

**SCREENING-LEVEL HAZARD CHARACTERIZATION
OF HIGH PRODUCTION VOLUME CHEMICALS**

SPONSORED CHEMICAL

**2-Methyl-1,3-propanediol (CAS No. 2163-42-0)
[9th CI Name: 1,3-Propanediol, 2-methyl-]**

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INTERIM**

Prepared by

High Production Volume Chemicals Branch
Risk Assessment Division
Office of Pollution Prevention and Toxics
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

SCREENING-LEVEL HAZARD CHARACTERIZATION OF HIGH PRODUCTION VOLUME CHEMICALS

The High Production Volume (HPV) Challenge Program¹ is a voluntary initiative aimed at developing and making publicly available screening-level health and environmental effects information on chemicals manufactured in or imported into the United States in quantities greater than one million pounds per year. In the Challenge Program, producers and importers of HPV chemicals voluntarily sponsor chemicals; sponsorship entails the identification and initial assessment of the adequacy of existing toxicity data/information, conducting new testing if adequate data do not exist, and making both new and existing data and information available to the public. Each complete data submission contains data on 18 internationally agreed to “SIDS” (Screening Information Data Set^{1,2}) endpoints that are screening-level indicators of potential hazards (toxicity) for humans or the environment.

The Environmental Protection Agency’s Office of Pollution Prevention and Toxics (OPPT) is evaluating the data submitted in the HPV Challenge Program on approximately 1400 sponsored chemicals. OPPT is using a hazard-based screening process to prioritize review of the submissions. The hazard-based screening process consists of two tiers described below briefly and in more detail on the Hazard Characterization website³.

Tier 1 is a computerized sorting process whereby key elements of a submitted data set are compared to established criteria to “bin” chemicals/categories for OPPT review. This is an automated process performed on the data as submitted by the sponsor. It does not include evaluation of the quality or completeness of the data.

In Tier 2, a screening-level hazard characterization is developed by EPA that consists of an objective evaluation of the quality and completeness of the data set provided in the Challenge Program submissions. The evaluation is performed according to established EPA guidance^{2,4} and is based primarily on hazard data provided by sponsors. EPA may also include additional or updated hazard information of which EPA, sponsors or other parties have become aware. The hazard characterization may also identify data gaps that will become the basis for a subsequent data needs assessment where deemed necessary. Under the HPV Challenge Program, chemicals that have similar chemical structures, properties and biological activities may be grouped together and their data shared across the resulting category. This approach often significantly reduces the need for conducting tests for all endpoints for all category members. As part of Tier 2, evaluation of chemical category rationale and composition and data extrapolation(s) among category members is performed in accord with established EPA² and OECD⁵ guidance.

The screening-level hazard characterizations that emerge from Tier 2 are important contributors to OPPT’s existing chemicals review process. These hazard characterizations are technical documents intended to support subsequent decisions and actions by OPPT. Accordingly, the documents are not written with the goal of informing the general public. However, they do provide a vehicle for public access to a concise assessment of the raw technical data on HPV chemicals and provide information previously not readily available to the public. The public, including sponsors, may offer comments on the hazard characterization documents.

The screening-level hazard characterizations, as the name indicates, do not evaluate the potential risks of a chemical or a chemical category, but will serve as a starting point for such reviews. In 2007, EPA received data on uses of and exposures to high-volume TSCA existing chemicals, submitted in accordance with the requirements of the Inventory Update Reporting (IUR) rule. For the chemicals in the HPV Challenge Program, EPA will review the IUR data to evaluate exposure potential. The resulting exposure information will then be combined with the screening-level hazard characterizations to develop screening-level risk characterizations^{4,6}. The screening-level risk characterizations will inform EPA on the need for further work on individual chemicals or categories. Efforts are currently underway to consider how best to utilize these screening-level risk characterizations as part of a risk-based decision-making process on HPV chemicals which applies the results of the successful U.S. High Production Volume Challenge Program and the IUR to support judgments concerning the need, if any, for further action.

