

**SAFETY DATA SHEET**Ethylene Glycol
Revised March 2015**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name: Ethylene glycol
CAS-No.: 107-21-1
General use: Solvent

Company info: **HELM U.S. CORPORATION**
1110 Centennial Ave.
Piscataway, NJ 08854
Tel: 732-981-1116
Fax: 732-981-0528
Website: www.helmus.com

Emergency response (CHEM TEL): 1 (800) 255-3924

SECTION 2. HAZARDS IDENTIFICATION

Physical state: Liquid
Odor: Odorless
OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS Label elements

Hazard pictograms:



Signal word: Warning
Hazard statements: Harmful if swallowed.
Causes eye irritation.
May cause damage to organs. (central nervous system (CNS), kidneys)
May cause damage to organs through prolonged or repeated exposure. (central nervous system (CNS), kidneys, liver)

Emergency overview

DANGER! MAY BE FATAL IF SWALLOWED. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. BIRTH DEFECT HAZARD – CONTAINS MATERIAL WHICH CAN CAUSE BIRTH DEFECTS. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. THIS PRODUCT IS NOT TO BE USED IN FOOD, DRUG, COSMETIC, OR POTABLE WATER APPLICATIONS. THIS PRODUCT IS NOT TO BE USED TO PRODUCE FOGS OR MISTS IN THEATRICAL, MUSICAL, OR OTHER ENTERTAINMENT PERFORMANCES. Very toxic if swallowed. Slightly irritating to the eyes, skin and respiratory system. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get on skin or clothing. Avoid contact with eyes. Contains material that may cause target organ damage, based on animal data. Contains material which can cause birth defects. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Aspiration hazard if swallowed. Can enter lungs and cause damage.

General information: Read the entire MSDS for a more thorough evaluation of the hazards.

**SAFETY DATA SHEET**Ethylene Glycol
Revised March 2015**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS-No.	Concentration
Ethylene glycol	107-21-1	60-100%

SECTION 4. FIRST AID MEASURES**Inhalation**

Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Remove affected person from the immediate area. Ensure supply of fresh air. Irregular breathing/no breathing: artificial respiration. Summon a doctor immediately.

Skin Contact

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse. Wash immediately with plenty of water for several minutes. Seek medical attention.

Eye Contact

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs. Separate eyelids; wash the eye thoroughly with water (15 min.). Eye treatment by an oculist.

Ingestion

Get medical attention immediately. Wash out mouth with water. Move exposed person to fresh air. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. Never give anything by mouth to an unconscious person. Do not induce vomiting. Rinse out mouth and give plenty of water to drink. Summon a doctor immediately. Never give anything by mouth to an unconscious person.

Notes to physician

Treatment with ethyl alcohol is indicated if toxic ingestion is suspected or if there is metabolic acidosis following ingestion of this product. Administer ethyl alcohol sufficient to maintain blood ethyl alcohol levels of above 100 mg/dL. 4-Methylpyrazole (Fomepizole, Antizole) is also a recognized antidote for this product.

SECTION 5. FIREFIGHTING MEASURES

Flash point:	Closed cup: 111.1°C (232°F)
Flammable limits:	Lower: 3.2% Upper: 15.3%
Products of combustion:	Decomposition products may include the following materials: carbon dioxide carbon monoxide

Extinguishing media

Suitable:	Use an extinguishing agent suitable for the surrounding fire.
Not-suitable:	None known.

Special exposure hazards



SAFETY DATA SHEET

Ethylene Glycol
Revised March 2015

In a fire or if heated, a pressure increase will occur and the container may burst. 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.

Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Clean-up methods

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

SECTION 7. HANDLING AND STORAGE

Handling

Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Product name

Ethylene glycol

Exposure limits

ACGIH TLV (United States, 1/2007).

C: 100 mg/m³ 0 hour(s). Form: Aerosol

OSHA PEL 1989 (United States, 3/1989).

CEIL: 125 mg/m³ 0 hour(s).

CEIL: 50 ppm 0 hour(s).

Consult local authorities for acceptable exposure limits.

**SAFETY DATA SHEET**Ethylene Glycol
Revised March 2015**Preventive measures**

Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

Engineer controls

Use local exhaust ventilation to maintain airborne concentrations below the TLV. Suitable respiratory equipment should be used in cases of insufficient ventilation or where operational procedures demand it. For guidance on engineering control measures refer to publications such as the ACGIH current edition of 'Industrial Ventilation, a manual of Recommended Practice.'

Personal protection**Eyes**

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**General information****Appearance**

Physical state: Liquid
Color: Colorless
Odor: Odorless
Odor threshold: Not available

Important health, safety and environmental information

pH: 6.5
Boiling point: 197.6°C (387.7°F)
Melting point: -13°C (8.6°F)
Flash point: Closed cup: 111.1°C (232°F)
Oxidizing properties: Not available
Vapor pressure: <0.013 kPa (<0.1 mm Hg)
Relative density: 1.1
Solubility: Easily soluble in the following materials: cold water, methanol and acetone.
Very slightly soluble in the following materials: diethyl ether.

