

TRIETHYLENE GLYCOL

MSDS No. MI0103

Date of Preparation: 5/07

Revision: 6

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: TRIETHYLENE GLYCOL

Chemical Formula: (CH₂OCH₂CH₂OH)₂ (C₆H₁₄O₄)

CAS Number: 112-60-7

Synonyms: Di-beta-hydroxyethoxyethane; 2,2'-Ethylene dioxybis(ethanol); 2,2'-Ethylene dioxydiethanol; Ethylene glycol dihydroxydiethyl ether; Glycol bis(hydroxyethyl) ether; TEG; Triglycol

General Use: Various

Manufacturer: KMCO, LP., 16503 Ramsey Road, Crosby, Texas 77532, Phone (281)328-3501, FAX (281)328-9528

24 HOUR EMERGENCY NUMBER: CHEMTREC 1-800-424-9300

Section 2 - Composition / Information on Hazardous Ingredients

Ingredient Name	CAS Number	% wt or % vol
Triethylene Glycol	112-27-6	95
Tetraethylene Glycol	112-60-7	1
Diethylene Glycol	111-46-6	4

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
Triethylene Glycol	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.
Tetraethylene Glycol	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.
Diethylene Glycol	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.

Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

WARNING! CAUSES EYE IRRITATION. MAY CAUSE SKIN IRRITATION.

CAUTION! PEROXIDE FORMER.

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Potential Health Effects

Acute Effects

Inhalation: Short term harmful health effects are not expected from vapor generated at ambient temperatures. No evidence of short term harmful effects from respirable aerosol based on available information.

Eye: Splashing in eye causes irritation with transitory disturbances of corneal epithelium. However, these effects diminish and no permanent injury is expected. Vapors are non-irritating..

Skin: Prolonged exposure may cause skin irritation.

Ingestion: Abdominal discomfort, nausea and vomiting may occur.

Carcinogenicity: Not Classifiable as a Human Carcinogen

Medical Conditions Aggravated by Long-Term Exposure: A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

Chronic Effects: Exposure to high concentrations of aerosol generated at room temperature may cause lung injury and liver dysfunction.

Section 4 - First Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Skin Contact: Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes. Get medical attention.

Ingestion: If large amounts are swallowed, give water to drink and get medical advice. Never give anything by mouth to an unconscious person. Get medical attention.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Section 5 - Fire-Fighting Measures

Flash Point: 350 °F (176.6 °C)

Flash Point Method: CC

Burning Rate: not available

Autoignition Temperature: 700 °F (371 °C)

LEL: 0.9 % v/v

UEL: 9.2 % v/v

Flammability Classification: Slight fire hazard when exposed to heat or flame.

Extinguishing Media: Dry chemical, foam or carbon dioxide. Water or foam may cause frothing. Water spray may be used to extinguish surrounding fire and cool exposed containers. Water spray will also reduce fume and irritant gases.

Unusual Fire or Explosion Hazards: Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Containers may explode when involved in a fire. LEAKS INTO POROUS INSULATION MATERIAL MAY IGNITE AT TEMPERATURES FAR BELOW PUBLISHED AUTOIGNITION OR IGNITION TEMPERATURES, POTENTIALLY EVEN BELOW THE NORMAL FLASH POINT.

Hazardous Combustion Products: Carbon dioxide and carbon monoxide may form when heated to decomposition. May produce acrid smoke and irritating fumes when heated to decomposition.

Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.



Section 6 - Accidental Release Measures

Spill/Leak Procedures: Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Use non-sparking tools and equipment. Do not flush to sewer.

Small Spills: Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e.g., vermiculite, dry sand), and place in a chemical waste container. Do not use combustible materials, such as saw dust.

Large Spills

Containment: Wear respirator and protective clothing as appropriate. Shut off source of leak if safe to do so. For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.

Cleanup: Contain and recover liquid when possible. Collect liquid in appropriate container. Absorb residue with an inert material. Consult with your environmental department for detailed clean up instructions.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120). CERCLA requires reporting spills and release to soil, water and air in excess of reportable quantities.

Section 7 - Handling and Storage

Handling Precautions: Potential peroxide former. Store away from heat and light. If peroxide formation is suspected, do not open or move container.

Storage Requirements: Store in a cool, dry, ventilated area. Separate from acids and oxidizing materials.

Regulatory Requirements: This product contains the following chemical(s) subject to the reporting requirements of SARA Title III Section 311,312, and 313: none.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Controls should be such that adequate ventilation is provided.

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.

Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance and Odor: Clear, colorless, mild odor

Odor Threshold: not available

Vapor Pressure: <0.01 mm Hg @ 20 C

Vapor Density (Air=1): 5.2

Formula Weight: 150.7

Density: 9.3 lbs/gal @ 20°C

Specific Gravity (H₂O=1, at 4°C): 1.12

pH: 6-9

Water Solubility: soluble

Other Solubilities: alcohols, methyl isosbutyl carbitol

Boiling Point: 285° C (545° F)

Freezing/Melting Point: -5° C (23° F)

Viscosity: 29cP @ 20° C

Refractive Index: 1.447 @ 20° C

Surface Tension: 47 dyne/cm @ 20° C

% Volatile: negligible @ 25°C

Evaporation Rate: not available

Section 10 - Stability and Reactivity

Stability: Stable; however, forms peroxides of unknown stability.

Polymerization: Hazardous polymerization will not occur.

Chemical Incompatibilities: Strong oxidizing agents, strong bases.

Conditions to Avoid: Heat, flames, ignition sources, and incompatibles.

Hazardous Decomposition Products: Carbon dioxide and carbon monoxide may form when heated to decomposition.

Section 11- Toxicological Information

Toxicity Data:*

Eye and Skin Effects: Low hazard for usual industrial handling or commercial handling by trained personnel.

Acute Inhalation Effects: Low hazard for usual industrial handling or commercial handling by trained personnel.

Acute Oral Effects: Expected to be a low ingestion hazard.

Chronic Effects: Exposure to high concentrations of aerosol generated at room temperature may cause lung injury and liver dysfunction.

Carcinogenicity: Not Classifiable as a Human Carcinogen

Teratogenicity: Triethylene glycol has not interfered with reproduction in animal studies.

* See NIOSH, *RTECS* for additional toxicity data.

Section 12 - Ecological Information

Ecotoxicity: This material is expected to be slightly toxic to aquatic life. LC50/96-hour values for fish are between 10 and 100mg/l

Environmental Fate: When released into the soil, this material is expected to readily biodegrade, is expected to leach into groundwater and is not expected to evaporate significantly. When released into the water, this material is expected to readily biodegrade and is not expected to evaporate significantly. When released into the air, this material is expected to be readily degraded, and is expected to have a half-life of less than 1 day.

Environmental Degradation: This material is not expected to bioaccumulate.

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Disposal Regulatory Requirements: Consult current Federal, state and local regulations.

Container Cleaning and Disposal: Dispose of container and unused contents in accordance with federal, state, and local requirements.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name:

Triethylene Glycol

Hazard Class:

ID No.:

Packing Group:

Label:

Special Provisions (172.102):

none

Shipping Symbols: N/A

Hazard Class: Non-hazardous

liquid

ID No.: N/A

Packing Group: N/A

Label: N/A

Special Provisions (172.102):

N/A

Packaging Authorizations

a) Exceptions: 173.155

b) Non-bulk Packaging: 173.203

c) Bulk Packaging: 173.241

Quantity Limitations

a) Passenger, Aircraft, or Railcar: none

b) Cargo Aircraft Only: none

Vessel Stowage Requirements

a) Vessel Stowage: Category A

b) Other: none

Section 15 - Regulatory Information

EPA SARA 311/312 HAZARD CLASSIFICATION: None

EPA SARA 313: This product contains the following chemicals subject to Annual Release Reporting Requirements under

SARA Title III, Section 313 (40 CFR 372): none

PROTECTION OF STRATOSPHERIC OZONE: This product is not known to contain or to have been manufactured with ozone depleting substances as defined in 40 CFR Part 82, appendix A to Subpart A.

CERCLA SECTION 103: No RQ listed for this product. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulation.

CALIFORNIA PROPOSITION 65: This product may contain the following substances known to the State of California to cause cancer and/or reproductive harm: 1,4-Dioxane (trace amount).

EPA TSCA INVENTORY: All of the components of this material are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.

CANADIAN ENVIRONMENTAL PROTECTION ACT: All of the ingredients are listed on the Canadian Domestic Substances List.

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES (EINECS): All of the ingredients are listed on the EINECS inventory.

Section 16 - Other Information

Prepared By: KMCO, LP.

Revision Notes: All sections revised as part of conversion to 16 Section format.

Additional Hazard Rating Systems: none

Disclaimer: This product is FOR INDUSTRIAL USE ONLY. KEEP OUT OF REACH OF CHILDREN. DO NOT TAKE INTERNALLY.

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