¹ U.S. EPA. High Production Volume (HPV) Challenge Program; <http://www.epa.gov/chemrtk/index.htm>.

² U.S. EPA. HPV Challenge Program – Information Sources; <http://www.epa.gov/chemrtk/pubs/general/guidocs.htm>.

³ U.S. EPA. HPV Chemicals Hazard Characterization website (<http://www.epa.gov/hpvis/abouthc.html>).

⁴ U.S. EPA. Risk Assessment Guidelines; <http://cfpub.epa.gov/ncea/raf/rafguid.cfm>.

⁵ OECD. Guidance on the Development and Use of Chemical Categories; <http://www.oecd.org/dataoecd/60/47/1947509.pdf>.

⁶ U.S. EPA. Risk Characterization Program; <http://www.epa.gov/osa/spc/2riskchr.htm>.

SCREENING-LEVEL HAZARD CHARACTERIZATION 2-Methyl-1,3-propanediol (CAS No. 2163-42-0)

Introduction

The sponsor, Lyondell Chemical Company, submitted a Test Plan and Robust Summaries to EPA for 2-methyl-1,3-propanediol (CAS No. 2163-42-0; 9th CI name: 1,3-propanediol, 2-methyl-) on December, 16, 2003. EPA posted the submission on the ChemRTK HPV Challenge website on January, 27, 2004 (<http://www.epa.gov/oppt/chemrtk/pubs/summaries/2mth3pro/c14924tc.htm>). EPA comments on the original submission were posted to the website on June 29, 2004. Public comments were also received and posted to the website. The sponsor submitted updated/revised documents on August 27, 2004, which were posted to the ChemRTK website on September 21, 2004.

This screening-level hazard characterization is based primarily on the review of the test plan and robust summaries of studies submitted by the sponsor(s) under the HPV Challenge Program. In preparing the hazard characterization, EPA considered its own comments and public comments on the original submission as well as the sponsor's responses to comments and revisions made to the submission. A summary table of SIDS endpoint data with the structure(s) of the sponsored chemical(s) is included in the appendix. The screening-level hazard characterization for environmental and human health effects is based largely on SIDS endpoints and is described according to established EPA or OECD effect level definitions and hazard assessment practices.

Summary-Conclusion

The log K_{ow} of 2-methyl-1,3-propanediol indicates that its potential to bioaccumulate is expected to be low. 2-Methyl-1,3-propanediol is not readily biodegradable, indicating that it has the potential to persist in the environment.

The evaluation of available toxicity data for fish, aquatic invertebrates and aquatic plants indicates that the potential acute hazard of 2-methyl-1,3-propanediol to aquatic organisms is low.

Acute oral and inhalation toxicity of 2-methyl-1,3-propanediol in rats and acute dermal toxicity in rabbits is low. 2-Methyl-1,3-propanediol is not irritating to rabbit and human skin or rabbit eyes and is a mild sensitizer in guinea pigs. In rats, repeated oral exposure via gavage for at least 90 days did not result in mortality, morbidity or clinical signs of toxicity. No treatment-related effects were observed on body weight, food consumption, ophthalmology examination, hematology and clinical chemistry parameters, organ weights and gross pathology or histopathology examinations. A two-generation reproduction study in rats showed no effects on reproductive parameters or fertility indices. In developmental toxicity studies with rats and rabbits, no maternal toxicity or developmental effects were noted. 2-Methyl-1,3-propanediol did not induce gene mutation in bacteria and mammalian cells or chromosomal aberrations in human lymphocyte cells *in vitro*.

The potential health hazard of 2-methyl-1,3-propanediol is low.

No data gaps were identified under the HPV Challenge Program.

1. Physical-Chemical Properties and Environmental Fate

A summary of physical-chemical and environmental fate data submitted is provided in the Appendix. For the purpose of the screening-level hazard characterization, the review and summary of these data were limited to the octanol-water partition coefficient and biodegradation endpoints as indicators of bioaccumulation and persistence, respectively.

