Safety Data Sheet

Ethylene Glycol

SECTION 1: Identification

1.1 GHS Product identifier

Product name	Ethylene Glycol

1.2 Other means of identification

Monoethylene Glycol, 1,2-Dihydroxyethane, 1,2-Ethanediol, Ethylene Dihydrate

1.3 Recommended use of the chemical and restrictions on use

For laboratory and manufacturing use only.

1.4 Supplier's details

Name	High Purity Products
Address	14546 N. Lombard Street Portland OR 97203 United States of America
Telephone	503-227-1616
email	help.desk@highpp.com

1.5 Emergency phone number

CHEMTREC: 1-800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200)

- Acute Toxicity (oral), Cat. 4
- Specific target organ toxicity (Repeated exposure), Cat. 2

2.2 GHS label elements, including precautionary statements

Pictogram

Signal word	**Warning**
Hazard statement(s)target	
H302	Harmful if swallowed
H371	May cause damage to organs [Kidneys] through (ingestion)
Precautionary statement(s)	
P234	Keep only in original packaging.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P624	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT Induce vomiting.
P312	Call a POISON CENTER if you feel unwell.
P330	Rinse mouth.
P405	Store locked up.

SECTION 3: Composition/information on ingredients

3.1 Mixture

Constituents	CAS Number	Concentration (Weight)
1,2-Ethanediol	107-21-1	98-100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled	Remove from exposure to fresh air. If not breathing or if breathing is difficult, oxygen should be administered by qualified personnel. Get medical aid if symptoms persist.
In case of skin contact	Remove contaminated clothing/shoes. Wipe off excess material from exposed area. Flush with large amounts of water for at least 15 minutes, by the clock, and follow by washing with soap, if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment. Do not reuse clothing until cleaned.
In case of eye contact	Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Get medical attention. Contact lenses should never be worn when working with this chemical.
If swallowed	Do not give liquids if victim is unconscious or drowsy. Otherwise, give 2 glasses of water (16 oz.) and immediately call physician. Induce vomiting as directed by medical personnel. Keep victim's head below hips while vomiting. Small amounts entering mouth should be rinsed out for 5 minutes.

Most important symptoms and effects, both acute and delayed
Acute effects: Redness of the skin or eyes. Repeated excessive exposures may cause severe kidney and also liver and gastrointestinal effects. Signs and symptoms of excessive exposure may be central nervous system effects. Signs and symptoms of excessive exposure may be nausea and/or vomiting. Signs and symptoms of excessive exposure may be anesthetic or narcotic effects. Observations in animals include formation of bladder stones after repeated oral doses of ethylene glycol. Reports of kidney failure and death in burn patients suggest the ethylene glycol may have been a factor. The use of topical applications containing this material may not be appropriate in severely burned patients or individuals with impaired renal function.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Use water fog, "alcohol" foam, dry chemical, or CO2. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream. May spread fire.

5.2 Specific hazards arising from the chemical
Carbon monoxide and unidentified organic compounds may be formed during combustion. No fire and explosion hazards expected under normal storage and handling conditions (i.e. ambient temperatures). However, ethylene glycol or solutions of ethylene glycol and water can form flammable vapors with air if heated sufficiently. Keep people away. Isolate fire area and deny unnecessary entry.

5.3 Special protective actions for fire-fighters
Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Small spill: Remove all sources of ignition and provide ventilation. Wear protective equipment as given in section 8. Absorb small spills with inert material (clay, sand). Prevent contamination of surface waters.

Large spill:
Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing personal protective equipment should be excluded from area of spill until clean-up has been completed. Shut off source of leak if safe to do so. Dike and contain spill. Prevent from entering drains, sewers, streams or other bodies of water. If runoff occurs, notify authorities as required. Remove with vacuum trucks or pump into clean storage/salvage vessels for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for proper disposal.

SECTION 7: Handling and storage

7.1 General procedures:
Product on surfaces can cause slippery conditions. Practice reasonable care and cleanliness. Avoid breathing spray mists if generated. Keep out of reach of children. Product may become a solid at temperatures below minus 8 degrees F. Do not store near food, foodstuffs, drugs or potable water supplies.

