

Material Safety Data Sheet

Mono Ethylene Glycol



1. CHEMICAL PRODUCT and EMERGENCY TELEPHONE C

Product Name: Mono Ethylene Glycol
Formula: $C_2H_6O_2$
EMERGENCY TELEPHONE NUMBER: 0491-2566889

2. COMPOSITION/INFORMATION ON INGREDIENTS

Name	% by Weight
ethanediol	$\geq 99.99\%$
2,2'-oxydiethanol	0.01%

3. HAZARDS IDENTIFICATION EMERGENCY OVERVIEW

Potential Acute Health Effects: Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects: Hazardous in case of skin contact (irritant), of ingestion, of inhalation. **CARCINOGENIC EFFECTS:** Not available. **MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance may be toxic to kidneys, mucous membranes, skin, teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated p. 2 or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

POTENTIAL HEALTH EFFECTS

Primary Routes of Entry: Inhalation, skin contact/absorption, eye contact, and ingestion.

General Acute Exposure: Liquid, mist, or vapours can cause eye, skin, and respiratory tract irritation and Central Nervous System (CNS) depression.

Inhalation:

Acute Exposure: Short-term exposure to high concentrations may cause CNS depression. Symptoms may include headache, weakness, drowsiness, light-headedness, nausea, difficult breathing, drunkenness, eye irritation, blurred vision, blindness, loss of consciousness, vertigo, fatigue, convulsions, and possibly death, depending on exposure. Victims may improve and then get worse again up to 30 hours later.

Skin:

Acute Contact: Upon prolonged or repeated contact, absorption through the skin may occur and produce toxic effects similar to those resulting from inhalation exposure. Repeated or prolonged skin contact may cause drying, cracking, and inflammation of the skin due to the defatting action of the product.

Eye:

Acute Contact: Eye irritation may occur upon short-term exposure, including a burning sensation, tearing, redness, or swelling. Upon direct contact with liquid, conjunctivitis and corneal burns may occur. The primary toxic effect is exerted upon the nervous system, particularly the optic nerves and possibly the retina. The condition can progress to permanent blindness.

Ingestion: Ingestion may cause serious poisoning with effects similar to those of inhalation and absorption through the skin. Toxic effects are more common after ingestion. Death from as little as one ounce has been reported.

Neurologic:

Acute Exposure: Central Nervous System (CNS) depression may occur upon exposure.

Summary of Chronic Exposure: It is slowly eliminated from the body; hence repeated exposures may result in toxic levels in the blood and tissues. Due to its slow elimination, it should be regarded as a cumulative poison. Though single exposures to fumes may cause no harmful effect, daily exposure may result in the accumulation of sufficient amount in the body to cause illness.

Note to the Physician: Coma resulting from massive exposures may last as long as 2-4 days. In the body, products formed by its oxidation are formaldehyde and formic acid.

Medical Conditions Aggravated by Exposure: Personnel with pre-existing CNS disease, skin disorders, impaired liver or kidney function, GI tract disorders or chronic respiratory diseases should avoid exposure.

4. FIRST AID MEASURES

First Aid for Eyes: Immediately flush eyes with copious amounts of tepid water for at least 15 minutes. The patient should be seen in a health care facility and referral to an ophthalmologist considered.

First Aid for Skin: Immediately flush exposed area with copious amounts of tepid water for at least 15 minutes while removing contaminated clothing and shoes, followed by washing area thoroughly with soap and water. The patient should be seen in a health care facility if irritation or pain persists or if symptoms of toxicity develop. Wash contaminated clothing and shoes before reuse.

First Aid for Inhalation: Move patient to fresh air and keep warm and at rest. Monitor for respiratory distress. If difficulty in breathing develops or if breathing has stopped, administer artificial respiration and seek medical attention. If trained to do so administer supplemental oxygen with assisted ventilation as required. Caution: Administration of mouth-to-mouth resuscitation may expose the first aid provider to chemical within the victim's lungs or vomit.

First Aid for Ingestion: If patient is conscious, immediately give two glasses of water and induce vomiting. Do not make an unconscious person vomit. Get medical attention immediately.

5. FIRE FIGHTING MEASURES

Hazards from the substance or mixture: In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products: Decomposition products may include the following materials: carbon dioxide and carbon monoxide

Special protective actions for fire-fighting: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Specific protective equipment for fire-fighting: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Measures: Stop leak if you can do it without risk. Keep unnecessary people away and deny entry. Isolate spill or leak area immediately for at least 330 to 660 feet in all directions. Stay upwind, out of low areas, and ventilate closed spaces before entering. Eliminate all ignition sources. Do not touch or walk through spilled material. Prevent entry of product into waterways, sewers, basements, or confined spaces. A vapour suppressing foam may be used to reduce vapours. All equipment used when handling the product must be grounded and/or spark resistant. Water spray may

reduce vapours but may not prevent ignition in closed spaces. Fully encapsulating, vapour protective clothing should be worn for spills and leaks with no fire.

