SAFETY DATA SHEET: TRIPROPYLENE GLYCOL

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1. IDENTIFICATION

PRODUCT NAME: TRIPROPYLENE GLYCOL

CAS NO; 24800-44-0

SYNONYMS: TPG, (1-METHYL-1,2-ETHANEDIYL) BIS (OXY)) BISPROPANOL

2. HAZARDS IDENTIFICATION

THIS MATERIAL IS NOT HAZARDOUS BY OSHA HAZARD COMMUNICATION DEFINITION

SIGNAL WORD: CAUTION

HAZARDS:
Combustible. Avoid sparks, heat, and open flame. Vapors can travel to a source of ignition and flash back. It is not irritating to the eyes or skin.

Health: 0
Flammability: 1
Physical Hazard: 0

PHYSICAL STATE: Slightly Viscous liquid

COLOR: clear, colorless

ODOR: Little or no odor

ODOR THRESHOLD: No value available

Potential Health Effects
Routes of Exposure
Eye. Skin.

Signs and Symptoms of Acute Exposure
See component summary.

• Tripropylene Glycol 24800-44-0
No eye irritation hazard identified from data available. No skin irritation hazard identified from data available. Ingestion of high doses may cause discomfort and irritation of the gastrointestinal tract and CNS depression (fatigue, dizziness and possibly loss of concentration, with collapse, coma and death in cases of severe over-exposure).

Skin
No significant signs or symptoms indicative of any adverse health hazard are expected to occur as a result of skin exposure.

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

Eye
Non-irritating to the eyes.

Ingestion
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.
• Tripropylene Glycol 24800-44-0
Repeat exposure studies in animals indicate that tripropylene glycol may cause changes in the liver and kidneys during prolonged oral exposures.

Conditions Aggravated by Exposure
No additional information is available on whether overexposure to this material would aggravate other existing special medical conditions.

3. COMPOSITION

COMPONENT NAME: TRIPROPYLENE GLYCOL

CAS NO: 24800-44-0

CONCENTRATION % <=99.0

Compositions given are typical values not specifications

4. FIRST AID MEASURES

General

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 2 of this MSDS. After adequate first aid, no further treatment is required unless symptoms reappear.

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. If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops. Wash clothing before wearing again.

Inhalation
Not expected to present a significant inhalation hazard under anticipated conditions of normal use. If symptoms are experienced, move victim to fresh air. Obtain medical attention if breathing difficulty persists.

Eye
Not expected to present a significant eye contact hazard under anticipated conditions of normal use. Flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

Ingestion
Not expected to present a significant ingestion hazard under anticipated conditions of normal use. However, if ingested, obtain emergency medical attention. Do not induce vomiting.

Note to Physician
No additional medical information found.

5. FIRE FIGHTING MEASURES

Flammable Properties

Classification
OSHA/NFPA Class IIIB combustible liquid.

Flash Point
~ 140 °C (284 °F) (Closed Cup)

Auto-Ignition Temperature
No Data Available.

Lower Flammable Limit
No Data Available.

Upper Flammable Limit
No Data Available.

Extinguishing Media
Suitable:
SMALL FIRE: Use dry chemicals, CO2, or foam LARGE FIRES: water spray water fog or foam

Unsuitable:
Do not use solid water stream/may spread fire.

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:
When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Fine sprays/mists may be combustible at temperatures below normal flash point. 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.

Hazardous Combustion Products:
Thermal decomposition may produce carbon monoxide and other toxic vapors. Acrid fumes of acids and aldehydes may form in fire.
Incomplete combustion may produce carbon monoxide, aldehydes, acrid fumes of acids, and other toxic gases.

6. ACCIDENTAL RELEASE MEASURES

Release Response
Combustible liquid. Liquids/vapors may ignite. Evacuate/limit access. Do not touch or walk through spilled material. Equip responders with proper protection. Slippery walking/spread granular cover or soak up. Stop leak if you can do it without risk. Contain spill with dike to prevent entry into sewers or waterways.

Personal precautions, protective equipment and emergency procedures
Avoid breathing vapors, mist or gas. For personal protection see section 8.

7. HANDLING AND STORAGE

Handling
When normal handling requires heating, do not heat higher than 28°C/50°F below flash point temperature unless in air- free closed system sealed off from the atmosphere. Empty containers should be thoroughly rinsed with copious amounts of clean water. The rinse water can be used for makeup water for any necessary dilution of the concentrated product before use, or it can be properly discarded. Handle empty containers with care - residue can burn if heated.

