

Safety Data Sheet

Product name: Ethylene glycol

CAS No.: 107-21-1

Prepared in accordance with GB/T 16483, GB/T 17519

SECTION 1: Identification of the substance/mixture and of the company/undertaking

>Product identifier

- Product name: Ethylene glycol
- CBnumber: CB7852707
- CAS: 107-21-1
- EINECS Number: 203-473-3
- Synonyms: ethylene glycol,MEG

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

- Relevant identified uses: For R&D use only. Not for medicinal, household or other use.
- Uses advised against: none

>Company Identification

- Company: Linyi Tuohui New Materials Co., Ltd.
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SECTION 2: Hazards identification

>GHS Label elements, including precautionary statements

- Symbol(GHS)



- Signal wordWarning

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thoroughly after handling.

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

P307+P311 IF exposed: call a POISON CENTER or doctor/physician.

P314 Get medical advice/attention if you feel unwell.

P405 Store locked up.

P501 Dispose of contents/container to.....

Hazard statements

H302 Harmful if swallowed

H320 Causes eye irritation

H370 Causes damage to organs

H372 Causes damage to organs through prolonged or repeated exposure

H373 May cause damage to organs through prolonged or repeated exposure

Disposal

WARNING.Cancer - <https://oehha.ca.gov/proposition-65/chemicals/ethylene-glycol-ingested>

SECTION 3: Composition/information on ingredients

>Substance

- Product name: Ethylene glycol
- Synonyms: ethylene glycol,MEG
- CAS: 107-21-1
- EC number: 203-473-3
- MF: C2H6O2
- MW: 62.07

SECTION 4: First aid measures

>Description of first aid measures**General advice**

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

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

>Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

>Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

>Extinguishing media**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

>Special hazards arising from the substance or mixture

Carbon oxides

>Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

>Further information

No data available

>NFPA 704

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SECTION 6: Accidental release measures

>Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

For personal protection see section 8.

>Environmental precautions

Do not let product enter drains.

>Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

>Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

>Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. For precautions see section 2.2.

>Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

Hygroscopic.

>Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

>control parameter

Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

>Exposure controls

Appropriate engineering controls

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

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

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 Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested: Dermatril (KCL 740 / Aldrich Z677272, Size M)

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested: Dermatril (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full- face 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).

Control of environmental exposure

Do not let product enter drains.

Exposure limits

Ceiling limit in air for vapor and mist 50 ppm (~125 mg/m³) (ACGIH); TWA 10 mg/m³ (particulates) (MSHA).

SECTION 9: Physical and chemical properties

>Information on basic physicochemical properties

- Appearancecolourless liquid
- Odourodourless
- Odour ThresholdNo data available
- pH6-7.5 (100g/l, H₂O, 20°C)
- Melting point/freezing pointMelting point/range: -13 °C
- Initial boiling point and boiling range196 - 198 °C
- Flash point111 °C - closed cup115 °C - open cup
- Evaporation rate1
- Flammability (solid, gas)No data available
- Upper/lower flammability or explosive limits Upper explosion limit: 15,3 %(V) Lower explosion limit: 3,2 %(V)
- Vapour pressure1 hPa at 51,1 °C
- Vapour density2,14 - (Air = 1.0)
- Relative density1,113 g/mL at 25 °C
- Water solubilitycompletely miscible
- Partition coefficient: n-octanol/waterlog Pow: -1,36 - Bioaccumulation is not expected.
- Autoignition temperature412 °C at 1.013 hPa
- Decomposition temperatureNo data available
- ViscosityNo data available
- Explosive propertiesNo data available
- Oxidizing propertiesNo data available
- λ_{max} : 260 nm A_{max} : ≤ 0.03
 λ : 280 nm A_{max} : ≤ 0.01

>Other safety information

Surface tension 48,4 mN/m at 20 °C

Relative vapour density

2,14 - (Air = 1.0)

SECTION 10: Stability and reactivity

>Reactivity

No data available

>Chemical stability

Stable under recommended storage conditions.

