SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: April 25, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name Diethylene Glycol-Monoethyl ether

1.2 Other means of identification

Product number 111-90-0
Other names 2(2-Ethoxyethoxy)ethanol; Dioxitol; CARBITOL

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

Not classified.

2.2 GHS label elements, including precautionary statements

Pictogram(s) No symbol.
Signal word No signal word
Hazard statement(s) none
Precautionary statement(s)
Prevention none
Response none
Storage none
Disposal none

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-Monoethyl ether	2-(2-ethoxyethoxy)ethanol	111-90-0	203-919-7	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest.

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.

4.2 Most important symptoms/effects, acute and delayed

None expected. (USCG, 1999)

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

Minimum/Potential Fatal Human Dose

It has been estimated that the single oral dose /of diethylene glycol/ lethal for humans is approximately 1 ml/kg. Diethylene glycols

Absorption, Distribution and Excretion

To assist evaluation of the hazards of skin contact with selected undiluted glycol ethers, their absorption across isolated human abdominal epidermis was measured in vitro. Epidermal membranes were set up in glass diffusion cells and, following an initial determination of permeability to tritiated water, excess undiluted glycol ether was applied to the outer surface for 8 hr. The appearance of glycol ether in an aqueous receptor phase bathing the underside of the epidermis was quantified by a gas chromatographic technique. A final determination of tritiated water permeability was compared with initial values to establish any irreversible alterations in epidermal barrier function induced by contact with the glycol ethers. 2-methoxyethanol (EM) was most readily absorbed (mean steady rate 2.82 mg/sq cm/hr), and a relatively high absorption rate (1.17 mg/sq cm/hr) was also apparent for 1-methoxypropan-2-ol (PM). There was a trend of reducing absorption rate with increasing molecular weight or reducing volatility for monoethylene glycol ethers (EM, 2.82 mg/sq cm/hr; 2-ethoxyethanol, EE, 0.796 mg/sq cm/hr; 2-butoxyethanol, EB, 0.198 mg/sq cm/hr) and also within the diethylene glycol series: 2-(2-methoxyethoxy) ethanol (DM, 0.206 mg/sq cm/hr); 2-(2-ethoxyethoxy) ethanol (DE, 0.125 mg/sq cm/hr) and 2-(2-butoxyethoxy) ethanol (DB, 0.035 mg/sq cm/hr). The rate of absorption of 2-ethoxyethyl acetate (EEAc) was similar to that of the parent alcohol, EE. Absorption rates of diethylene glycol ethers were slower than their corresponding monoethylene glycol equivalents. Combination of intrinsic toxicity and ability to pass across skin contribute to assessment of hazards of contact with undiluted glycol ethers.[Dugard PH et al; Environ Health Perspect 57: 193-7 (1984)] Full text: PMC1568269

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

If material on fire or involved in fire: Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use "alcohol" foam, dry chemical or carbon dioxide. Keep run-off water out of sewers and water sources.

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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Collect leaking liquid in sealable containers. Wash away remainder with plenty of water.

6.2 Environmental precautions

Collect leaking liquid in sealable containers. Wash away remainder with plenty of water.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. Above 96°C use a closed system and ventilation. 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. Ventilation along the floor.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

MAK: (inhalable fraction): 50 mg/m3; peak limitation category: I(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.
Colour	Colourless.
Odour	Mild, pleasant odor
Melting point/freezing point	-54 °C. Atm. press.:1 atm.
Boiling point or initial boiling point and boiling range	196 °C. Atm. press.:1 atm.
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 1.2% by volume; Upper flammable limit: 23.5% AT 360 DEG F (182 DEG C) by volume
Flash point	96 °C. Atm. press.:1 atm.
Auto-ignition temperature	204 °C. Atm. press.:1 atm.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	dynamic viscosity (in mPa s) = Ca. 3.85. 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 = -0.54. Temperature:20 °C.
Vapour pressure	0.126 mm Hg. Temperature:25 °C. Remarks:Information attributed to Daubert and is an estimate.
Density and/or relative density	Ca. 988.5 kg/m³. Temperature:20 °C.
Relative vapour density	4.63 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Reacts with strong oxidants. The substance can presumably form explosive peroxides.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

CombustibleMixing diethylene glycol monoethyl ether in equal molar portions with any of the following substances in a closed container caused the temperature and pressure to increase: chlorosulfonic acid and oleum, NFPA 1991.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Can react with oxidizing materials.

10.6 Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - mouse (male) - 6 031 mg/kg bw. Remarks:Results for fasted animals.

- Inhalation: LC0 - rat (male/female) - 0.025 mg/L air.
- Dermal: LD50 - rabbit (male) - 9 143 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 is mildly irritating to the eyes.

STOT-repeated exposure

The substance defats the skin, which may cause dryness or cracking.

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Ictalurus punctatus - ca. 6 010 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: LC50 - Daphnia magna - 1 982 mg/L - 48 h.
- Toxicity to algae: NOEC - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - >= 100 mg/L - 96 h.
- Toxicity to microorganisms: IC50 - sewer microorganisms - > 5 000 mg/L - 16 h.

12.2 Persistence and degradability

AEROBIC: Aerobic biological screening studies, which utilized settled wastewater, sewage, or activated sludge for inocula, indicate that diethylene glycol monoethyl ether should biodegrade rapidly in the environment following an acclimation period(1-6). After a 16 day acclimation period a 39.8% BODT was recorded using an 8 hr Warburg test(5). A 5 day BOD test at 20 deg C showed a 34.3% loss after 16 days of acclimation(5). A second 5 day BOD test, utilizing an adapted seed inoculum exhibited a 30% BODT(1). Incubation of diethylene glycol monoethyl ether for 5, 10, and 20 days without an acclimation period resulted in BOD values, measured in % theoretical, of 5, 31, and 48, respectively(2). Diethylene glycol monoethyl ether, inoculated with wastewater, was bio-oxidized 17, 71, 75, and 87% following 5, 10, 15, and 20 days incubation, respectively; in seawater, this compound was bio-oxidized 11, 44, 57, and 70% in 5, 10, 15, and 20 days, respectively(3). According to the Zahn-Wellens screening method >90% loss of 400 ppm occurred in 28 days(4). A study using activated sludge gave a degradation rate for diethylene glycol monoethyl ether of 0.18/hour(6) giving a half-life of 3.9 hours(SRC).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for diethylene glycol monoethyl ether(SRC), using a log Kow of -0.54(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

The Koc of diethylene glycol monoethyl ether is estimated as 12(SRC), using a log Kow of -0.54(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that diethylene glycol monoethyl ether 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-ethoxyethoxy)ethanol	2-(2-ethoxyethoxy)ethanol	111-90-0	203-919-7
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	April 25, 2024

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

See ICSC 0040.Check for peroxides prior to distillation; eliminate if found.

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

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