>20 years old
	Metric 5: Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	Low	× 1	3	Only results provided
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]		Medium		2.0	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Atsdr,. 2000. Toxicological profile for methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3982337

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Proces solvent in mfg of drugs, pharmaceuticals, and film coatings
Total Annual U.S. Volume (and percent of PV):	20 percent

EVALUATION

Domain		Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Proces solvent in mfg of drugs, pharmaceuticals, and film coatings
	Metric 4:	Temporal Representativeness	Low	× 2	6	>20 years old
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only results provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.0	

⋆ MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Atsdr,. 2000. Toxicological profile for methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3982337

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Metal Cleaning and Finishing Solvent
Total Annual U.S. Volume (and percent of PV):	10 percent

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Metal Cleaning and Finishing Solvent
	Metric 4:	Temporal Representativeness	Low	× 2	6	>20 years old
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only results provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.0	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Atsdr,. 2000. Toxicological profile for methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982337

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Electronics
Total Annual U.S. Volume (and percent of PV):	10 percent

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Electronics
	Metric 4:	Temporal Representativeness	Low	× 2	6	>20 years old
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only results provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†			Medium		2.0	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Atsdr,. 2000. Toxicological profile for methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3982337

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Polyurethane Foam Blowing
Total Annual U.S. Volume (and percent of PV):	10 percent

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Produced by ATSDR
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Polyurethane Foam Blowing
	Metric 4:	Temporal Representativeness	Low	× 2	6	>20 years old
	Metric 5:	Sample Size	Medium	× 1	2	Provided an estimate - uncertain range or error
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only results provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Medium		2.0	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Kikuchi, E. mi,Kikuchi, Y.,Hirao, M.. 2012. Monitoring and Analysis of Solvent Emissions from Metal Cleaning Processes for Practical Process Improvement. Annals of Occupational Hygiene.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	2128076

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Open Top Vapor Degreasing
Process Description:	Yes

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Journal article
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	Japan
	Metric 3:	Applicability	High	× 2	2	Open Top Vapor Degreasing
	Metric 4:	Temporal Representativeness	High	× 2	2	2011
	Metric 5:	Sample Size	N/A		N/A	N/A - only process description from this source
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	N/A		N/A	N/A - only process description from this source
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	N/A		N/A	N/A - only process description from this source
Overall Quality Determination†			High		1.2	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
 High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Iarc,. 2016. Dichloromethane. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.
Type of Data Source   Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3827786

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture/Import
Total Annual U.S. Volume (and percent of PV):	45,000 to 227,000 tonnes between 1996 and 2006

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	per NTP, 2001
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Manufacture/Import of DCM
Metric 4:	Temporal Representativeness	Medium	× 2	4	2001
Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination†		Medium		2.1	

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* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	ToxNet Hazardous Substances Data, Bank. 2017. HSDB: Methylene chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3970276

EXTRACTION

Parameter	Data
Life Cycle Stage:	Import
Life Cycle Description (Subcategory of Use):	Import
Total Annual U.S. Volume (and percent of PV):	10-20 million pounds per year (1997)

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	× 1	3	HSDB, per Chemical Marketing Reporter 1997
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Import
	Metric 4:	Temporal Representativeness	Low	× 2	6	1997
	Metric 5:	Sample Size	Low	× 1	3	No information on sample size
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	No underlying information provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No discussion of variability or uncertainty
Overall Quality Determination[†]			Low		2.3	

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* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1996. Best management practices for pollution prevention in the slabstock and molded flexible polyurethane foam industry.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3860546

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Blowing Foam
Process Description:	Yes

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	EPA Source
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Blowing Foam
	Metric 4: Temporal Representativeness	Low	× 2	6	1996, 22 years old
	Metric 5: Sample Size	Medium	× 1	2	Gives a broad evaluation of Methylene Chloride in the industry
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	High	× 1	1	Well documented.
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]		Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1989. Alternative control technology document – Halogenated solvent cleaners.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3860356

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Halogenated Degreasers
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	232000 tons
Number of Sites:	130,000-140,000 degreasers in operation.
Batch Size:	varies

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA Source
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Halogenated Degreasers
	Metric 4:	Temporal Representativeness	Low	× 2	6	1989, 29 years old
	Metric 5:	Sample Size	Medium	× 1	2	Gives a broad evaluation of Methylene Chloride in the industry
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Decently well documented.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]			Medium		1.9	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Holbrook, M. T.. 2004. Methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3859416

