

SAFETY DATA SHEET



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PROPYLENE GLYCOL

SDS No. M0178

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Propylene Glycol

Synonyms: 1,2-Propanediol; 1,2-Propylene Glycol; 1,2-Dihydroxypropane; Monopropylene Glycol

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. HAZARDS IDENTIFICATION

Not classified as a hazardous substance.

Emergency Overview

May cause minor irritation to the eyes. Not expected to cause irritation or to sensitize skin. High aerosol concentrations may cause mild irritation of the nose and throat. High aerosol concentrations may cause central nervous system depression (fatigue, dizziness, loss of concentration, with collapse, coma, and death in cases of severe over-exposure). Target Organs: Central nervous system.

HMIS Rating:

Health – 0 Flammability – 1 Physical Hazard – 0 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Propylene Glycol	57-55-6	>99%	Yes

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Ingestion: If large quantity is swallowed, give 1 pint (1/2 liter) of lukewarm water. Never give anything by mouth to an unconscious person. Do not induce vomiting unless directed to by medical personnel. If vomiting occurs naturally, have victim lean forward. Get medical aid.

Skin Contact: Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation persists.

Eye Contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Clear focus. Consistent results. Complete confidence.

Notes to Physician: Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flammability: Not expected to be a fire hazard. OSHA/NFPA Class IIIB liquid.

Auto-ignition Temperature: 371° C (699° F)

Flash Point: 104° C (219° F)

Flammable Limits: Lower Limit – 2.4 vol %, Upper Limit – 17.4 vol %

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (carbon monoxide and carbon dioxide).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Fine sprays/mists may be combustible at temperatures below the normal flash point. Aqueous solutions containing less than 95% propylene glycol by weight have no flash point as obtained by standard test methods. However, aqueous solutions of propylene glycol greater than 22% by weight will produce flammable vapors if heated sufficiently. Move containers away from the fire area if it can be done safely or cool containers with flooding amounts of water until well after fire is out

Specific Explosion Hazards: No information available.

Fire Fighting Media: Use water spray, carbon dioxide, dry chemical, chemical foam, or alcohol-resistant foam.

National Fire Protective Association: Health - 0, Flammability - 1, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

6. ACCIDENTAL RELEASE MEASURES

Extinguish ignition sources; stop release; prevent flow to sewers or public waters. Notify fire and environmental authorities as necessary or required. Impound and recover large spills. Use inert sorbents to soak up small spill. Dispose of collected material in proper containers. Propylene glycol is soluble in water and may float and sink. Collect as rapidly as possible to minimize dispersion. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Ground or bond containers before transferring material. Empty containers contain product residue (liquid and vapor) and may burn if heated. Use with adequate ventilation. Avoid breathing vapor or mist. Always drain and flush systems with water prior to cutting or welding.

Storage: Store away from ignition sources. Hygroscopic. Keep in a tightly closed container to avoid collecting moisture. Store in a cool, dry, well-ventilated area away from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear chemical splash goggles or other appropriate eye protection. Use neoprene gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits: None established.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless, viscous liquid.

Odor: Little or no odor

Molecular Formula: CH₃CH(OH)CH₂OH

Molecular Weight: 76.10

Auto-ignition Temperature: 371° C (699° F)

Flash Point: 104° C (219° F)

Flammable Limits: Lower Limit – 2.4 vol %, Upper Limit – 17.4 vol %

pH: About 7

Boiling Point: 184° C (363° F) @ 760 mm Hg

Freezing/Melting Point: -60° C

Decomposition Temperature: Not available.

Specific Gravity: 1.103 g/cm³

Vapor Density (Air=1): 2.62

Vapor Pressure: 0.08 mm Hg @ 25° C.

Evaporation Rate (Butyl acetate = 1): 0.01.

Viscosity: 58.1 cPs @ 20° C.

Solubility: Soluble

10. STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressures. Hygroscopic: absorbs moisture or water from the air.

