

SAFETY DATA SHEET

1. PRODUCT

1.1 Product identifiers

Name: Diethylene glycol

CAS-No.: 111-46-6

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

Identified uses : Laboratory chemicals, Manufacture of substances

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture


GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302

Specific target organ toxicity - repeated exposure (Category 2), H373

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram	
Signal word	Warning
Hazard statement(s)	H302 Harmful if swallowed. H373 May cause damage to organs through prolonged or repeated exposure.
Precautionary statement(s)	P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth. P314 Get medical advice/ attention if you feel unwell. P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms: 2,2-Oxydiethanol
Bis(2-hydroxyethyl) ether
Diglycol
2-Hydroxyethyl ether

Formula: $C_4H_{10}O_3$

Molecular weight: 106.12 g/mol

CAS-No.: 111-46-6

EC-No.: 203-872-2

Hazardous components

Component	Classification	Concentration
Diethylene glycol	Acute Tox. 4; STOT RE 2; H302, H373	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
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.

4.2 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

4.2 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Cool containers/tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 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.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

For precautions see section 2.2.

7.2 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.

hygroscopic

Storage class (TRGS 510): Combustible liquids

7.3 Specific end use(s)

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Diethylene glycol	111-46-6	TWA	10.000000 mg/m3	USA. Workplace Environmental Exposure Levels (WEEL)

8.2 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. Full contact Material: Nature latex/chloroprene Minimum layer thickness: 0.6 mm Break through time: 480 min Material tested: Lapren® (KCL 706 / Aldrich Z677558, 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	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Form: viscous liquid Colour: colourless
Odour	slight
Odour Threshold	No data available
pH	5.0 - 8 at 500 g/l at 20 °C (68 °F)
Melting point/freezing point	Melting point/range: -10 °C (14 °F)
Initial boiling point and boiling range	245 °C (473 °F)
Flash point	143 °C (289 °F) - closed cup
Evaporation rate	< 0.01 - Butyl acetate
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 12.3 %(V) Lower explosion limit: 2 %(V)
Vapour pressure	0.008 hPa (0.006 mmHg) at 25 °C (77 °F)
Vapour density	3.66 - (Air = 1.0)
Relative density	1.118 g/mL at 25 °C (77 °F)
Water solubility	completely miscible
Partition coefficient: n-octanol/water	log Pow: -1.999
Auto-ignition temperature	372 °C (702 °F) at 1,013.25 hPa (760.00 mmHg)
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other safety information

Surface tension: 48.5 mN/m at 25 °C (77 °F)

Relative vapour density: 3.66 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heating in air. Exposure to moisture

10.5 Incompatible materials

Strong oxidizing agents, Strong acids, Zinc

10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 12,565 mg/kg LD50 Oral - Human - 1,000 mg/kg Remarks: Effects due to ingestion may include: Drowsiness Gastrointestinal disturbance Liver disorders Behavioral: Muscle weakness. LD50 Dermal - Rabbit - 11,890 mg/kg No data available
Skin corrosion/irritation
Skin - Rabbit Result: No skin irritation (OECD Test Guideline 404)
Serious eye damage/eye irritation
Eyes - Rabbit Result: No eye irritation
Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig Result: Did not cause sensitisation on laboratory animals. (Directive 67/548/EEC, Annex V, B.6.)
Germ cell mutagenicity
No data available
Carcinogenicity
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. ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity
No data available No data available
Specific target organ toxicity -single exposure
No data available
Specific target organ toxicity -repeated exposure
May cause damage to organs through prolonged or repeated exposure. Oral - Kidney
Aspiration hazard
No data available
Additional Information
Repeated dose toxicity - Rat - Oral - No observed adverse effect level - 100 mg/kg RTECS: ID5950000 Symptoms and signs of poisoning are: Confusion., Dizziness, Kidney injury may occur., Unconsciousness, Convulsions, Nausea, Headache, Vomiting, Pulmonary edema. Effects may be delayed.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 75,200 mg/l - 96 h LC50 - Carassius auratus (goldfish) - 5,000 mg/l - 24 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - > 10,000 mg/l - 24 h (DIN 38412)
Toxicity to algae	No data available
Toxicity to bacteria	No data available

12.2 Persistence and degradability

Biodegradability	anaerobic - Exposure time 28 d Result: 90 - 100 % - Readily biodegradable (OECD Test Guideline 301B)
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12.3 Bioaccumulative potential

Bioaccumulation	Leuciscus idus melanotus - 3 d - 0.05 mg/l Bioconcentration factor (BCF): 100
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12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Component	CAS-No.	Revision Date
Diethylene glycol	111-46-6	1989-08-11

New Jersey Right To Know Components

Component	CAS-No.	Revision Date
Diethylene glycol	111-46-6	1989-08-11

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity

H302 Harmful if swallowed.

H373 May cause damage to organs through prolonged or repeated exposure.

STOT RE Specific target organ toxicity - repeated exposure

HMIS Rating

Health hazard: 1

Chronic Health Hazard:

Flammability: 1

Physical Hazard 0

NFPA Rating

Health hazard: 0

Fire Hazard: 1

Reactivity Hazard: 0
