

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name: Ethylene Glycol

SDS number: EG00

Synonym(s): 1,2-Ethanediol; Ethylene Alcohol; Ethylene Dihydrate; Glycol; Glycol Alcohol; 2-Hydroxyethanol

1.2 Relevant identified uses of the substance or mixture and uses advised against

General Use: None specified

Uses advised against: None known

1.3 Details of the supplier and of the safety data sheet

Manufacturer/Distributor

SolvChem, Inc.

1904 Mykawa Road

Pearland, TX 77581-3210 USA

1-281-485-5377

1.4 Emergency telephone number

CHEMTREC: 1-800-424-9300 (USA)

CANUTEC: 1-613-996-6666 (Canada)

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Product definition: Substance

Classification in accordance with 29 CFR 1910 (OSHA HCS) and Regulation EC No. 1272/2008

Acute Toxicity, Oral - Category 4 [H302]

Single Target Organ Toxicity, Repeated Exposure - Category 2; STOT RE 2 [H373]

2.2 Label elements

Hazard symbol(s):



GHS07

Signal word: Warning

Hazard statement(s): H302 - Harmful if swallowed

H373 - May cause damage to the kidneys through prolonged and repeated exposure by swallowing

Precautionary statements:

[Prevention]

P260 - Do not breathe fumes, mist and vapor.

P264 - Wash hands and exposed skin areas thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

[Response]

P312 - Call a POISON CENTER or a doctor if you feel unwell.

[Disposal]

P501 - Dispose of contents and containers in accordance with national and local regulations.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

None known

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

% by Weight	Ingredient	CAS Number	EC Number	Index Number	GHS Classification
<99.5	Ethylene Glycol	107-21-1	203-473-1	603-027-00-1	H302, H373

There are no additional ingredients present in this product which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

3.2 Mixtures

Not applicable

SECTION 4 - FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: If product mist or vapor causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. If unconscious, maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If symptoms persist or if the victim feels unwell, seek medical attention.

NO SMOKING. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator. Open containers slowly to control possible pressure release. Wash contaminated clothing and shoes thoroughly before reuse.

Advice on protection against fire and explosion

Avoid exposure to sources of ignition and hot surfaces.

7.2 Conditions for safe storage, including any incompatibilities

Store in dry, cool, well-ventilated areas away from incompatible materials (see Section 10.5), food and drink. Keep away from heat and ignition sources. Transfer only to approved containers having correct labeling. Keep containers tightly closed when not in use. Protect containers against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Containers are hazardous when empty as they contain product residue. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Do not take internally. Keep out of reach of children.

7.3 Specific end uses

Apart from the uses mentioned in Section 1.2, no other specific uses are stipulated.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limit values

CAS Number	Ingredient	OSHA PEL	ACGIH TLV	NIOSH
107-21-1	Ethylene Glycol	-----	100 mg/m ³ TWA; ceiling (aerosol only)	250 ppm; 125 mg/m ³ TWA

8.2 Exposure controls

Engineering measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable. Refer to Section 7.1.

Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.

Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.

Eye/face protection: Wear safety glasses with unperforated side shields or protective splash goggles during use.

Hand protection: Wear gloves made of butyl rubber, natural rubber (latex), neoprene, Nitrile/butadiene rubber (NBR), polyethylene or those recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period.

Skin protection: Wear protective clothing. Wear protective boots if the situation requires.

Respiratory protection: Always use an approved respirator when vapor/aerosols exceed permissible exposure limits. Where risk assessment shows air-purifying respirators are appropriate use a half-mask respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Follow OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

Environmental exposure controls: Do not empty into drains.

PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean fit and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection



SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Clear, colorless, slightly viscous liquid
Odor	Mild, sweet
Odor Threshold	25 ppm
Molecular Weight	62 g/mol
Chemical Formula	C ₂ H ₆ O ₂
pH	6.5
Freezing/Melting Point	- 13 °C (9 °F)
Boiling Point Range	196 - 200 °C (385 - 392 °F)
Evaporation Rate	0.01 [n-BuOAc = 1], ASTM D 3539
Flammability (solid, gas)	Not applicable
Flash Point	111.1°C (232 °F)
Autoignition Temperature	398 °C (748 °F)
Decomposition Temperature	> 500 °C (> 932 °F)

Ethylene glycol affects the central nervous system, kidneys and metabolic processes. The central nervous system is affected early in the course of poisoning with symptoms that resemble those of alcohol intoxication. Later symptoms include nausea, vomiting, weakness, abdominal and muscle pain, difficulty in breathing and decreased urine output.

Based on animal studies, ingestion of very large amounts of ethylene glycol appears to be the major and possibly only route of exposure to produce birth defects. Exposures by inhalation or skin contact, the primary routes of occupational exposure, had minimal effect on the fetus, in animal studies. Ingestion of large amounts of ethylene glycol has been shown to interfere with reproduction in animals.

An increase in fetal deaths and birth defects was noted when ethylene glycol was administered orally to pregnant rats and mice. Some of these effects occurred at doses that had no toxic effects on the mothers. There is no definitive evidence that ethylene glycol causes reproductive toxicity in humans.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12 - ECOLOGICAL INFORMATION

12.1 Toxicity

This material is relatively non-toxic to aquatic organisms on an acute basis. Large discharges or spills of this material may be harmful to aquatic life and to the environment.