Conditions to Avoid: Excess heat, exposure to moist air or water, exposure to light.

Incompatibility with Various Substances: Oxidizing agents, reducing agents, acid chlorides, acid anhydrides, and chloroformates.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, and aldehydes.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

INHALATION HAZARD: Low hazard for usual industrial handling. Inhalation of a mist of this material may cause respiratory tract irritation. Material has a low vapor pressure at room temperature, so exposure to vapor is not likely.

INGESTION HAZARD: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Low hazard for usual industrial handling.

SKIN CONTACT HAZARD: May be absorbed through damaged or abraded skin in harmful amounts. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Prolonged contact is essentially non-irritating to skin. Repeated exposures may cause problems. Negative results have consistently been obtained in guinea pig studies for sensitization. 1,2-Propylene glycol is not considered an occupational skin sensitizer.

EYE CONTACT HAZARD: May cause slight transient injury.

Chronic Exposure Hazards: Exposure to large doses may cause central nervous system depression. Chronic ingestion may cause lactic acidosis and possible seizures. Exposures to propylene glycol having no adverse effects on the mother should have no effect on the fetus. Birth defects are unlikely. In animal studies, propylene glycol has been shown not to interfere with reproduction.

Animal Toxicity:

Draize test, rabbit, eye: 100 mg Mild;

Draize test, rabbit, eye: 500 mg/24H Mild;

Oral, mouse: LD50 = 22 gm/kg;

Oral, mouse: LD50 = 20300 mg/kg;

Oral, rabbit: LD50 = 18500 mg/kg;

Oral, rat: LD50 = 20 gm/kg;

Skin, rabbit: LD50 = 20800 mg/kg;

Skin, rabbit: LD50 = 20800 mg/kg;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: No information available.

Teratogenicity: An expert panel convened by the NTP's Center for the Evaluation of Risks to Human Reproduction concluded on 2/13/03 that developmental and reproductive risks stemming from exposure to the chemical propylene glycol and ethylene glycol are negligible.

Reproductive Effects: When propylene glycol was given at 30 percent in the diet, it affected reproduction in rates in rats. It has generally not affected fertility or reproduction, except at very high doses where effects could be attributed to nutritional deficiency.

Mutagenicity: DNA Inhibition: Subcutaneous, mouse = 8000 mg/kg.; Cytogenetic Analysis: Subcutaneous, mouse = 8000 mg/kg.; Cytogenetic Analysis: Hamster, Fibroblast = 32 gm/L.

Neurotoxicity: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Water flea Daphnia: EC50 > 10000 mg/L; 48 Hr; Unspecified

Bacteria: Phytobacterium phosphoreum: EC50 = 710 mg/L; 30 min; Microtox test

Fish: Goldfish: LC50 > 5000 mg/L; 24 Hr; Unspecified

Fish: Guppy: LC50 > 1000 mg/L; 48 Hr; Unspecified;

Environmental Fate: If released to water, 1,2-propanediol is expected to degrade relatively rapidly via biodegradation. If released to soil, relatively rapid biodegradation should also occur. Significant leaching in soil can be predicted. If released to the atmosphere, it is degraded rapidly by reaction with photochemically produced hydroxyl radicals (typical half-life of 32 hr). Physical removal from air by rainfall is possible. Bioconcentration factor is 0.09.

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

Not regulated for transportation.

15. REGULATORY INFORMATION

US Federal Regulations:

CERCLA Hazardous Substances: CAS# 57-55-6: Does not have a final RQ

SARA Section 302: CAS# 57-55-6: Does not have a TPQ

SARA Codes: CAS# 57-55-6 – none

Section 313: Propylene Glycol (CAS# 57-55-6) is not subject to SARA Title III Section 313 40 CFR 373 reporting requirements.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 57-55-6 is on the following state right-to-know lists: Pennsylvania and New Jersey.

California Prop 65: The product contains no chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Originally Prepared: 6/30/2006

Last Revised: 9/16/2019 – Corrected typographical errors.

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

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