

1. PRODUCT NAME: Glycol Ether PNP
2. CHEMICAL NAME: 2-Propanol, 1-Propoxy-
3. SYNONYMS: Propylene Glycol n-Propyl Ether, PNP, Dipropylene Glycol Monopropyl Ether
4. CAS NUMBER: 1569-01-3
5. COMPOSITION: 1-Propoxy-2-Propanol 1569-01-3 - 99.5%
2-Propoxy-1-Propanol 10215-30-2 - 0.5%

IN CASE OF
TRANSPORT EMERGENCY
CONTACT CHEMTREC
USA: 1-800-424-9300
INTERNATIONAL: 1-703-527-3887

6. PROPERTIES: Appearance: Liquid. Clear, colorless.
Odor: Mild odor.
Odor Threshold: No value available.
pH: Not applicable.
Boiling Point/Boiling Range: ~ 150 °C (302 °F) @ 760 mm Hg
Freezing Point/Melting Point: < -70 °C (-94 °F)
Flash Point: ~ 48 °C (118.4 °F) (TCC)
Auto-ignition: No Data Available.
Flammability: OSHA/NFPA Class II combustible liquid.
Lower Flammable Limit: ~ 1.3 vol%
Upper Flammable Limit: ~ 16.9 vol%
Explosive Properties: No Data Available.
Oxidizing Properties: No Data Available.
Vapor Pressure: ~ 1.7 mm Hg @ 20 °C (68 °F)
Evaporation Rate: ~ 0.22 (butyl acetate = 1)
Relative Density: ~ 0.89 @ 20 °C (68 °F) (Water = 1.0 at 4°C (39.2°F))
Relative Vapor Density: ~ 4 @ 15 - 20 °C (59 - 68 °F) (Air = 1.0)
Viscosity: No Data Available.
Solubility (Water): Complete (In All Proportions).
Partition Coefficient (Kow): Log Pow = ~ 0.62
Additional Physical and Chemical Properties: Additional properties may be listed in Sections 3 and 5.

7. HAZARDS: Flammable Liquid. Eye irritant. Skin irritant. Not expected to be a skin absorption hazard.

8. FIRE FIGHTING INFORMATION: Flammable Properties
Classification
OSHA/NFPA Class II combustible liquid.
Flash Point:
~ 48 °C (118.4 °F) (TCC)
Auto-Ignition Temperature
No Data Available.
Lower Flammable Limit
~ 1.3 vol%
Upper Flammable Limit
~ 16.9 vol%
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/may spread fire.



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Protection of Firefighters

Protective Equipment/Clothing: Wear positive pressure self-contained breathing apparatus (SCBA).

Structural firefighters protective clothing will only provide limited protection.

Fire Fighting Guidance: Fine sprays/mists may be combustible at temperatures below normal flash point. When heated above the flash point, releases flammable vapors. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Vapors may be heavier than air. May travel long distances along the ground before igniting and flashing back to vapor source. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. 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.

Hazardous Combustion Products: Thermal decomposition may produce carbon monoxide and other toxic vapors.

9. PERSONAL PROTECTION Engineering Controls

General room or local exhaust ventilation is usually required to meet exposure limit(s).

MEASURES: 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.

Skin: Wear chemical resistant gloves such as: Neoprene. When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn. The equipment must be cleaned thoroughly after each use.

Eye: Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor.

Additional Remarks

Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(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. Use good personal hygiene practices.

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

10. FIRST AID General

PROCEDURES: Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. For specific information refer to the Emergency Overview in Section 3 of this MSDS.

Skin

Promptly remove soiled clothing/wash thoroughly before reuse. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops.

Inhalation

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

Immediately flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower lids. If pain or irritation persists, promptly obtain medical attention.

Ingestion

If large quantity swallowed, give lukewarm water (pint/ 1/2 litre) if victim completely conscious/alert. Do not induce vomiting. Risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.



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Note to Physician

If swallowed, DO NOT INDUCE VOMITING. Gastric lavage and cathartic indicated. Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

11. EXPOSURE Not Listed.
LIMITS:

12. TOXICOLOGICAL Repeated or prolonged skin contact may cause progressive dermatitis and may aggravate pre-existing
INFORMATION: dermatitis.

1-Propoxy-2-Propanol 1569-01-3

Acute Toxicity - Lethal Doses

LD50 (Oral) Rat 2504 MG/KG

LD50 (Skin) Rabbit. 3550 MG/KG

Irritation

Skin Moderate to severe skin irritant. Repeated or prolonged contact with skin may cause dermatitis.