Storage
Store in tightly closed containers. Store away from heat/moisture/strong oxidizing agents. Material can attack some forms of plastics.

8. EXPOSURE CONTROLS AND PERSONAL PROECTION

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: Neoprene. Protective clothing such as long sleeves or a lab coat should be worn. Where use can result in skin contact, practice good personal hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking, and when leaving work. The equipment must be cleaned thoroughly after each use.

Eye
Safety glasses are required as minimum requirements. Use splash goggles when eye contact due to splashing or spraying liquid is possible.

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.

Occupational Exposure Limits
Consult local authorities for acceptable exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Slightly viscous liquid. Clear, colorless.

Odor: Little or no odor.

Odor Threshold: No value available.

pH: Not applicable
.
Boiling Point/Boiling Range: ~ 268 °C (514.4 °F) @ 760 mm Hg

Freezing Point/Melting Point: ~ -45 °C (-49 °F)

Flash Point: ~ 140 °C (284 °F) (Closed Cup)

Auto-ignition: No Data Available.

Flammability: OSHA/NFPA Class IIIB combustible liquid.

Lower Flammable Limit: No Data Available.

Upper Flammable Limit: No Data Available.

Explosive Properties: No Data Available.

Oxidizing Properties: No Data Available.

Vapor Pressure: < 0.1 mm Hg @ 21 °C (69.8 °F)

Evaporation Rate: No Data Available.

Relative Density: ~ 1.02 @ 15.5 °C (59.9 °F) (Water = 1.0 at 4°C (39.2°F))

Relative Vapor Density: ~ 6.6 @ 15 - 20 °C (59 - 68 °F) (Air = 1.0)

Viscosity: No Data Available.

Solubility (Water): Complete (In All Proportions).

Partition Coefficient (Kow): No Data Available.

Additional Physical and Chemical Properties: Additional properties may be listed in Sections 2 and 5.

10. STABILITY AND REACTIVITY

Chemical Stability
This material is stable when properly handled and stored.

Conditions to Avoid
High temperatures and severe oxidizing conditions.

Substances to Avoid
Strong oxidizing agents.

Decomposition Products
Combustion may produce oxides of carbon and other toxic gases.

Hazardous Polymerization
Not expected to occur.

Reactions with Air and Water
Not expected to occur.

11. TOXICOLOGICAL INFORMATION

Product Summary

This product exhibits a low acute toxicity hazard after exposure via ingestion, skin contact, or inhalation exposure. It is not irritating to the eyes or skin. Repeat exposure studies in animals indicate that tripropylene glycol may cause changes in the liver and kidneys during prolonged oral exposures. This product is not a reproductive toxicant and no embryo or fetal toxicity or developmental effects were observed in rats following oral exposure. This product is not genotoxic in standardized in vitro mutagenicity tests and, based on long-term studies in animals with the structural analogue dipropylene glycol, tripropylene glycol is not expected to be carcinogenic.

COMPONENT INFORMATION
• Tripropylene Glycol 24800-44-0

Acute Toxicity - Lethal Doses
LD50 (Oral) Rat > 2000 MG/KG BWT

LD50 (Skin) Rabbit > 16,300 MG/KG BWT

Acute Toxicity - Effects
Inhalation
Rat inhalation: No deaths from exposure to saturated vapors for 8 hours. This substance is not expected to cause adverse effects by the inhalation route.

Ingestion
This substance is considered nontoxic by the oral route. Ingestion of high doses may cause discomfort and irritation of the gastrointestinal tract and CNS depression (fatigue, dizziness and possibly loss of concentration, with collapse, coma and death in cases of severe over-exposure).

Skin Contact
This substance is considered nontoxic by the dermal route of exposure. There is no data to indicate whether this substance is absorbed through the skin. No adverse systemic effects are anticipated following accidental or incidental skin contact.

Irritation
Skin
Not a skin irritant.

Eye
Liquid is not irritating to the eye.

Sensitization
Specific data not available.

Target Organ Effects
Kidneys. Liver.