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	General Methylene Chloride Use
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	242.6 metric tons (2004)

EVALUATION

Domain	Metric	Rating	MWF★	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Medium	× 1	2	Michael T. Holbrook
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	General Methylene Chloride Use
Metric 4:	Temporal Representativeness	Medium	× 2	4	2006, 12 years old
Metric 5:	Sample Size	Low	× 1	3	General evaluation
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Medium	× 1	2	Decently well documented.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination†		Medium		1.9	

★ MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Kaufman, C. M.,Overcash, M. R.. 1993. WASTE MINIMIZATION IN THE MANUFACTURE OF FLEXIBLE POLYURETHANE FOAMS - QUANTIFICATION OF AUXILIARY BLOWING AGENT VOLATILIZATION. Journal of the Air and Waste Management Association (1990-1992).
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3588566

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Blowing Foam
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	5 million tons

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	No Comment.
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Blowing Foam
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old
	Metric 5:	Sample Size	Low	× 1	3	Addresses new ways to reduce waste - unclear what the current state of production is.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Minimal references -seems much of the authority is coming from the author.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination†			Medium		2.2	

⋆ MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1991. Handbook for reducing and eliminating chlorofluorocarbons in flexible polyurethan foams.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3860551

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Blowing Foam
Process Description:	Yes

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA Source
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Blowing Foam
	Metric 4:	Temporal Representativeness	Low	× 2	6	1991, 27 years old
	Metric 5:	Sample Size	Low	× 1	3	Addresses new ways to blow foam that reduces the use of CFCs.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Decently well documented.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination[†]			Medium		2.0	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1994. Control of volatile organic compound emissions from batch processes – Alternative control techqniues information document.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3860363

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Pharmaceuticals: Coating tablets
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	Hypothetical: Up to 100 tons per year
Batch Size:	Hypothetical: 250 lbs
Site Daily Throughput:	Hypothetical: Up to 250 lbs
Possible Physical Form:	Aerosol
Chemical Concentration:	80 percent DCM

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA Source
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Pharmaceuticals: Coating tablets
	Metric 4:	Temporal Representativeness	Low	× 2	6	1994, 24 years old
	Metric 5:	Sample Size	Low	× 1	3	Merely discusses a process method utilizing Methylene Chloride
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only results provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: Jordan, B. ruce C.. 1994. Memorandum: Transmittal of alternative control technology documents.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID   3860917

EXTRACTION

Parameter	Data
Life Cycle Stage:	EPA
Life Cycle Description (Subcategory of Use):	Industry Guidance on VOC reduction
Process Description:	No

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	EPA
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Unacceptable	× 2	8	Recommendations on how to limit VOC emissions in air/water. DCM was 1 of over 100 listed chemical
Metric 4:	Temporal Representativeness	Low	× 2	6	1994, 24 years old
Metric 5:	Sample Size	N/A		N/A	N/A - no information on DCM
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	N/A		N/A	N/A - no information on DCM
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	N/A		N/A	N/A - no information on DCM
Overall Quality Determination[†]		Unacceptable		4	Metric Mean Score: 2.7.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1996. Solvent study.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3861374

EXTRACTION

Parameter	Data
Life Cycle Stage:	EPA
Life Cycle Description (Subcategory of Use):	Solvents Study
Process Description:	No

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Unacceptable	× 2	8	Study references DCM in its introduction, but does not focus on it moving forward.
	Metric 4:	Temporal Representativeness	Low	× 2	6	1996, 22 years old
	Metric 5:	Sample Size	N/A		N/A	N/A - no information on DCM
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	N/A		N/A	N/A - no information on DCM
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	N/A		N/A	N/A - no information on DCM
Overall Quality Determination†			Unacceptable		4	Metric Mean Score: 2.7.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 2008. Control techniques guidelines for fiberglass boat manufacturing materials.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3970051

EXTRACTION

Parameter	Data
Life Cycle Stage:	EPA
Life Cycle Description (Subcategory of Use):	Fiberglass Boat Guidelines
Process Description:	No

