

REC'D AUG 05 2004



Material Safety Data Sheet

MSDS No.: BE130
Variant: United States
Version No: 1.0
Validation Date: 09/07/2001

PROPYLENE GLYCOL INDUSTRIAL

SECTION 1: IDENTIFICATION

Product Name: PROPYLENE GLYCOL INDUSTRIAL

Product Number: 000000000000499202

Chemical Name: 1,2-Propanediol

CAS Number: 57-55-6

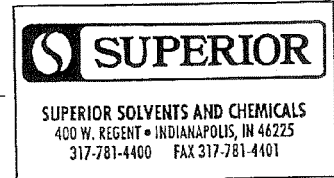
Chemical Family: Glycols

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

Manufacturer: Lyondell Chemical Company
One Houston Center, Suite 1600
1221 McKinney St.
P.O. Box 2583
Houston Texas 77252-2583

Telephone Numbers:
Emergency: CHEMTREC 800 424-9300
LYONDELL 800-245-4532

Non-Emergency CUSTOMER SERVICE
888 777-0232
PRODUCT SAFETY
800 700-0946



SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Component Name:	CAS #.	EU Inventory Number:	Concentration by Wt./Mol%		
			Avg.	Min.	Max.
Propylene Glycol	57-55-6	EINECS 200-338-0		99.0	

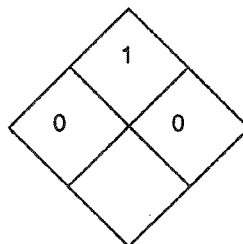
SECTION 3: HAZARD IDENTIFICATION

Emergency Overview This material is NOT HAZARDOUS by OSHA Hazard Communication definition.

Signal Word: Caution.

Hazards: Slight eye irritant.

NFPA



HMIS®

Health	1
Flammability	1
Reactivity	0

Distributed By:
SAL Chemical
3036 Birch Drive
Weirton, WV 26062
304-748-8200



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Physical State: Liquid.
Color: Clear, colorless.
Odor: Little or no odor.

Potential Health Effects

Routes of Exposure: Eye Skin. Inhalation

Signs and Symptoms

of Acute Exposure: See component summary.

- *Propylene Glycol* Slight eye irritant.

Skin: No significant signs or symptoms indicative of any adverse health hazard are expected to occur as a result of skin exposure. Not a skin absorption hazard.

Inhalation: No significant signs or symptoms indicative of any health hazard are expected to occur as a result of inhalation exposure.

Eye: May cause minor eye irritation.

Ingestion: Not a likely route of exposure. No significant signs or symptoms indicative of any health hazard are expected to occur as a result of ingestion.

Chronic Health Effects: See component summary.

- *Propylene Glycol* No chronic health hazards are expected to occur from anticipated conditions of normal use of this material.

Conditions Aggravated by Exposure:

This material or its emissions may aggravate pre-existing eye disease.

SECTION 4: FIRST AID MEASURES

General: After adequate first aid, no further treatment is required unless symptoms reappear.

Inhalation: Not expected to present a significant inhalation hazard under anticipated conditions of normal use. If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain medical attention if breathing difficulty persists.

Eye: Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

Skin: Not expected to present a significant skin hazard under anticipated conditions of normal use. If skin contact occurs, remove contaminated clothing and wash skin thoroughly.

Ingestion: Ingestion unlikely. If large quantity swallowed, give lukewarm water (pint/ 1/2 litre) if victim completely conscious/alert. Obtain medical attention.

Physician's Detoxification Procedures:

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



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SECTION 5: FIRE FIGHTING MEASURES

Flammability Classification: OSHA/NFPA Class IIIB combustible liquid.

Flash Point / Method: ~ 109 °C(228 °F)(PMCC)(Aqueous solution).

Auto-Ignition Temperature: 371 °C (700 °F)

Flammable Limits: LOWER: 2.4 vol%
UPPER: 17.4 vol%

Hazardous Combustion Products:

Incomplete combustion may produce carbon monoxide and other toxic gases.

Special Conditions to Avoid:

Heat from fire can generate flammable vapor. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. May travel long distances along the ground before igniting and flashing back to vapor source. Fine sprays/mists may be combustible at temperatures below 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, if heated sufficiently, will produce flammable vapors. Always drain and flush systems containing propylene glycol with water before welding or other maintenance. Refer to NFPA Code 13 for guidance in using propylene glycol in sprinkler system applications.