Repeated Dose Toxicity
This substance is a low concern to health following prolonged dermal or oral exposures. No effects were observed in a limited study in which rabbits were exposed continuously by the dermal route for 2 weeks. In animals receiving 1000 mg/kg bwt/day tripropylene glycol by the oral route for approximately 7 weeks, the only systemic effect was an increase in liver and kidney weights which was not accompanied by changes in organ structure. Repeated exposure of rats to high oral doses (0.25 to 8% in drinking water) of dipropylene glycol produced reduced survival in males and, in both sexes, lower body weights and increased incidences of spontaneous, age-related changes in the kidney and liver. Histopathological changes were present in nasal epithelium in male and female rats and the salivary gland of male rats. Mice of both sexes exhibited a reduction in body weight, with liver enlargement and liver lesions present, following repeated ingestion of high doses (0.25 to 8% in drinking water) of dipropylene glycol. No repeated inhalation exposure studies are available for tripropylene glycol or dipropylene glycol.

Reproductive Effects
This substance is not expected to be a reproductive toxicant. No adverse effects were seen on reproductive organs of male and female rats in a repeat exposure study in which animals were exposed via the oral route to 1000 mg/kg bwt/day of tripropylene glycol for approximately 7 weeks. There was also no adverse effect on mating, fertility or estrous cycle and on dams during gestation and lactation. Male rats and female mice ingesting multi-gram quantities of dipropylene glycol for 90-days exhibited changes in testis and estrus cycle that appeared secondary to clinical- and systemic toxicity, debilitation and death. Exposure levels of tripropylene glycol or dipropylene glycol which do not cause mortality or significant morbidity are unlikely to affect fertility or reproduction.

Developmental Effects
This substance is not expected to be a developmental toxicant. There was no evidence of fetal toxicity or teratogenicity in the offspring of female rats receiving 1000 mg/kg bwt/day of tripropylene glycol during gestation and studies in pregnant rats and rabbits demonstrate that the analogue dipropylene glycol is also not toxic to the fetus.

Genetic Toxicity
No evidence of genotoxicity was noted for tripropylene glycol or the structural analogue dipropylene glycol in standard bacterial and non-bacterial in vitro and in vivo test systems.

Carcinogenicity
Specific data not available. However, information for the structurally similar chemical dipropylene glycol suggests that tripropylene glycol is not carcinogenic. Long-term exposure (2 year) to dipropylene glycol at up to 4% in drinking water caused no statistically significant increases in tumors in animals. Neither tripropylene glycol nor dipropylene glycol is classified for carcinogenicity by any recognized scientific or regulatory body

12. ECOLOGICAL INFORMATION

Ecotoxicity
Acute toxicity to fish
LC50 / 96 HOURS Oryzias latipes > 1,000 mg/l
Summary: Acute toxicity to fish is very low.

Acute toxicity to aquatic invertebrates
EC50 / 24 HOURS Daphnia magna. > 1,000 mg/l Summary: Low acute toxicity to aquatic invertebrates.

Toxicity to aquatic plants
EC50 / 72 HOURS Selenastrum capricornutum > 1,000 mg/l Summary: Low toxicity to algae.

Toxicity to microorganisms
EC50 / 24 HOURS Activated sludge > 50,000 mg/l Summary: Low toxicity to bacteria.

Chronic toxicity to fish
Summary: No measured data available. Chronic toxicity to fish is expected to be low.

Chronic toxicity to aquatic invertebrates
NOEC / 21 d Daphnia magna. 1,000 mg/l(reproduction test) Summary: Low chronic toxicity to aquatic invertebrates.

Environmental Fate and Pathway
Mobility
Transport between environmental compartments: Volatilization from water or soil surfaces is expected to be limited. Initially partitioning mainly to water and air.

Persistance and Degradability
Biodegradation: Biodegradable (Up to 92% degraded in 28 days). Expected to be hydrolytically stable, but rapidly degraded following atmospheric release.

Bioaccumulation: Significant bioaccumulation is not expected (BCF in 6-week carp test <6).

13. DISPOSAL CONSIDERATIONS

Disposal should be conducted through a facility equipped with and operating an air emission control device in accordance with requirements of applicable Clean Air Act regulations.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components
[(Methylethylene)bis(oxy)]dipropanol CAS-No. 24800-44-0

New Jersey Right To Know Components
[(Methylethylene)bis(oxy)]dipropanol CAS-No: 24800-44-0

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating
Health hazard: 0
Chronic Health Hazard:
Flammability: 1
Physical Hazard 0

NFPA Rating
Health hazard: 0
Fire Hazard: 1
Reactivity Hazard: 0

Further information
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