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	EPA
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	Unacceptable	× 2	8	Guideline references DCM, but is not focused on the use of DCM in the workplace.
	Metric 4: Temporal Representativeness	Medium	× 2	4	2008, 10 years old.
	Metric 5: Sample Size	N/A		N/A	N/A - no information on DCM
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	N/A		N/A	N/A - no information on DCM
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	N/A		N/A	N/A - no information on DCM
Overall Quality Determination†		Unacceptable		4	Metric Mean Score: 2.3.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Echa,. 2017. Dichloromethane, Part 2.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3970726

EXTRACTION

Parameter	Data
Life Cycle Stage:	ECHA
Life Cycle Description (Subcategory of Use):	Profile of DCM
Process Description:	No

EVALUATION

Domain	Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	European Chemical Association
Domain 2: Representative					
	Metric 2: Geographic Scope	Medium	× 1	2	EU
	Metric 3: Applicability	Unacceptable	× 2	8	Lists current producers in the EU
	Metric 4: Temporal Representativeness	Medium	× 2	4	Current information
	Metric 5: Sample Size	N/A		N/A	N/A - only provides lists of producers in EU
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	N/A		N/A	N/A - only provides lists of producers in EU
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	N/A		N/A	N/A - only provides lists of producers in EU
Overall Quality Determination†		Unacceptable		4	Metric Mean Score: 2.5.

⋆⋆ Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Upjohn, Company. 1990. Environmental assessment: Excenel sterile suspension (ceftiofur hydrochloride).
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3974795

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Pharmaceuticals Manufacturing
Process Description:	No
Total Annual U.S. Volume (and percent of PV):	DCM: unknownProduct: 3000 kg/year
Number of Sites:	1

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	Upjohn Company
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Unacceptable	× 2	8	Utilizes methylene chloride in an unknown way in the proposed facility
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990, 28 years old
	Metric 5:	Sample Size	N/A		N/A	N/A - no information on DCM
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	N/A		N/A	N/A - no information on DCM
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	N/A		N/A	N/A - no information on DCM
Overall Quality Determination[†]			Unacceptable		4	Metric Mean Score: 2.8.

** Consistent with our *Application of Systematic Review in TSCARisk Evaluations* document, if a metric for a data source receives a score of Unacceptable (score = 4), EPA will determine the study to be unacceptable. In this case, one of the metrics were rated as unacceptable. As such, the study is considered unacceptable and the score is presented solely to increase transparency.

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1999. 33/50 Program: The final record.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3860543

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Industry-wide use
Process Description:	No
Total Annual U.S. Volume (and percent of PV):	1988: 155,419,301 lbs/year1996: 68,661,243 lbs/year
Number of Sites:	1294 companies

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Low	× 2	6	Addresses 1,294 companies who voluntarily reduced emissions, but only on total emissions.
	Metric 4:	Temporal Representativeness	Low	× 2	6	1999, 19 years old. Does not address operations, equipment, or worker activties
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of companies from this source
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Data sources, methods, and assumptions are clearly reported.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed
Overall Quality Determination†			Low		2.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1977. Control of volatile organic emissions from solvent metal cleaning.	
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;	
Hero ID	3827321	

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Degreasing
Process Description:	Yes

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	High	× 1	1	EPA
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	Low	× 2	6	Discusses the function/design of degreasers used in industry.
Metric 4:	Temporal Representativeness	Low	× 2	6	1977, 41 years old
Metric 5:	Sample Size	Low	× 1	3	N/A - only process description from this source
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	N/A - only process description from this source
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	N/A - only process description from this source
Overall Quality Determination†		Low		2.6	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Hearne, F. T.,Grose, F.,Pifer, J. W.,Friedlander, B. R.,Raleigh, R. L.. 1987. Methylene chloride mortality study: Dose-response characterization and animal model comparison. Journal of Occupational Medicine.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	730524

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	manufacture of cellulose triacetate film
Process Description:	Yes
Number of Sites:	1
Operating Days per Year and Batches per Day:	24hr/365day
Possible Physical Form:	vapor, liquid
Chemical Concentration:	30-100 ppm in workroom

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Lists out different methods used over time and validates their accuracy in cited source
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that uses Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1987, 31 years old
	Metric 5:	Sample Size	Low	× 1	3	Not characterized
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Data sources, methods, and assumptions are clearly reported.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed
Overall Quality Determination[†]			Medium		1.9	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
 High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation: U.S, E. P. A.. 1993. Locating and estimating air emissions from sources of methylene chloride.
Type of Data Source Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID 3970168

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Methylene Chloride Manufacture
Process Description:	Yes
Number of Sites:	5