Toxicity to fish: LC₅₀ - Pimephales promelas (Fathead minnow), 96 h: 72,860 mg/l, static test
Toxicity to aquatic invertebrates: EC₅₀ - Daphnia magna (Water flea), 48 h: 100 mg/l
Toxicity to aquatic plants: ErC₅₀ - Pseudokirchneriella subcapitata (Green algae), 72 h: 6,500 - 13,000 mg/l, growth rate inhibition

12.2 Persistence and degradability

This product is readily biodegradable.

12.3 Bioaccumulation potential

The bioaccumulation potential of this material is low.

12.4 Mobility in soil

This material is expected to have high mobility in soil.

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other effects

Additional ecological information

Do not allow material to run into surface waters, wastewater or soil.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13 - DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Methods of disposal: The generation of waste should be avoided or minimized whenever 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 by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

RCRA F-Series: No listings above the reportable threshold (de minimis)

RCRA U-Series: No listings above the reportable threshold (de minimis)

SECTION 14 - TRANSPORTATION INFORMATION

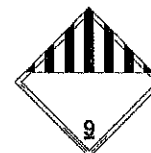
Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

USA DOT - Non-bulk: Not regulated for transport in quantities under 5,000 lb or 538.8 gallons in any one inner package under 49 CFR. Bulk shipments containing a reportable quantity (RQ = 5,000 pounds or more) of ethylene glycol in a single packaging are transported as hazardous material.

USA DOT (Ground Transportation) - Bulk

Proper Shipping Name	Environmentally hazardous substances, liquid, n.o.s. (Ethylene glycol)
Hazard Class	9
UN	UN3082
Packing Group	III
NAREG	Guide #171
Packaging Authorization	Non-Bulk: 49 CFR 173.203; Bulk: 173.241
Packaging Exceptions	49 CFR 173.155
IMO/IMDG (Water Transportation)	Not regulated for transport
ICAO/IATA (Air Transportation)	Not regulated for transport
RID/ADR (Rail Transportation)	Not regulated for transport

Drum Label(s)



Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (KECI)	Yes
Philippines	Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*Yes - All components of this product are in compliance with the inventory requirements administered by the governing country.
 No - One or more components of this product are not on the inventory or are exempt from listing.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16 - OTHER INFORMATION

Hazardous Material Information System (HMIS)

HEALTH	*	1
FLAMMABILITY		1
PHYSICAL HAZARD		0
PERSONAL PROTECTION	C	

C = safety glasses, gloves and an apron

HMIS Hazard Rating Legend

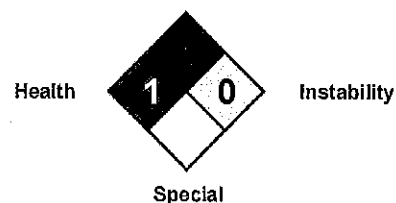
0 = Minimal 1 = Slight 2 = Moderate
 3 = Serious 4 = Severe
 * = Chronic Health Hazard

NFPA Hazard Rating Legend

0 = Insignificant 1 = Slight 2 = Moderate
 3 = High 4 = Extreme

National Fire Protection Association (NFPA)

Flammability



Abbreviation Key

ACGIH	American Conference of Governmental Industrial Hygienists	LD₅₀	Lowest Lethal Dose
ADR	Accord Dangereux Routier (European regulations concerning the international transport of dangerous goods by road)	mppcf	Millions of Particles Per Cubic Foot
CAS	Chemical Abstract Services	NA	North America
CFR	Code of Federal Regulations	NAERG	North American Emergency Response Guide Book
COC	Cleveland Open Cup	NIOSH	National Institute for Occupational Safety & Health
DOT	Department of Transportation	NTP	National Toxicology Program
EC₅₀	Half maximal effective concentration	OSHA	Occupational Safety and Health Administration
EMS	Emergency Response Procedures for Ships Carrying	PBT	Persistent, Bioaccumulating and Toxic
EPA	Environmental Protection Agency	PEL	Permissible exposure limit
ErC₅₀	Reduction of Growth Rate	PMCC	Pensky-Martens Closed Cup
ERG	Emergency Response Guide Book	ppm	Parts Per Million
FDA	Food and Drug Administration	RCRA	Resource Conservation and Recovery Act
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)	RID	Dangerous Goods by Rail
HCS	Hazard Communication Standard	RQ	Reportable Quantity
IARC	International Agency for Research on Cancer	TCC/Tag	Tagliabue Closed Cup
IATA	International Air Transport Association	TLV	Threshold Limit Value
IC₅₀	Half Maximal Inhibitory Concentration	TSCA	Toxic Substance Control Act
ICAO	International Civil Aviation Organization	TWA	Time-weighted Average
IDLH	Immediately Dangerous to Life and Health	UN	United Nations
IMDG	International Maritime Dangerous Goods	VOC	Volatile Organic Compounds
IMO	International Maritime Organization	vPvB	Very Persistent and Very Bioaccumulating
LC₅₀	50% Lethal Concentration	WHMIS	Workplace Hazardous Materials Information System
LD₅₀	50% Lethal Dose		

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Revision date: 13 October 2021, Version 3

Supersedes SDS: 08 October 2021, Version 3

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