Extinguishing Media: Suitable: SMALL FIRE: Use dry chemicals, CO₂, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam.

Unsuitable: Do not use solid water stream.

Fire Fighting Instructions:

Protective Equipment/Clothing: Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters protective clothing will only provide limited protection.

INSTRUCTIONS: Move containers from fire area if you can do it without risk. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Release Response: In case of accidental spill, may contaminate water supplies/pollute public waters. Evacuate/limit access. Equip responders with proper protection. Extinguish ignition sources; stop release; prevent flow to sewers or public waters. Notify fire and environmental authorities. Restrict water use for cleanup. Slippery walking/spread granular cover or soak up. Impound/recover large land spill; soak up small spill with inert solids. Use suitable disposal containers. On water, material is soluble and will disperse rapidly unless contained and collected quickly to minimize dispersion. Report per regulatory requirements.

SECTION 7: HANDLING AND STORAGE



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Handling: Hygroscopic. Handle with care. After handling, always wash hands thoroughly with soap and water. Always drain and flush systems containing propylene glycol with water before welding or other maintenance. Wear recommended personal protective equipment. Observe precautions pertaining to confined space entry.

Storage: Stainless steel containers. Lined steel. Mild steel. Reinforced plastic. Keep drums tightly closed to prevent contamination. Store at 65-90°F. Use dry nitrogen or low dew point air for tank padding.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls: No special ventilation is recommended under anticipated conditions of normal use beyond that needed for normal comfort control.

Personal Protection:

Inhalation: A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. No special respiratory protection is recommended under anticipated conditions of normal use with adequate ventilation.

Skin: Wear chemical resistant gloves such as: 4H(tm)(PE/EVAL). Avoid contact with skin. Where use can result in skin contact, practice good personal hygiene.

Eye: Wear eye protection appropriate to conditions of material use.

Other Hygienic Practices:

Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the tasks(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Recommended Work Practices

Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse.

Occupational Exposure Limits:

Component Name:	Source / Date	Value / Units	Type	Notation	Carcinogenic Listing*
Propylene Glycol	US (ACGIH) / 2001	No occupational exposure limit(s) have been established for this substance.			N/L
	US (OSHA) / 2001	No occupational exposure limit(s) have been established for this substance.			

*1 = OSHA 2 = IARC 3 = NTP 4 = Others NL = Not Listed See Section 11 for more information

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Density: ~ 1,040 kg/m³, @ (25 °C/77 °F)

Specific Gravity: ~ 1.04, @ (25 °C/77 °F), (Water = 1.0 at 4°C (39.2°F))

Vapor: ~ 2.6, @ ~ (15 - 32 °C/60 - 90 °F), (Air = 1.0)



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Boiling Point: ~ 188 °C/370 °F, @ 760 mm Hg **pH:** ~ 7
Vapor Pressure: < 0.1 mm Hg, @ (25 °C /77 °F) **Viscosity:** ~ 46 mPa.s, @ (25 °C/77 °F),
 (Brookfield).
Solubility: **Solubility (Water):**
 Complete (In All Proportions).

Octanol/Water Partition Coefficient in Kow: ~ -0.92 **Melting/Freezing Point:** ~ -60 °C/-76 °F
Dry Point: ~ 190 °C

Other Physical & Chemical Properties: Volatile Characteristics: Slight: 0.1 to 1.0% Hygroscopic. Additional properties may be listed in Sections 3 and 5.

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: This material is stable when properly handled and stored.
Conditions to Avoid: High temperatures, oxidizing conditions.
Incompatibility with: Reacts with strong oxidizing agents.
Decomposition Products: Carbon Monoxide and other toxic vapors.
Hazardous Polymerization: Not expected to occur.
Reactions with Air and Water: Not expected to occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Product Summary: No additional toxicology information is available for this product itself. (See Component Toxicity Information).

Component Summary:
Propylene Glycol

LD50 (Oral)

Rat	20,000 MG/KG
Mouse	22,000 MG/KG



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LD50 (Skin) Rabbit 20,800 MG/KG

SKIN EFFECTS: High concentrations of Propylene Glycol in water when held in contact with human skin under closed conditions have been reported to cause skin irritation (Cosmetics and Toiletries 99:83-91,1984). The authors attribute the observations to a sweat retention reaction by skin. No reactions were observed in open patch tests with human subjects. One literature report indicates rare eczematous skin reactions and even more rarely an allergic skin reaction from exposure to Propylene Glycol (Anderson and Starr, Hautzart 33 (1) 1982).