EVALUATION

Domain	Metric		Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Uses EPA and other trusted sources
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that uses Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1993, 25 years old
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Data sources, methods, and assumptions are clearly reported.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not Addressed
Overall Quality Determination[†]			Medium		1.9	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	2008. Background Information Document for Updating AP42 Section 2.4 for Estimating Emissions from Municipal Solid Waste Landfills.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	1263807

EXTRACTION

Parameter	Data
Life Cycle Stage:	Disposal
Life Cycle Description (Subcategory of Use):	Landfill Gas
Process Description:	No
Number of Sites:	109
Chemical Concentration:	Average: 6.15 ppmMax: 41.2 ppmMin: .0054ppm

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Medium	× 1	2	EPA Source - unclear which methods were used to gather DCM result, however.
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Facility that is indirectly associated with Methylene Chloride
	Metric 4:	Temporal Representativeness	Medium	× 2	4	2008, 10 years old.
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Generally well documented, though methods used was unclear for certain data sets.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Degree of uncertainty is presented in the paper, thought the measurements of DCM are not well addressed.
Overall Quality Determination[†]			Medium		2.0	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	1996. Methyl chloride via oxyhydrochlorination of methane: A building block for chemicals and fuels from natural gas. Environmental assessment.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	2530707

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Methyl Chloride Manufacture
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	Proposed: 900lbs/hr Methyl Chloride,322.5 lbs Methylene Chloride.
Number of Sites:	1
Possible Physical Form:	vapor, liquid

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	DOE Environmental Assessment
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Facility that manufactures Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1996, 22 years old
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Few references, but written from a first-hand authority.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not addressed
Overall Quality Determination[†]			Medium		2.0	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1978. OAQPS guideline series: Control of volatile organic emissions from manufacture of synthesized pharmaceutical products.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3970050

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Manufacture of Pharmaceuticals
Process Description:	Yes
Number of Sites:	26+
Batch Size:	2000-11000 liters
Possible Physical Form:	vapor, liquid

EVALUATION

Domain		Metric	Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA document
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Workplace that produces Methylene Chloride, but only relates to environmental emissions
	Metric 4:	Temporal Representativeness	Low	× 2	6	1978, 40 years old
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.
Overall Quality Determination†			Medium		2.2	

⋆ MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1996. Hazardous air pollutant emissions from the production of flexible polyurethane foam – Basis and purpose document for proposed standards.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3970122

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Slabstock Foam
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	16568 tons/yr HAP
Number of Sites:	78
Batch Size:	4'x8'x50'/100'
Possible Physical Form:	vapor, liquid

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA document
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that uses Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1996, 22 years old
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination†			Medium		2.0	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 1996. Hazardous air pollutant emissions from the production of flexible polyurethane foam – Basis and purpose document for proposed standards.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3970122

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Molded Foam
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	3186 tons/yr HAP
Number of Sites:	228
Operating Days per Year and Batches per Day:	250

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	EPA document
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that uses Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1996, 22 years old
	Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Majority of metadata present
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	No Comment.
Overall Quality Determination†			Medium		2.0	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	European Chlorinated Solvents, Association. 1999. Euro chlor risk assessment for the marine environment, OSPARCOM region - Norht sea: Dichloromethane.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982130

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Manufacture
Process Description:	No
Total Annual U.S. Volume (and percent of PV):	138000 tons per year
Number of Sites:	8
Possible Physical Form:	liquid, vapor

EVALUATION

Domain	Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	No discussion about where the metrics came from
Domain 2: Representative					
Metric 2:	Geographic Scope	Medium	× 1	2	EU
Metric 3:	Applicability	High	× 2	2	Facilities that produce Methylene Chloride
Metric 4:	Temporal Representativeness	Low	× 2	6	1999, 19 years old.
Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites from this source
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	Sources are documented, but it is unclear how they are used and what they relate to.
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.
Overall Quality Determination[†]		Low		2.4	

[*] MWF = Metric Weighting Factor
[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Ec,. 2017. Rapid alert system for dangerous non-food products: Brake caliper spray paint.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982350

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Consumer Use
Process Description:	No
Chemical Concentration:	0.63