Octanol-Water Partition Coefficient

Log K_{ow} : 0.24

Biodegradation

(1) In a Modified Sturm test using activated domestic sewage sludge inoculum, 6 – 54% of 2-methyl-1,3-propanediol had degraded after 28 days.

2-Methyl-1,3-propanediol is not readily biodegradable.

(2) In a Closed-Bottle test using activated domestic sewage sludge inoculum, 15 – 64% of 2-methyl-1,3-propanediol had degraded after 28 days.

2-Methyl-1,3-propanediol is not readily biodegradable.

Conclusion: The log K_{ow} of 2-methyl-1,3-propanediol indicates that its potential to bioaccumulate is expected to be low. 2-Methyl-1,3-propanediol is not readily biodegradable, indicating that it has the potential to persist in the environment.

2. Environmental Effects – Aquatic Toxicity

Acute Toxicity to Fish

Carp (*Cyprinus carpio*, 10/vessel) were exposed to 2-methyl-1,3-propanediol at nominal concentrations of 0.1, 1.0, 10, 100 or 1000 mg/L under static conditions for 96 hours. Mean measured concentrations for the highest nominal concentration were 891 mg/L at the start of the study and 979 mg/L at 96 hours. No mortality was noted at any point in either control or test vessels in the study.

96-h LC₅₀ > 1000 mg/L

Acute Toxicity to Aquatic Invertebrates

Water fleas (*Daphnia magna*, 10/vessel) were exposed to 2-methyl-1,3-propanediol at nominal concentrations of 0.1, 1.0, 10, 100 or 1000 mg/L under static conditions for 48 hours. Mean measured concentrations for the highest nominal concentration were 1023 mg/L at the start of the study and 1032 mg/L at 96 hours. No immobilization was noted at 24 or 48 hours in either the control or test vessels.

48-h EC₅₀ > 1000 mg/L

Toxicity to Aquatic Plants

Green algae (*Scenedesmus subspicatus*) were exposed to 2-methyl-1,3-propanediol at nominal concentrations of 0, 100, 180, 320, 560 or 1000 mg/L under static conditions for 72 hours. Measured concentrations for the 100, 320 and 1000 mg/L were 120, 361 and 873 mg/L at the start of the study and 100, 383 and 1023 mg/L at 72 hours. No inhibition of cell growth or reduction of growth rate was noted at any concentration tested.

72-h EC₅₀ (growth) > 1000 mg/L

Conclusion: The evaluation of available toxicity data for fish, aquatic invertebrates and aquatic plants indicates that the potential acute hazard of 2-methyl-1,3-propanediol to aquatic organisms is low.

3. Human Health Effects

Acute Oral Toxicity

Wistar rats (10/sex) were administered 2-methyl-1,3-propanediol via gavage at 5000 mg/kg-bw and observed for 14 days. All animals survived to scheduled necropsy. Clinical signs of toxicity included diarrhea, chromorhinorrhea and soiling of the anogenital area. Necropsy findings included pink fluid in the bladder of two animals.

LD₅₀ > 5000 mg/kg-bw

Acute Inhalation Toxicity

Wistar rats (5/sex) were exposed to 2-methyl-1,3-propanediol at a nominal concentration of 5100 mg/m³ (5.1 mg/L) for 4 hours and observed for 14 days. Necropsy findings from three males and all females were limited to the lungs and comprised thickened hyaline spots or small areas on all lobes. Small white areas were also apparent in one male.