>Possibility of hazardous reactions

>Conditions to avoid

>Incompatible materials

Strong acids, Strong oxidizing agents, Strong bases, Aldehydes, Aluminum

>Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides In the event of fire: see section 5

SECTION 11: Toxicological information

>Information on toxicological effects

Acute toxicity

(Regulation (EC) No 1272/2008, Annex VI)

LC50 Inhalation - Rat - male and female - 6 h - > 2,5 mg/l Remarks: (ECHA)

LD50 Dermal - Mouse - male and female - > 3.500 mg/kg Remarks: (ECHA)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 20 h Remarks: (ECHA)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation - 24 h Remarks: (ECHA)

Respiratory or skin sensitisation

Maximisation Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity

Ames test

Escherichia coli/Salmonella typhimurium Result: negative

Rat - male and female Result: negative

Carcinogenicity

This product is or contains a component that is probably not carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

Laboratory experiments have shown teratogenic effects.

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

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

Aspiration hazard

Additional Information

RTECS: KW2975000

When ingested early symptoms mimic alcohol inebriation and are followed by nausea, vomiting, abdominal pain, weakness, muscle tenderness, respiratory failure, convulsions, cardiovascular collapse, pulmonary edema, hypocalcemic tetany, and severe metabolic acidosis. Without treatment, death may occur in 8 to 24 hours. Victims who survive the initial toxicity period usually develop renal failure along with brain and liver damage., Exposure to and/or consumption of alcohol may increase toxic effects.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

agitation, CNS disorders Systemic effects:

After a latency period:

Tiredness, ataxia (impaired locomotor coordination), Unconsciousness Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice. Central nervous system - Irregularities - Based on Human Evidence

Toxicity

LD50 in rats, guinea pigs (g/kg): 8.54, 6.61 orally (Smyth); in mice (ml/kg): 13.79 orally (Bornmann)

SECTION 12: Ecological information

>Toxicity

Toxicity to fish

static test LC50 - Pimephales promelas (fathead minnow) - > 72.860 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

(US-EPA)

static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae

IC5 - Scenedesmus quadricauda (Green algae) - > 10.000 mg/l - 7 d

Remarks: (Lit.)

Toxicity to bacteria

static test EC20 - activated sludge - > 1.995 mg/l - 30 min (ISO 8192)

>Persistence and degradability

Biodegradability aerobic - Exposure time 10 d

Result: 90 - 100 % - Readily biodegradable. (OECD Test Guideline 301A)

Biochemical Oxygen Demand (BOD)

Chemical Oxygen Demand (COD)

Theoretical oxygen demand

780 mg/g Remarks: (IUCLID)

1.190 mg/g Remarks: (IUCLID)

1.290 mg/g Remarks: (IUCLID)

Ratio BOD/ThBOD 60 %

Remarks: (IUCLID)

>Bioaccumulative potential

Does not bioaccumulate.

>Mobility in soil

No data available

>Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

>Toxics Screening Level

The ITSL for ethylene glycol is 1000 µg/m³ based on a 1 hour averaging time.

>Other adverse effects

Additional ecological information

No data available

SECTION 13: Disposal considerations

>Waste treatment methods

> Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Incompatibilities

Reacts with sulfuric acid, oleum, chlorosulfonic acid; strong oxidizing agents; strong bases; chromium trioxide; potassium permanganate; sodium peroxide. Hygroscopic (i.e., absorbs moisture from the air)

Waste Disposal

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. All federal, state, and local environmental regulations must be observed. Alternatively, ethylene glycol can be recovered from polyester plant wastes

> Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

>UN number

ADR/RID: - IMDG: - IATA: -

>UN proper shipping name

ADR/RID: Not dangerous goods IMDG: Not dangerous goods IATA: Not dangerous goods

>Transport hazard class(es)

>Packaging group

>Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

>Special precautions for user

No data available

SECTION 15: Regulatory information

>Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Not Listed. website: <https://www.mem.gov.cn/>

Measures for Environmental Management of New Chemical Substances

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

EC Inventory:Listed.

SECTION 16: Other information

>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

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

>Other Information

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