SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: May 28, 2023

SECTION 1: Identification

1.1 GHS Product identifier

Product name Diethylene Glycol

1.2 Other means of identification

Product number 111-46-6
Other names 2,2'-Oxydiethanol; Bis(2-hydroxyethyl)ether; DEG

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company Zhongshan Greenrock Technology Co., Ltd.
Address Jinsan Avenue, Sanjiao Town, Zhongshan City, Guangdong Province, China
Telephone +86-2087066781

1.5 Emergency phone number

Emergency phone number +86-2087066781
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral

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+P317 IF SWALLOWED: Get medical help.
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

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Diethylene Glycol	2,2'-oxydiethanol	111-46-6	203-872-2	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Rinse skin with plenty of water or shower.

Following eye contact

Rinse with plenty of water for several minutes (remove contact lenses if easily possible).

Following ingestion

Give one or two glasses of water to drink. Rinse mouth. Refer immediately for medical attention. See Notes.

4.2 Most important symptoms/effects, acute and delayed

Ingestion of large amounts may cause degeneration of kidney and liver and cause death. Liquid may cause slight skin irritation. (USCG, 1999)

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

Supportive Care: The patient should be resuscitated with isotonic crystalloidal fluids, and acidosis should be corrected. Early treatment with a competitive ADH inhibitor (e.g., 4-methylpyrazole or ethanol), hemodialysis, and supportive care offer the best hope for patient recovery.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Alcohol foam, water, carbon dioxide, dry chemical

5.2 Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

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

SECTION 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

SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a POTW is acceptable only after review by the governing authority. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must meet Hazardous Material Criteria for disposal.

SECTION 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

Dry. Well closed. Separated from strong oxidants.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

MAK: 44 mg/m3, 10 ppm; peak limitation category: II(2); pregnancy risk group: C

Biological limit values

no data available

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 spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid. Liquid: viscous.
Colour	Colourless.
Odour	Practically odorless
Melting point/freezing point	-6.5 °C.
Boiling point or initial boiling point and boiling range	244.9 °C. Atm. press.:1 013 hPa.
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	1.6%-10.8%
Flash point	138 °C. Atm. press.:1 013.25 hPa.
Auto-ignition temperature	372 °C. Atm. press.:1 013.25 hPa.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	dynamic viscosity (in mPa s) = 30. Temperature:25.0°C.
Solubility	greater than or equal to 100 mg/mL at 68° F (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = -1.98. Remarks:No data on temperature and pH.
Vapour pressure	0.008 hPa. Temperature:25 °C.
Density and/or relative density	1.118 dimensionless. Temperature:20 °C.
Relative vapour density	2.14 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Reacts violently with strong oxidants strong oxidants. This generates fire and explosion hazard. Attacks some forms of plastic.

10.2 Chemical stability

Low volatility

10.3 Possibility of hazardous reactions

Slight, when exposed to heat or flame; can react with oxidizing materials.DIETHYLENE GLYCOL is incompatible with strong oxidizing agents. It is also incompatible with strong bases. It can react with sulfuric acid and other dehydrating agents, nitric acid, oxygen, hydrogen peroxide, perchloric acid and strong acids. Mixtures with sodium hydroxide decompose exothermically when heated to 446° F. (NTP, 1992)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Can react with oxidizing materials ... Mixtures with sodium hydroxide decompose exothermically when heated to 230 deg C and release explosive hydrogen gas.

10.6 Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - 16 500 mg/kg bw.
- Inhalation: LC50 - rat - > 4.6 mg/L air.
- Dermal: LD50 - rabbit - 13 300 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

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance may cause effects on the kidneys. This may result in kidney impairment. Ingestion could cause effects on the central nervous system and liver. Ingestion could cause death.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful contamination of the air will not or will only very slowly be reached on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Pimephales promelas - 75 200 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - > 10 000 mg/L - 24 h.
- Toxicity to algae: TGK - Scenedesmus quadricauda - > 10 000 mg/L - 8 d.
- Toxicity to microorganisms: EC20 - activated sludge, domestic - > 1 995 mg/L - 30 min.

12.2 Persistence and degradability

AEROBIC: Diethylene glycol, present at 30 mg/L, reached 90% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 100 mg/L in the Japanese MITI test(1). The compound, present at 100 mg/L, showed 59% (rate constant of 0.081/day, 5 day lag period) and 89% degradation (0.173/day, 5 day lag period) using the Sapromat and Oxitop systems, respectively, in manometric respirometry tests using activated sludge at 30 mg/L dry matter(2). Biodegradation of 44% and 78% degradation were reported when using seawater as inoculum in a shake flask die-away test (chemical concentration of 5-30 DOC/L) and the closed bottle oxygen consumption test (test chemical concentration of 2-10 mg/L), respectively, both incubated at 15-20 deg C for 28 to 60 days; however, high carbon levels may have compromised the test results(3).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for diethylene glycol(SRC), using an estimated log Kow of -1.5(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of diethylene glycol can be estimated to be 1(SRC). According to a classification scheme(2), this estimated Koc value suggests that diethylene glycol is expected to have very high mobility in soil.

12.5 Other adverse effects

no data available

SECTION 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.

SECTION 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 IMO instruments

no data available

SECTION 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
2,2'-oxydiethanol	2,2'-oxydiethanol	111-46-6	203-872-2
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.

SECTION 16: Other information

Information on revision

Creation Date	July 15, 2019
Revision Date	May 28, 2023

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 is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.

Any questions regarding this SDS, Please send your inquiry to export@greenrockchem.com

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