Eye Severe eye irritant.

Sensitization

Not expected to be a sensitizer.

Target Organ Effects

Eye. Respiratory system. CNS depressant. Skin.

Carcinogenicity

Not listed by IARC, NTP, or OSHA.

2-Propoxy-1-Propanol 10215-30-2

Repeated Dose Toxicity

Specific data not available. No known chronic health effects.

Carcinogenicity

Not listed by IARC, NTP, or OSHA.

13. ECOLOGICAL This material is expected to be non-hazardous to aquatic species. See component summary.
INFORMATION: Environmental Fate and Pathway

This material is not volatile but is water soluble. Expected to have high mobility in soils. This material is likely to evaporate from dry soil but not from water. The significance of biodegradation in either soil or water is unknown. Chemical hydrolysis, oxidation, bioaccumulation in aquatic organisms, and adsorption to suspended solids and sediments are not expected to be significant fate processes in water. This material is expected to exist solely as a vapor in the ambient atmosphere.

Vapor-phase is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals.

Persistence and Degradability

Biodegradation: This material is expected to be readily biodegradable. BOD (Closed Bottle Test)= 84 % ThOD (20 day)

Bioaccumulation: This material is not expected to bioaccumulate. BCF = 1.7

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

15. CARCINOGENIC Not listed by IARC, NTP, or OSHA
PROPERTIES &
NOTIFICATIONS:

16. TRANSPORT Special Requirements

INFORMATION: If you reformulate or further process this material, you should consider re-evaluation of the regulatory status of the components listed in the composition section of this sheet, based on final composition of your product.

Proper Shipping Name Flammable liquids, n.o.s. (PROPYLENE GLYCOL N-PROPYL ETHER)
ID No. UN1993
Hazard Class 3
PG III

17. HANDLING & Handling

STORAGE: For industrial use only. Keep container tightly closed when not in use. The potential for peroxide formation is enhanced when these solvents are used in processes such as distillation. Use only non-sparking tools. Properly ground containers before beginning transfer. When transferring propylene glycol ethers with flash points at or below 60 oC (140 oF) into fixed site vessels, the vessel should be purged and inerted prior to transfer. Propylene glycol ethers may be transferred into air atmospheres if the temperature of the product and the ambient temperature within the shipping container are both at least 16.7 oC (30 oF) less than the product's flash point. After loading, nitrogen blanketing is required if the contents of the transportation container could exceed a temperature of 16.7 oC (30 oF) less than the product flash point during any subsequent transportation activities. If the product flash point is less than 16.7 oC (30 oF) above either the ambient temperature of the transportation container or the storage temperature of the product, the container should be purged and inerted with nitrogen prior to loading and nitrogen blanketed after loading. Handle empty containers with care. Flammable/combustible residue remains after emptying. The purging of all empty shipping containers, regardless of the flashpoint, is recommended when received with air atmospheres. Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair. Use adequate personal protective equipment. Observe precautions pertaining to confined space entry.

Storage

Storage under nitrogen atmosphere is recommended to minimize possible formation of highly reactive peroxides. Store only in tightly closed, properly vented containers away from heat, sparks, open flame and strong oxidizing agents. Store in properly lined steel/stainless steel to avoid slight discoloration from mild steel/copper. Some plastics/rubbers are attacked by Glycol Ethers/Ether Esters. This product will absorb water if exposed to air.

18. ACCIDENTAL RELEASE
MEASURES: Extinguish all ignition sources. All equipment used when handling this product must be grounded. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into water-

ways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. Dike large spills and place materials in salvage containers. Water spray may reduce vapor; but may not prevent ignition in closed spaces.

19. REGULATORY SARA 302/304

INFORMATION: No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA.

SARA 311/312

Based upon available information, this material is classified as the following health and/or physical hazards according to

Section 311 & 312:

Immediate (Acute) Health Hazard.

Delayed (Chronic) Health Hazard.

Fire Hazard.

SARA 313

This material does not contain any chemical components with known CAS numbers that exceed the De



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Minimis reporting levels established by SARA Title III, Section 313 and 40 CFR 372.

This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins under California Proposition 65 at levels which would be subject to the proposition.

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:

- Dipropylene Glycol / CAS# 25265-71-8.
- Propylene Glycol / CAS# 57-55-6.