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	No method given.
Domain 2: Representative					
Metric 2:	Geographic Scope	Medium	× 1	2	EU
Metric 3:	Applicability	Low	× 2	6	Consumer product similar to one used in indsutry
Metric 4:	Temporal Representativeness	High	× 2	2	2017
Metric 5:	Sample Size	Low	× 1	3	N/A - only provided conc in consumer product
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	N/A - only provided conc in consumer product
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.
Overall Quality Determination†		Low		2.4	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	University of Minnesota, Duluth. 1997. American converters eliminates methylene chloride based adhesives: Substitutes eliminate regulatory compliance burdens without disrupting production.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3982444

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Foam Fabrication
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	4,170 gal of MC based adhesives (@65 percent MC concentration or higher)
Number of Sites:	1
Possible Physical Form:	liquid, vapor
Chemical Concentration:	> 65 percent

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
Metric 1:	Methodology	Low	× 1	3	No method given.
Domain 2: Representative					
Metric 2:	Geographic Scope	High	× 1	1	US
Metric 3:	Applicability	High	× 2	2	Workplace that uses Methylene Chloride
Metric 4:	Temporal Representativeness	Low	× 2	6	1997, 21 years old
Metric 5:	Sample Size	Low	× 1	3	N/A - only # of sites and conc from this source
Domain 3: Accessibility/Clarity					
Metric 6:	Metadata Completeness	Low	× 1	3	N/A - only # of sites and conc from this source
Domain 4: Variability and Uncertainty					
Metric 7:	Metadata Completeness	Low	× 1	3	N/A - only # of sites and conc from this source
Overall Quality Determination[†]		Low		2.3	

* MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Oecd,. 2011. SIDS initial assessment profile: Dichloromethane (methylene chloride).
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3808975

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture
Life Cycle Description (Subcategory of Use):	Methylene Chloride Manufacture
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	100,000 tons in EU (2009). Worldwide volume is 764,000-814,000 metric tonnes

EVALUATION

Domain	Metric		Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	Low	$\times$ 1	3	No documentation
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	$\times$ 1	2	EU
	Metric 3:	Applicability	Medium	$\times$ 2	4	Overview of industry that produces methylene chloride, but no specific workplace
	Metric 4:	Temporal Representativeness	High	$\times$ 2	2	2011, 7 years old
	Metric 5:	Sample Size	Low	$\times$ 1	3	N/A - only PV provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	$\times$ 1	3	Not documented
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	$\times$ 1	3	None addressed.
Overall Quality Determination†			Medium		2.2	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Ruder, A.. 2006. Potential health effects of occupational chlorinated solvent exposure. Annals of the New York Academy of Sciences.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	707665

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	US DCM consumption.
Process Description:	No
Total Annual U.S. Volume (and percent of PV):	231,000 metric tons (1998)

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH document and sources cited.
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Overview of industry that produces methylene chloride, but no specific workplace
	Metric 4:	Temporal Representativeness	Medium	× 2	4	2006, 12 years old
	Metric 5:	Sample Size	Low	× 1	3	N/A - only PV provided
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Clearly documented sources.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.
Overall Quality Determination[†]			Medium		1.9	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Niosh,. 1990. Walk-through survey report: Control of methylene chloride in furniture stripping at Colonial Furniture Stripping, Cincinnati, Ohio.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3809453

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Furniture Stripping
Process Description:	Yes
Number of Sites:	1
Chemical Concentration:	72 percent DCM by weight

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	NIOSH 1005
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Workplace that uses Methylene Chloride
	Metric 4:	Temporal Representativeness	Low	× 2	6	1990, 28 years old
	Metric 5:	Sample Size	Medium	× 1	2	Reasonable well characterized.
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Medium	× 1	2	Reasonable well documented.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	None addressed.
Overall Quality Determination†			Medium		1.9	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
   High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	U.S, E. P. A.. 2017. Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Methylene Chloride.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3986757

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Manufacture and Use
Process Description:	Yes
Total Annual U.S. Volume (and percent of PV):	2012: 230,896,388 lbs2013:230,498,027 lbs2014: 248,241,495 lbs2015: 263,971,494 lbs
Number of Sites:	10

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Office of Chemical Safety and Pollution Prevention (OCSPP) Report
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	Medium	× 2	4	Overview of industry that produces methylene chloride, but no specific workplace
	Metric 4:	Temporal Representativeness	High	× 2	2	2017, 1 year old
	Metric 5:	Sample Size	High	× 1	1	Well characterized
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	High	× 1	1	Well documented.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Medium	× 1	2	Not applicable
Overall Quality Determination†			High		1.3	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Spin,. 2017. SPIN substances in preparations in nordic countries dichlormethane.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	3981130

