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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

1. Identification

1.1 GHS Product identifier

Ethylene glycol, anhydrous, 99.8%

Code E 1542

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.
P301+P312 IF SWALLOWED: Call a POISON
CENTER/doctor/2026if you feel unwell.
P330 Rinse mouth.

Response

Storage

none

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Ethylene glycol	Ethylene glycol	107-21-1	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

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

In case of skin contact

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

In case of eye contact

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

If swallowed

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

/SRP:/ 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.

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

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

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

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

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state clear viscous liquid

Colour Clear, colorless, viscous liquids to waxy solids

Odour no data available

Melting point/ freezing point -13°C (lit.)

Boiling point or initial boiling point and boiling range 195-198°C

Flammability Combustible.

Lower and upper explosion limit / flammability limit no data available

Flash point 111°C

Auto-ignition temperature 400°C

Decomposition temperature no data available

pH no data available

Kinematic viscosity /p>PEG 400: 105 to 130 mPa.s at 20°C; PEG 3000: 75 to 100 mPa.s at 20°C; PEG 3350: 83 to 120 mPa.s at 20°C; PEG 4000: 110 to 170 mPa.s at 20°C; PEG 6000: 200 to 270 mPa.s at 20°C; PEG 8000: 260 to 510 mPa.s at 20°C; For polyethylene glycols having a average molecular weight greater than 400, the viscosity is determined on a 50 per cent m/m solution of the candidate substance in water

Solubility In water: miscible

Partition coefficient n- -1.93

octanol/water (log value)
Vapour pressure 0.08 mm Hg (20 \u00b0C)
Density and/or relative density 1.113g/mL at 25\u00b0C (lit.)
Relative vapour density 2.1 (vs air)
Particle characteristics no data available

10. Stability and reactivity

10.1 Reactivity

no data available

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

Combustible Vapors 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: Animal toxicity data for Polyethylene glycols (see Table) LD50 mg/kg \n PEG grade Guinea pig (oral) Mouse (ip) Mouse (iv) Mouse (oral) Rabbit (oral) Rabbit (iv) Rat (ip) Rat (iv) Rat (oral) 200 --- 7500 --- 3400 19900 --- --- 28000 300 19600 --- --- 17300 -
--- --- 27500 400 15700 10000 8600 28900 26800 --- 9700 7300 --- 600 --- --- 47000 --- --- 38100 1000 --- 20000 --- ---
--- --- 15600 --- 44200 1500 28900 --- --- 28900 8000 17700 --- 44200 4000 50900 --- 16000 --- 76000 --- 11600 --- 50000 6000
50000 --- --- --- 6800 --- ---

Inhalation: no data available

Dermal: no data available

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

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

Toxicity to fish: LC50; Species: Oncorhynchus mykiss (Rainbow trout, weight 25-50 g); Conditions: freshwater, static, 14\u00b0C, pH 7.2, dissolved oxygen 10 mg/L; Concentration: >20000000 ug/L for 96 hr /PEG400

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

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: UN3082 IMDG: UN3082 IATA: UN3082

14.2 UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 9 IMDG: 9 IATA: 9

14.4 Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

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
Ethylene glycol	Ethylene glycol	107-21-1	none
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.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.