Octanol/water partition

Coefficient (log Kow): -1.36
Viscosity: Kinematic: 0.187 cm²/s (18.7 cSt at 20°C)
Vapor density: 2.2 [Air = 1]
Auto-ignition temp.: 398°C (748.4°F)
VOC content: 100 (%)

**SAFETY DATA SHEET**Ethylene Glycol
Revised March 2015**SECTION 10. STABILITY AND REACTIVITY**

Stability and reactivity: The product is stable

Incompatibility with various substances: Reactive or incompatible with the following materials: oxidizing materials.

Hazardous polymerization: Under normal conditions of storage and use, hazardous polymerization will not occur.

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

SECTION 11. TOXICOLOGICAL INFORMATION**Toxicity data****Acute toxicity**

Product/ingredient name	Test	Species	Result	Exposure
Ethylene glycol	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>4000 mg/kg	-

Chronic toxicity

Product/ingredient name	Test	Species	Result	Exposure
Ethylene glycol	Sub-chronic NOAEL Oral	Rat - Male, female	150 mg/kg/d	16 weeks
	Chronic NOAEL Oral	Rat - Male, female	200 mg/kg/d	24 weeks
	Chronic NOAEL Oral	Mouse - Male, female	1500 mg/kg/d	103 weeks

Conclusion/Summary: Ethylene glycol: Repeated exposure may produce adverse effects on the central nervous system, liver and kidneys.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Ethylene glycol	Positive-Oral	Rat - Male, female	500 mg/kg	-
	Positive-Oral	Mouse - Male, female	500 mg/kg	-
	Negative-Dermal	Mouse - Male, female	>3549 mg/kg	-
	Negative-Oral	Rabbit - Male, female	>2000 mg/kg	-

Conclusion/Summary: Ethylene glycol: There is no direct evidence to suggest that ethylene glycol produces birth defects in humans under normal conditions of use and exposure. Ethylene glycol has caused teratogenic and fetotoxic effects in rats and mice following the administration of high doses in drinking water or by gavage even in the absence of maternal toxicity.

Potential acute health effects

Ingestion: Very toxic if swallowed. Aspiration hazard if swallowed. Can enter lungs and cause damage.

Inhalation: Slightly irritating to the respiratory system.

Eyes: Slightly irritating to the eyes.

Skin: Slightly irritating to the skin.

Potential chronic health effects

Chronic effects: Contains material that may cause target organ damage, based on animal data.

Target organs: Contains material which may cause damage to the following organs: kidneys, liver, bladder.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: Contains material which can cause birth defects.



SAFETY DATA SHEET

Ethylene Glycol
Revised March 2015

Fertility effects: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.

SECTION 12. ECOLOGICAL INFORMATION

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
Ethylene glycol	-	Acute LC50 8050 mg/L Fresh water	Fish	96 hours

Biodegradability

Product/ingredient name	Test	Result	Dose	Inoculum
Ethylene glycol	-	>60% - Readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Ethylene glycol	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Ethylene glycol	-1.36	-	low

Environmental effects: Readily biodegradable. This product shows a low bioaccumulation potential.

SECTION 13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any byproducts should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14. TRANSPORT INFORMATION

EMERGENCY RESPONSE (CHEM TEL): 1 (800) 255-3924

Regulatory Information	UN Number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	UN 3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Ethylene glycol)	9	III		Reportable quantity: 5,000 lbs (2,270 kg). Only regulated in bulk.
TDG Classification	Not regulated					
IMDG Class	Not regulated					
IATA-DGR Class	Not regulated					

PG*: Packing group

The transport regulations may change in the different countries. Check for the appropriate regulations in the country of transport or usage of this product.



SAFETY DATA SHEET

Ethylene Glycol
Revised March 2015

SECTION 15. REGULATORY INFORMATION

United States

HCS Classification:

Highly toxic material; Target organ effects

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.

CERCLA: Hazardous substances

Components	Concentration	Section 304 CERCLA hazardous substance	CERCLA reportable quantity	Product reportable quantity
Ethylene glycol	99.70%	Listed	5000	5015

Release of more than any reportable quantity to the environment in a 24 hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675).

This product does not contain nor is it manufactured with ozone depleting substances.

SARA 313

Form R – Reporting requirements:

California Prop 65:

Product name

Ethylene Glycol
No ingredients listed

CAS number

107-21-1

Concentration

99.7%

Canada

WHMIS (Canada):

CEPA (DSL):

Class D-2A: Material causing other toxic effects (Very toxic).

All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS (Material Safety Data Sheet) contains all the information required by the CPR.

SECTION 16. OTHER INFORMATION

Label requirements

MAY BE FATAL IF SWALLOWED. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. BIRTH DEFECT HAZARD – CONTAINS MATERIAL WHICH CAN CAUSE BIRTH DEFECTS. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. THIS PRODUCT IS NOT TO BE USED IN FOOD, DRUG, COSMETIC, OR POTABLE WATER APPLICATIONS. THIS PRODUCT IS NOT TO BE USED TO PRODUCE FOGS OR MISTS IN THEATRICAL, MUSICAL, OR OTHER ENTERTAINMENT PERFORMANCES.

Hazardous Material Information System (U.S.A.):

Health	*	2
Fire hazard		1
Reactivity		0

National Fire Protection Association (U.S.A.):

Health	2
Flammability	1
Instability	0

Notice to reader:

The information is based on our current knowledge however it does not represent a guarantee of product properties nor does it create any legal obligation.

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