LC₅₀ > 5.1 mg/L

Acute Dermal Toxicity

New Zealand White rabbits (10/sex) were administered 2-methyl-1,3-propanediol dermally at 2000 mg/kg-bw for 24 hours and observed for 14 days. Clinical signs of toxicity included diarrhea, yellow nasal discharge, few feces, bloated abdomen and soiling of the anogenital area. Mean male and female body weights were not decreased during the observation period. One female died on study day 12. Necropsy findings in the decedent animal included abnormalities of the lungs (congested, hemorrhagic), pleural cavity (excess fluid), liver (pale margins) and gastrointestinal tract (red areas, gas filled). Necropsy findings among three of the nine of the survivors included abnormalities of the kidney (dark areas) and gastrointestinal tract (distended with yellow liquid contents). One animal had a tissue mass and hemorrhagic areas in the dorsal abdominal wall.

LD₅₀ > 2000 mg/kg-bw

Repeated-Dose Toxicity

Wistar rats (10/sex/group) were administered 2-methyl-1,3-propanediol via gavage at 0, 300, 600 or 1000 mg/kg-bw/day for at least 91 consecutive days. There was no mortality, morbidity or clinical signs of toxicity in any group. No treatment-related effects were observed on body weight, food consumption, ophthalmology examination, hematology, clinical chemistry, organ weights, gross pathology or histopathology.

NOAEL = 1000 mg/kg-bw/day (based on no effects at the highest dose tested)

Reproductive Toxicity

(1) In a two-generation reproductive toxicity study, Sprague-Dawley rats (30/sex/dose) were administered 2-methyl-1,3-propanediol via gavage at 0 (deionized water), 100, 300 or 1000 mg/kg-bw/day for a minimum of 70 days prior to mating. The exposure period of the F0 generation continued throughout mating, gestation and lactation until euthanasia. The F1 generation was exposed *in utero* and throughout lactation and weaning until postnatal day (PND) 21. Males and females from the F1 generation selected for mating were treated from PND 22, as described for the F0 generation. One male from the 300 mg/kg-bw/day F0 generation was euthanized *in extremis*, but all other animals survived to scheduled necropsy. No treatment-related clinical findings were apparent. Exposure to 2-methyl-1,3-propanediol did not result in any changes in body weight, food intake, reproductive performance (mating index, fertility index, mean pre-coital interval, estrous cycle length), gestation length, sperm parameters (motility, morphology or production rate) or litter and offspring parameters (live litter size, number live pups, males/litter, pup survival, pup body weight, anogenital distance) in any generation. Necropsy observations were unremarkable.

NOAEL (systemic and reproductive toxicity) = 1000 mg/kg-bw/day (based on no effects at the highest dose tested)

(2) In the 90-day oral repeated-dose toxicity study in rats described previously, no effects were seen during macroscopic and histopathological examinations of the following reproductive organs: cervix, epididymides, mammary gland, ovaries, prostate gland, seminal vesicles, testes and vagina.

Developmental Toxicity

(1) Pregnant Wistar rats (24/dose) were administered 2-methyl-1,3-propanediol via gavage at 0, 300, 600 or 1000 mg/kg-bw/day once daily on gestation days 0 – 20. With the exception of a single female from the 1000 mg/kg-bw/day group, all females were pregnant. Treatment with 2-methyl-1,3-propanediol in the dams did not produce morbidity, premature deaths, clinical signs of toxicity, changes in maternal body weight, body weight gain, food consumption or macroscopic abnormalities at necropsy. No differences were noted in pre-implantation loss or number of live fetuses/group compared with historical controls. Fetal sex ratios were comparable among dose groups. A slight decrease in fetal body weight (< 2% decrease) was observed in litters from dams given 1000 mg/kg-bw/day. No treatment-related macroscopic changes or visceral or skeletal alterations were reported. **NOAEL (maternal and developmental toxicity) = 1000 mg/kg-bw/day** (based on no effects at the highest dose tested)