7.2 Precautions for safe handling:
Avoid contact with skin and eyes. Do not inhale vapors. Keep away from heat and open flame. Wash thoroughly with soap and water after handling. Store tightly closed containers in cool, dry place. Use inert gas blanket.

Comments:
KEEP OUT OF REACH OF CHILDREN! Empty containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks static electricity, or other sources of ignition; they may explode and cause injury or death. Observe all federal, state, and local regulations and National Fire Protection Association (NFPA) Codes with pertain to the specific local conditions of stage and use, including OSHA 29 CFR 1910.106 and NFPA 30, 70, 77, and 497.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Constituents	CAS Number	OSHA TWA
1,2-Ethanediol	107-21-1	No Exposure Limit

8.2 Individual protection measures, such as personal protective equipment (PPE)

Pictograms

Personal Protective Equipment

Eyes and Face: Use chemical safety goggles and full face shield where splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work areas.

Skin: Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

Respiratory: Use in a well-ventilated area. Wear a NIOSH approved respirator appropriate for airborne exposure at the point of use.

Other use precautions: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid
Appearance	Syrupy
Color	Colorless
Odor	Mild odor
Odor threshold	No data available.
pH	N/A
Melting point/freezing point	-12.778 °C
Boiling point or initial boiling point and boiling range	197.778°C
Flash point	232° F
Evaporation rate	No data available.
Lower explosion limit / flammability limit	3.2%
Upper explosion limit / flammability limit	15.3%
Vapor Pressure	0.06 mmHg
Relative vapor density	Heavier than Air
Density and/or relative density	1.11
Solubility	Miscible
Auto-ignition temperature	748°F
Decomposition temperature	No data available.
Kinematic viscosity	No data available.
Explosive properties	No data available.
Particle characteristics	No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials
Isolate from strong oxidizers such as permanganates, chromates and peroxides.

10.6 Hazardous decomposition products
Carbon monoxide, carbon dioxide, nitrogen oxides and unidentified organic compounds may be formed during combustion.

SECTION 11: Toxicological information

Information on toxicological effects

Acute Toxicity
Ethylene Glycol:
LD50 – dermal – rabbit – 9530 mg/kg
LD50 – oral – rat – 5840 mg/kg

Skin corrosion/irritation
May cause skin irritation.

Serious eye damage/irritation
Causes serious eye irritation.

Germ cell mutagenicity
Results of in vitro ("test tube") mutagencity studies have been negative for ethylene glycol. Animal mutagenicity studies were negative.

Carcinogenicity
Not classifiable as a human carcinogen.

Reproductive toxicity
Only at high doses.

STOT-single exposure
Yes

STOT-repeated exposure
Oral - May cause damage to organs through prolonged or repeated exposure. - Kidney

Aspiration hazard
No data available.

SECTION 12: Ecological information

Toxicity

Ethylene glycol:
LC50; Species: Xenopus laevis (African Clawed Frog) age 3-4 wk; Conditions: freshwater, static, 20 °C; Concentration: 326000 ug/L for 48 hr

Persistence and degradability
When released into water, ethylene glycol will readily biodegrade (half-life several days.). Ethylene glycol would not be expected to absorb to sediment or volatize.

Bioaccumulative potential
Expected to be low.

Mobility in soil
Ethylene glycol is expected to have very high mobility with the soil.

SECTION 13: Disposal considerations

Product disposal
Product disposal Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies, if necessary, before disposing of waste product container or residue.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

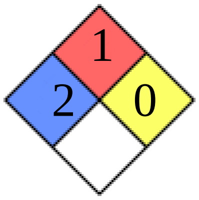
CERCLA RQ Hazardous Substances
Ethylene Glycol: 5,000 lbs

EPCRA Section 313 Toxic chemicals
Ethylene Glycol

HMIS Rating

Ethylene Glycol	
HEALTH	2
FLAMMABILITY	1
PHYSICAL HAZARD	0
PERSONAL PROTECTION	B

NFPA Rating



SECTION 16: Other information

Disclaimer:

****

High Purity Products provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. High Purity Products MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, High Purity Products WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

****