Target Organ Effects Eye. Skin.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: This material is expected to be non-hazardous to aquatic species.

Toxicity to Fish:/Amphibians

<u>Test type</u>	<u>Species</u>	<u>Value / Units</u>
LC50 / 96 HOURS	sheepshead minnow.	23,800 mg/l

Toxicity to Aquatic Invertebrates:

<u>Test type</u>	<u>Species</u>	<u>Value / Units</u>
EC50 / 48 HOURS	daphnia	> 43,500 mg/l

Toxicity to Aquatic Plants

<u>Test type</u>	<u>Species</u>	<u>Value / Units</u>
EC50 / 72 HOURS	green algae.	> 19,000 mg/l

Environmental Fate: Propylene glycol is expected to degraded rapidly in the vapor phase by reaction with photochemically produced hydroxyl radicals. It has an estimated half-life of 32 hours in an average ambient atmosphere. Propylene glycol is expected to degrade relatively rapidly via biodegradation in water. It is not expected to be susceptible to hydrolysis, oxidation, volatilization, bioconcentration, and adsorption to sediments. Propylene glycol is expected to degrade relatively rapidly via biodegradation in soil. Degradation in soil does not appear to be inhibited by high glycol concentrations or by subfreezing temperatures. Due to its high mobility and low adsorptivity, propylene glycol is susceptible to leaching. However, concurrent biodegradation may be rapid enough to diminish the significance of leaching. Evaporation from dry (but not moist) soil surfaces is likely to occur.

Bioaccumulation: Based on the octanol/water partition coefficient, the bioconcentration factor is estimated to be <1.

Biodegradatlon: This material is expected to be readily biodegradable.

SECTION 13: DISPOSAL CONSIDERATIONS

Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes. Comply with applicable federal, state, and local regulations.

SECTION 14: TRANSPORT INFORMATION



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Proper Shipping Name: Not regulated

UN/NA ID: Not applicable

NAER Guidebook: Not applicable **Marine Pollutant:** No

Labels: Not applicable.

DOT Hazard Class: Not Regulated. **IMDG Hazard Class:** Not Regulated.

ADR/VLG Hazard Class: Not Regulated. **ICAO/IATA Hazard Class:** Not Regulated.

ADNR/VBG Hazard Class: Not Regulated. **RID/VSG Hazard Class:** Not Regulated.

SECTION 15: REGULATORY INFORMATION

Regulatory Advisory: Chemicals with provided CAS numbers in this material are not subject to the reporting requirements of CERCLA.

Regulatory Status: All components of this product are listed or are exempt from listing on the TSCA 8(b) inventory. If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

SARA - Section 313 Emissions Reporting: The material does not contain any chemical components with known CAS numbers that exceed the De Minimis reporting levels established by SARA Title III, Section 313 and 40 CFR 372.

Component Summary: **Reporting Threshold**

SARA - Section 311/312: Based upon available information, this material and/or components are not classified as any of the specific health and/or physical hazards defined by Section 311 & 312.

State Reporting:

- This material is not known to contain any chemicals with known CAS numbers that are currently listed as carcinogens or reproductive toxins under California Proposition 65 at levels which would be subject to the proposition. The Proposition 65 regulatory status of the remaining components of this material for which CAS numbers have not been established, has not been determined.



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- Massachusetts Substances List (MSL) - Extraordinarily hazardous substances must be identified when present in materials at levels greater than state specified criterion. The criterion is $\geq 0.0001\%$. Hazardous Substances (MSL-HS) on the MSL must be identified when present in materials at greater than the state specified criterion. The criterion is $\geq 1\%$. Components with CAS numbers present in this material, at levels specified in Section 2 - Composition do not require reporting under the statute.

- Hazardous Substances listed by the State of Pennsylvania must be identified when present in materials at levels greater than the state specified criterion. The criterion is $\geq 1\%$. Components with CAS numbers in this material at a level which could require reporting under the statute are:

Propylene Glycol / CAS# 57-55-6.

- Special Hazardous Substances listed by the State of Pennsylvania must be identified when present in materials at levels greater than the state specified criterion. The criterion is $\geq 0.01\%$. Components with CAS numbers present in this material, at levels specified in Section 2 - Components, do not require reporting under the statute.

SECTION 16: OTHER INFORMATION

DISCLAIMER OF RESPONSIBILITY:

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Latest Revision(s):

Revised Section(s): 3 4 5

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