(2) Pregnant Wistar rats (25/dose) were administered 2-methyl-1,3-propanediol via gavage at 0, 100, 300 or 1000 mg/kg-bw/day on gestation days 0 – 19. All dams survived until scheduled necropsy. Treatment with 2-methyl-1,3-propanediol in the dams did not produce clinical signs of toxicity, changes in maternal body weight, body weight gain or food consumption or macroscopic abnormalities at necropsy. Maternal reproduction data showed no effect of treatment on the number of pregnant females that delivered litters, pre-implantation loss (compared with historical controls), late resorptions or number of corpora lutea or implantation sites. Interuterine growth and survival and mean litter size were unaffected by treatment with 2-methyl-1,3-propanediol. Fetal sex ratios were comparable between the doses and fetal weight was unaffected by treatment. No soft tissue malformation or developmental variations were observed. No consistent treatment-related differences in ossification parameters – were found; observed unossified sternebrae, ossified cervical centrum and rudimentary ribs were considered unrelated to treatment. **NOAEL (maternal and developmental toxicity) = 1000 mg/kg-bw/day** (based on no effects at the highest dose tested)

(3) New Zealand White rabbits (female; no./dose not indicated) were administered 2-methyl-1,3-propanediol via gavage at 0, 250, 500 or 1000 mg/kg-bw/day on gestation days 0 – 28. Treatment with 2-methyl-1,3-propanediol did not produce morbidity, clinical signs of toxicity, changes in maternal body weight, body-weight gain or food consumption or macroscopic abnormalities at necropsy. Maternal reproduction data showed no effect of treatment on the number of pregnant females that delivered litters or interuterine growth and survival (post-implantation loss, live litter size, fetal body weight, fetal sex ratio). There was no evidence of a treatment-related effect on external, soft tissue or skeletal malformations or variations. **NOAEL (maternal and developmental toxicity) = 1000 mg/kg-bw/day** (based on no effects at the highest dose tested)

Genetic Toxicity – Gene Mutation

In vitro

(1) *Salmonella typhimurium* strains TA1537, TA98, TA1535 and TA100 were exposed to 2-methyl-1,3-propanediol at concentrations of 100, 333, 1000, 3330 or 5000 µg/plate in the presence and absence of metabolic activation. Positive and negative controls were tested concurrently and produced appropriate responses. Cytotoxicity was not observed at any dose. A negative response was obtained in all tester strains. **2-Methyl-1,3-propanediol was not mutagenic in this assay.**

(2) Chinese hamster cells (V79) were exposed to 2-methyl-1,3-propanediol at concentrations of 333, 1000, 3330 and 5000 µg/mL in the presence and absence of metabolic activation. A satisfactory response was obtained for both the solvent control and the positive control substances. Cytotoxicity was not observed at any dose. There was no increase in mutant frequency at the HPRT-locus in either of the independent repeat studies. **2-Methyl-1,3-propanediol was not mutagenic in this assay.**

Genetic Toxicity – Chromosomal Aberrations

In vitro

Human lymphocytes were exposed to 2-methyl-1,3-propanediol at concentrations of 10 – 5000 µg/mL in the absence of metabolic activation and 333 – 5000 µg/mL in the presence of activation. Positive controls were tested concurrently and produced an appropriate response. Cytotoxicity was not observed at any dose. There was no biologically meaningful increase in chromosomal aberrations.

2-Methyl-1,3-propanediol did not induce chromosomal aberrations in this assay.

Additional Information

Skin Irritation

(1) New Zealand Albino rabbits (six/dose, gender not specified) were administered undiluted 2-methyl-1,3-propanediol on to two intact and two abraded sites per animal under an occlusive dressing for 24 hours and observed for 72 hours post-application. No erythema or edema was noted during the observation period. No clinical signs of toxicity were observed.

2-Methyl-1,3-propanediol was not irritating to rabbit skin in this assay.

(2) Volunteers (25 male and female subjects, ages 18 – 70 years) were dermally exposed daily to 2-methyl-1,3-propanediol as an undiluted liquid (100%) or as a 50% aqueous solution under an occluded dressing for 14 days. 2-Methyl-1,3-propanediol did not exhibit a potential for cumulative dermal irritation in 25 subjects with self-assessed sensitive skin.