Determining Spill Size: Generally, a small spill is one that involves a single, small package (i.e. up to a 55 gallon drum), small cylinder, or a small (non-continuing) leak from a large container.

Large Spill:

- a. Dike far ahead of liquid spill for later disposal.
- b. Follow local emergency protocol for handling.
- c. Water spray may reduce vapor; but may not prevent ignition in closed spaces.

Small Spill:

- a. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
- b. Use clean non-sparking tools to collect absorbed material.

7. HANDLING AND STORAGE

Precautions for safe handling

Recommendations shall be specified to:

- (a) allow safe handling of the substance such as containment and measures to prevent fire as well as aerosol and dust generation;
- (b) prevent handling of incompatible substances or mixtures; and
- (c) reduce the release of the substance or mixture to the environment, such as avoiding spills or keeping away from drains.

Advice on general occupational hygiene shall be provided, such as:

- (a) not to eat, drink, and smoke in work areas;
- (b) to wash hands after use; and
- (c) to remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities

- (a) store in accordance with local regulations;
- (b) store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink;
- (c) keep container tightly closed and sealed until ready for use;
- (d) containers that have been opened must be carefully resealed and kept upright to prevent leakage;
- (e) do not store in unlabelled containers; and
- (f) use appropriate containment to avoid environmental contamination

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Skin Protection Requirements: Equipment should prevent repeated or prolonged skin contact with the product. This may include rubber boots, resistant gloves, and other impervious and resistant clothing. Compatible materials may include butyl rubber, natural rubber, neoprene, nitrile rubber, viton and others. Review the equipment manufacture's compatibility data.

Eye Protection Requirements: Use chemical (indirectly vented) goggles when there is a potential for contact with product, including vapour. A full-face shield may be worn over goggles for additional protection, but not as a substitute for goggles.

Other Protective Equipment: Safety shower and eyewash fountain should be provided. Proper fire extinguishment equipment must be kept in the handling area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquid
Melting Point	-13°C
Odour	Odourless
Odour threshold	Not available
pH	Not available
Initial boiling point and boiling range:	197.4°C at 1013 hPa
Relative density (Water=1)	1.11

Vapour Pressure:

0.123 hPa at 25°C

10. REACTIVITY

Reactivity No specific test data related to reactivity available for this product or its ingredients.

Chemical stability The product is stable.

Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid Keep away from heat, sparks and flame.

Incompatible materials Oxidizing agents

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced. The substance will burn to carbon oxides.

11. TOXICOLOGICAL INFORMATION

Product/ingredient name	Species	Result	Dose	Exposure
ethanediol	Rat (COBS CD (SD)BR)	LC50 Inhalation	>2.5 mg/l	6 hours
ethanediol	(male/female)	Vapour		6 hours
ethanediol	Mouse (CD-1) male/female	LD50 Dermal	>3500 mg/kg bw	6 hours
ethanediol	Rat (Sprague-Dawley) (male/female)	LD50 Oral	7712 mg/kg bw	6 hours

Conclusion/summary: No relevant human information is available

12. ECOLOGICAL INFORMATION

Product/ingredient name	Result	Species	Exposure
ethanediol	EC50 6500 to 13000 mg/l	Aquatic plants - Pseudokirchnerella subcapitata	96 hours
ethanediol	Acute EC50 >100 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
ethanediol	Acute LC50 72860 mg/l Fresh water	Fish - Pimephales promelas	96 hours

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations

14. TRANSPORTATION INFORMATION

Not classified as dangerous in the meaning of transport regulation

15. REGULATORY INFORMATION

UK REGULATORY REFERENCES

The Control of Substances Hazardous to Health Regulations 1988.

Health and Safety at Work Act 1974.

The Chemical (Hazard Information and Packaging for Supply Regulations) 1993 amended & 2002. CDG Road,

The Classification, Packaging and Labelling Regulations 1996.

EU DIRECTIVES

Dangerous Substance Directive 67/548/EEC.

Dangerous Preparations Directive 1999/45/EC.

16. OTHER INFORMATION

Preparation Date : 22-06-2015

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Disclaimer: The information above is believed to be accurate and represents the best information currently available to us. Users should make their own investigations to determine the suitability of the information for their particular purposes. This document is intended as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.