Material Safety Data Sheet
City University of Hong Kong

MSDS 1,2 Propanediol 0313

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PRODUCT INFORMATION
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Chemical Name and Synonyms: 1,2 Propanediol; 1,2-Propylene glycol
Chinese Name: 丙二醇
Chemical Family: Aliphatic dihydric alcohol/glycol
Chemical Formula: C₃H₈O₂
Product Use: Laboratory reagent
CAS No.: 57-55-6

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RISK SYMBOL
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PHYSICAL DATA
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Physical State: Liquid
Odour and Appearance: Colourless, practically odourless, viscous liquid
Odour Threshold (ppm): Not applicable
Vapour Pressure (mm Hg): 0.2 mm Hg at 20 °C
Vapour Density (Air=1): 2.62
Evaporation Rate (butyl acetate = 1): 0.005
Boiling Point (°C): 188 °C
Freezing Point (°C): -60 °C
pH: Not available, probably neutral
Specific Gravity: 1.0381 (20 °C)
Coefficient of Water/Oil distribution: logP (oct) -1.41

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FIRE AND EXPLOSION DATA
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Flammability: Combustible. Can burn if heated sufficiently.
Extinguishing Media:
   Alcohol or polymer foam, CO₂, dry chemical, water spray or fog. Firefighters should wear positive pressure self-contained breathing apparatus and full Bunker gear to enter area.

Flash Point (Method Used): 99 °C/CC
Autoignition Temperature: 371 °C
Upper Flammable Limit (% by volume): 2.6%
Lower Flammable Limit (% by volume): 12.6%
Hazardous Combustion Products: CO, CO₂
Sensitivity to Impact: None
Sensitivity to Static discharge: Not likely to be ignited by static discharge - high flash point.

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REACTIVITY DATA
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Chemical Stability: Stable, hygroscopic, absorbs moisture from air.
Incompatibility with other substances: Oxidizing materials: can increase the risk of fire and explosion.
Reactivity: Stable
Hazardous Decomposition Products: COₓ

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HEALTH HAZARD DATA
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Toxicological Data:
LD₅₀: (oral, rat) 20-33.7 g/kg; (dermal, rabbit) 20.8 g/kg
LC₅₀: Not available
Effects of Acute Exposure to Product:
Inhaled:
Vapour and mist are unlikely to cause adverse effects. No adverse effects reported among humans exposed to 10% mist for 1 hour.

In contact with skin:
May irritate if sealed to skin for a prolonged period by gloves, shoes or tight clothing. Not considered irritating when uncovered.

In contact with eyes:
Undiluted liquid may cause mild irritation, stinging and tearing, temporary congestion of eye tissue. Ingested: May cause irritation of stomach lining.

Effects of Chronic Exposure to Product:
Prolonged or repeated exposure to vapour and mist has not been shown to pose a health hazard in animal testing. Repeated skin contact may cause drying and mild irritation. Propylene glycol is used clinically as a solvent for the administration of medicine. A patient receiving 15-30 ml daily for 4 months experienced no adverse effects.

Carcinogenicity: Not carcinogenic in animal studies; no human information available.
Teratogenicity: Insufficient information available
Reproductive Effects: Insufficient information available
Mutagenicity: Insufficient information available
Synergistic Products: None known

FIRST AID MEASURES

Eyes:
Flush eyes with warm running water for at least ten to fifteen (10-15) minutes, holding eyelids open during flushing. If irritation persists, obtain medical advice.

Skin:
Remove contaminated clothing (including rings, watches, belts, and shoes). Flush exposed area with large amounts of warm running water for at least five to ten (5-10) minutes. If irritation persists, obtain medical advice.

Inhalation: Remove to fresh air. Give oxygen and get medical attention for breathing difficulty.
Ingestion:
Do not induce vomiting. If the casualty is alert and not convulsing, rinse mouth thoroughly and give 1 to 2 glasses of water to drink to dilute the material. If spontaneous vomiting occurs, have casualty lean Forward to avoid breathing in of emesis. Rinse mouth and administer more water. If discomfort occurs, get medical attention.

PREVENTATIVE MEASURES

Engineering Controls: Local exhaust ventilation recommended.
Respiratory Protection:
NIOSH/MSHA approved air-purifying respirator or self-contained breathing apparatus required for high or unknown concentrations, as in fire or spill conditions.

Eye Protection: Chemical safety glasses
Skin Protection: Rubber gloves should be worn. Other protective clothing sufficient to limit contact.
Other Personal Protective Equipment: An eyewash and safety shower should be nearby and ready for use.
Handling Procedures and Equipment:
Follow routine safe handling procedures. Avoid generating mist. Keep away from incompatible materials. Avoid inhalation and contact.

Storage Requirements:
Store in suitable, labelled containers in a cool, dry, well-ventilated area, out of direct sunlight and away from incompatible materials. Keep air out of container. Keep container tightly closed. Protect from damage. Inspect periodically for leaks.

ENVIRONMENTAL PROTECTION DATA

Leak and Spill Procedure:
Ventilate area. Restrict access to area of spill. Cleanup personnel should wear protective equipment and clothing sufficient to prevent inhalation of mist and vapours and contact with skin and eyes. Contain spill with earth, sand or inert absorbent. Collect contaminated material and transfer to steel drums for recovery or disposal. Prevent from entering sewers or waterways. Flush area of spill with copious amounts of water.

Waste Disposal:
All waste materials should be packaged, labelled, transported and disposed of in accordance with federal and local regulations.