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SAFETY DATA SHEETS

According to the UN GHS revision 8

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

1. Identification

1.1 GHS Product identifier

Product name Ethylene glycol

1.2 Other means of identification

Other names

1.3 Recommended use of the chemical and restrictions on use

Identified uses Ethylene glycol is used as antifreeze in cooling and heating systems, in hydraulic brake fluids, as an industrial humectant, as an ingredient of electrolytic condensers, as a solvent in the paint and plastics industries, in the formulations of printers' inks, stamp pad inks, and inks for ballpoint pens, as a softening agent for cellophane, and in the synthesis of safety explosives, plasticizers, synthetic fibers (Terylene, Dacron), and synthetic waxes. Ethylene glycol is also used to de-ice airport runways and aircraft. (2)

Uses advised against no data available

1.4 Supplier's details

Company Beijing Vokai Biotechnology Co., LTD
Address New Materials Venture Building, 7 Fenghui Middle Rd, Haidian Dist., Beijing.
Tel 010-62971590
Email postmaster@oka-vip.com

1.5 Emergency phone number

Emergency phone number +86-0532-3889090
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Warning
Hazard statement(s) H302 Harmful if swallowed
Precautionary statement(s)
Prevention P264 Wash ... thoroughly after handling.

	P270 Do not eat, drink or smoke when using this product.
Response	P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/…if you feel unwell. P330 Rinse mouth.
Storage	none
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Ethane-1,2-diol	Ethane-1,2-diol	107-21-1	203-473-3	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Medical attention is required. Consult a doctor. Show this safety data sheet (SDS) to the doctor in attendance.

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Inhalation of vapor is not hazardous. Ingestion causes stupor or coma, sometimes leading to fatal kidney injury. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Ethylene glycol, glycols, and related compounds

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

In case of fire in the surroundings: carbon dioxide, foam, powder, water spray.

5.2 Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

Use water spray, powder, alcohol-resistant foam, carbon dioxide.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Wash away remainder with plenty of water.

6.2 Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Wash away remainder with plenty of water.

6.3 Methods and materials for containment and cleaning up

Collect leaking liquid in covered containers. Wash away spilled liquid with plenty of water.

7. Handling and storage

7.1 Precautions for safe handling

NO open flames. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants and strong bases. Dry. Ventilation along the floor.Polyethylene glycols should be stored in well-closed containers in a cool, dry place. Stainless steel, aluminum, glass, or lined steel containers are preferred for the storage of liquid grades.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: (vapour and aerosol): 25 ppm as TWA.TLV: (vapour): 50 ppm as STEL.TLV: (inhalable aerosol): 10 mg/m3 as STEL. A4 (not classifiable as a human carcinogen).EU-OEL: 52 mg/m3 as TWA; 104 mg/m3 as STEL; (skin)

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

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

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	Liquid. Syrupy.
Colour	Clear, colourless.
Odour	no data available
Melting point/ freezing point	-13 °C. Atm. press.:1 013.25 hPa.
Boiling point or initial boiling point and boiling range	197.4 °C. Atm. press.:1 013 hPa.
Flammability	Combustible.

Lower and upper explosion limit / flammability limit	no data available
Flash point	111 °C. Atm. press.:1 013.25 hPa.
Auto-ignition temperature	398 °C. Atm. press.:1 013.25 hPa.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	dynamic viscosity (in mPa s) = 16.1. Temperature:25.0°C.;dynamic viscosity (in mPa s) = 6.554. Temperature:50 °C.;dynamic viscosity (in mPa s) = 3.34. Temperature:75 °C.
Solubility	greater than or equal to 100 mg/mL at 63.5° F (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = -1.36. Remarks:Data on temperature and pH value not available.
Vapour pressure	0.123 hPa. Temperature:25 °C.
Density and/or relative density	1.11 g/cm³. Temperature:20 °C.
Relative vapour density	2.1 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

On combustion, forms toxic gases. Reacts with strong oxidants and strong bases.
Ethylene glycol reacts with strong oxidants and acids.

10.2 Chemical stability

Polyethylene glycols are chemically stable in air and in solution, although grades with a mol wt < 2000 are hygroscopic. Polyethylene glycols do not support microbial growth, and they do not become rancid. Polyethylene glycols and aqueous polyethylene glycol solutions can be sterilized by autoclaving, filtration, or gamma irradiation ... Ideally, sterilization should be carried out in an inert atmosphere.

10.3 Possibility of hazardous reactions

CombustibleVapors are heavier than air and will collect and stay in poorly-ventilated, low-lying, or confined areas (e.g., sewers, basements, and tanks).Hazardous concentrations may develop quickly in enclosed, poorly-ventilated, or low-lying areas. Keep out of these areas. Stay upwind.Mixing ETHYLENE GLYCOL in equal molar portions with any of the following substances in a closed container caused the temperature and pressure to increase: chlorosulfonic acid, oleum, sulfuric acid, [NFPA 1991].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Materials to avoid: Strong oxidizing agents.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

11. Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - 7 712 mg/kg bw.
- Inhalation: LC50 - rat (male/female) - > 2.5 mg/L air.
- Dermal: LD50 - mouse (male/female) - > 3 500 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

TLV-A4

Reproductive toxicity

No information is available on the reproductive or developmental effects of ethylene glycol in humans. Several studies of rodents exposed orally or by inhalation showed ethylene glycol to affect animal fetuses. Fetotoxicity manifested as increased preimplantation loss, delayed ossification, and an increased incidence of fetal malformations were reported. The inhalation study, however, noted continuous grooming of the fur, resulting in a high rate of exposure by ingestion as well.

STOT-single exposure

The substance is irritating to the eyes and respiratory tract. The substance may cause effects on the kidneys, central nervous system and acid-base balance in the body. This may result in renal failure, brain injury and metabolic acidosis. Exposure could cause lowering of consciousness.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

12. Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Pimephales promelas - > 72 860 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - > 100 mg/L - 48 h.
- Toxicity to algae: EC50 - > 6 500 - < 13 000 mg/L - 96 h.
- Toxicity to microorganisms: EC20 - activated sludge, domestic - > 1 995 mg/L - 30 min.

12.2 Persistence and degradability

will not support mold growth

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
Ethane-1,2-diol	Ethane-1,2-diol	107-21-1	203-473-3
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

16. Other information

Information on revision

Creation Date	July 15, 2019
Revision Date	July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association

- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

Specific treatment may be necessary in case of poisoning with this substance; the appropriate means with instructions should be available.

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.