2-Methyl-1,3-propanediol was not irritating to human skin in this assay.

Eye Irritation

(1) New Zealand Albino rabbits (six/dose, gender not specified) were instilled with 0.1 mL of undiluted 2-methyl-1,3-propanediol in to one eye per rabbit for 24 hours and observed for 72 hours. All six treated eyes appeared normal with no corneal, irridial or conjunctival reactions present.

2-Methyl-1,3-propanediol was not irritating to rabbit eyes in this assay.

(2) New Zealand Albino rabbits (three/dose, gender not specified) were instilled with 0.1 mL of undiluted 2-methyl-1,3-propanediol in to one eye per rabbit for 0.5 minutes, washed with lukewarm water for 20 – 30 seconds and observed for 72 hours. No corneal or irridial reactions were present; however, slight conjunctival redness was present in one rabbit at 24 hours.

2-Methyl-1,3-propanediol was not irritating to rabbit eyes in this assay.

Skin Sensitization

(1) In a guinea pig maximization test, Himalayan albino guinea pigs were administered three pairs of intradermal injections of 2-methyl-1,3-propanediol in an area of clipped scapular skin during the induction phase. These injections included 10% w/w of 2-methyl-1,3-propanediol in physiological saline, 50% w/w Freund's Complete Adjuvant in distilled water and 10% w/w 2-methyl-1,3-propanediol in 50% aqueous Freund's Complete Adjuvant. A topical induction was also completed involving 0.5 mL of 2-methyl-1,3-propanediol, undiluted, applied with an occlusive dressing for 48 hours. In the challenge phase, 0.5 mL of a solution of 2-methyl-1,3-propanediol was applied (0 [distilled water], 25, 50 and 100%) under occlusion for 24 hours and observed for 48 hours post-challenge. No erythema or edema was present 48 hours after dermal exposure (induction phase). No skin reactions were present after the challenge phase. No mortality or signs of systemic toxicity were noted. Average body weight gain in treated animals was slightly greater than that of the controls. Slight redness (grade 1) was noted in 3/20 (15%) of the test group after the challenge with 50% of 2-methyl-1,3-propanediol.

2-Methyl-1,3-propanediol was mildly sensitizing in this assay.

(2) Five studies evaluated the potential for dermal sensitization in humans. Male and female subjects (104 – 110/study) were given a patch-test using 2-methyl-1,3-propanediol. In the induction phase, approximately 0.2 mL of 2-methyl-1,3-propanediol (50% aqueous dilution) was applied to the skin with an occlusive dressing and removed after 24 hours. The application was repeated 3 times/week for a total of 9 – 10 applications. Skin reactions were evaluated 24 or 48 hours later, immediately prior to re-application of the patch. In the challenge phase, a patch containing 2-methyl-1,3-propanediol (50% aqueous dilution) was applied both to the original and to a novel test site 2 weeks after the 10th application (occlusive or other condition was not specified). These were removed after a 24-hour contact period and reactions at the skin site assessed immediately and again after 24 – 72 hours. Subjects that responded to the challenge were re-challenged 7 days later under occlusive and semi-occlusive conditions. Mild skin irritation was observed in some subjects during the induction phase (< 10% of participants). A mild delayed reaction was seen during the challenge phase in only one study (< 5% of subjects), but it is unclear if these were irritant or allergic in nature.

2-Methyl-1,3-propanediol was not sensitizing in four out of five studies; equivocal findings were provided in one study.

Conclusion: Acute oral and inhalation toxicity of 2-methyl-1,3-propanediol in rats and acute dermal toxicity in rabbits is low. 2-Methyl-1,3-propanediol is not irritating to rabbit and human skin or rabbit eyes and is a mild sensitizer in guinea pigs. In rats, repeated oral exposure via gavage for at least 90 days did not result in mortality, morbidity or clinical signs of toxicity. No treatment-related effects were observed on body weight, food consumption, ophthalmology examination, hematology and clinical chemistry parameters, organ weights and gross pathology or histopathology examinations. A two-generation reproduction study in rats showed no effects on reproductive parameters or fertility indices. In developmental toxicity studies with rats and rabbits, no maternal toxicity or developmental effects were noted. 2-Methyl-1,3-propanediol did not induce gene mutation in bacterial and mammalian cells or chromosomal aberrations in human lymphocyte cells *in vitro*.