EXTRACTION

Parameter	Data
Life Cycle Stage:	Manufacture and Use
Life Cycle Description (Subcategory of Use):	Manufacture and Use
Process Description:	No

EVALUATION

Domain		Metric	Rating	MWF[*]	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	SPIN: Substances in Preparations in Nordic Countries
Domain 2: Representative						
	Metric 2:	Geographic Scope	Medium	× 1	2	EU/Nordic Countries
	Metric 3:	Applicability	Medium	× 2	4	Overview of industry that uses Methylene Chloride.
	Metric 4:	Temporal Representativeness	High	× 2	2	2017, 1 year old
	Metric 5:	Sample Size	High	× 1	1	Well characterized
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Database System - not sure where data is being pulled from based on pdf screen capture.
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	Not applicable
Overall Quality Determination[†]			Medium		1.8	

[*] MWF = Metric Weighting Factor

[†] If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Kirk-Othmer Encyclopedia of Chemical Technology. 2011. Bromine, Organic Compounds.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	2990975

EXTRACTION

Parameter	Data
Life Cycle Stage:	Processing
Life Cycle Description (Subcategory of Use):	Processing as a Reactant
Process Description:	Yes

EVALUATION

Domain	Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability					
	Metric 1: Methodology	High	× 1	1	Kirk Othmer
Domain 2: Representative					
	Metric 2: Geographic Scope	High	× 1	1	US
	Metric 3: Applicability	High	× 2	2	Processing as a reactant
	Metric 4: Temporal Representativeness	High	× 2	2	2011
	Metric 5: Sample Size	N/A		N/A	N/A - process description
Domain 3: Accessibility/Clarity					
	Metric 6: Metadata Completeness	N/A		N/A	N/A - process description
Domain 4: Variability and Uncertainty					
	Metric 7: Metadata Completeness	N/A		N/A	N/A - process description
Overall Quality Determination†		High		1.0	

* MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	Occupational Safety and Health Adminstration (OSHA). 1998. Methylene Chloride Facts No. 9 - Suggested Work Practices for Cold Degreasing and Other Cold Cleaning Operations.
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	5071452

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Cold Degreasing and Other Cold Cleaning:
Process Description:	No
Number of Sites:	23717

EVALUATION

Domain	Metric		Rating	MWF⋆	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	OSHA
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Vapor Degreasing and Cold Cleaning
	Metric 4:	Temporal Representativeness	Low	× 2	6	1998
	Metric 5:	Sample Size	Low	× 1	3	only provides estimated number of sites
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	Low	× 1	3	Only results provided
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	Low	× 1	3	does not address variability
Overall Quality Determination†			Medium		2.1	

⋆ MWF = Metric Weighting Factor

† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale: High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.

Source Citation:	The Institute for Research and Technical Assistance (IRTA) . 2006. Protecting the health of lithographic printers - Safer alternatives to toxic cleanup solvents .
Type of Data Source	Facility; Reports for Data or Information Other than Exposure or Release Data;
Hero ID	5071456

EXTRACTION

Parameter	Data
Life Cycle Stage:	Use
Life Cycle Description (Subcategory of Use):	Lithographic Printing
Process Description:	Yes

EVALUATION

Domain		Metric	Rating	MWF*	Score	Comments
Domain 1: Reliability						
	Metric 1:	Methodology	High	× 1	1	Institute for Research and Technical Assistance (IRTA)
Domain 2: Representative						
	Metric 2:	Geographic Scope	High	× 1	1	US
	Metric 3:	Applicability	High	× 2	2	Lithographic Printing
	Metric 4:	Temporal Representativeness	Medium	× 2	4	2006
	Metric 5:	Sample Size	N/A		N/A	N/A - process description
Domain 3: Accessibility/Clarity						
	Metric 6:	Metadata Completeness	N/A		N/A	N/A - process description
Domain 4: Variability and Uncertainty						
	Metric 7:	Metadata Completeness	N/A		N/A	N/A - process description
Overall Quality Determination†			High		1.3	

* MWF = Metric Weighting Factor
† If any individual metrics are deemed Unacceptable, then the overall rating is also unacceptable. Otherwise, the overall rating is based on the following scale:
  High: ≥ 1 to < 1.7; Medium: ≥ 1.7 to < 2.3; Low: ≥ 2.3 to ≤ 3.