The potential health hazard of 2-methyl-1,3-propanediol is low.

4. Hazard Characterization

The log K_{ow} of 2-methyl-1,3-propanediol indicates that its potential to bioaccumulate is expected to be low. 2-Methyl-1,3-propanediol is not readily biodegradable, indicating that it has the potential to persist in the environment.

The evaluation of available toxicity data for fish, aquatic invertebrates and aquatic plants indicates that the potential acute hazard of 2-methyl-1,3-propanediol to aquatic organisms is low.

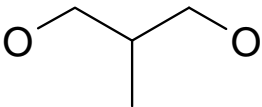
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The potential health hazard of 2-methyl-1,3-propanediol is low.

5. Data Gaps

No data gaps were identified under the HPV Challenge Program.

APPENDIX

Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program									
Endpoints	SPONSORED CHEMICAL 2-Methyl-1,3-propanediol (2163-42-0)								
Structure									
Summary of Physical-Chemical Properties and Environmental Fate Data									
Melting Point (°C)	< -54								
Boiling Point (°C)	212								
Vapor Pressure (hPa at 25°C)	2.8×10^{-2}								
Log K_{ow}	0.24								
Water Solubility (mg/L at 25°C)	≥ 3000								
Indirect (OH ⁻) Photodegradation Half-life ($t_{1/2}$)	11.2 h (estimated)								
Stability in Water (Hydrolysis) ($t_{1/2}$)	Not susceptible to hydrolysis under environmental conditions due to lack of hydrolyzable functional groups								
Fugacity (Level III Model)	<table border="0"> <tr> <td align="right">Air (%)</td> <td align="center">3.3</td> </tr> <tr> <td align="right">Water (%)</td> <td align="center">49.2</td> </tr> <tr> <td align="right">Soil (%)</td> <td align="center">47.4</td> </tr> <tr> <td align="right">Sediment (%)</td> <td align="center">0.07</td> </tr> </table>	Air (%)	3.3	Water (%)	49.2	Soil (%)	47.4	Sediment (%)	0.07
Air (%)	3.3								
Water (%)	49.2								
Soil (%)	47.4								
Sediment (%)	0.07								
Biodegradation at 28 days (%)	6 – 64 Not readily biodegradable								
Summary of Environmental Effects – Aquatic Toxicity Data									
Fish 96-h LC_{50} (mg/L)	> 1000								
Aquatic Invertebrates 48-h EC_{50} (mg/L)	> 1000								
Aquatic Plants 72-h EC_{50} (mg/L) (growth)	> 1000								

Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program	
Endpoints	SPONSORED CHEMICAL 2-Methyl-1,3-propanediol (2163-42-0)
Summary of Human Health Data	
Acute Oral Toxicity LD ₅₀ (mg/kg-bw)	> 5000
Acute Inhalation Toxicity LC ₅₀ (mg/L)	> 5.1
Acute Dermal Toxicity LD ₅₀ (mg/kg-bw)	> 2000
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	NOAEL = 1000 (highest dose tested)
Reproductive Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day) Systemic & Reproductive Toxicity	NOAEL = 1000 (highest dose tested)
Developmental Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day) Maternal and Developmental Toxicity	NOAEL = 1000 (highest dose tested)
Genetic Toxicity – Gene Mutation <i>In vitro</i>	Negative
Genetic Toxicity – Chromosomal Aberrations <i>In vitro</i>	Negative
Additional Information Skin Irritation Eye Irritation Sensitization	Not irritating Not irritating Mild sensitizer