

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Diethylene glycol

Creation date	12th June 2002	Version	4.0
Revision date	22nd April 2024		

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

1.1. Product identifier

Substance / mixture	Diethylene glycol substance
Chemical name	2,2'-oxybisethanol
CAS number	111-46-6
Index number	603-140-00-6
EC (EINECS) number	203-872-2
Registration number	01-2119457857-21-xxxx
Other substance name	Diglykol, 2,2'-oxydiethan-1-ol

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

Substance's intended use

Chemical production, analytical chemistry, laboratory synthesis, industrial applications. An intermediate for chemical synthesis. Antifreeze agent.

Substance uses advised against

The product should not be used in ways other than those referred in Section 1.

1.3. Details of the supplier of the safety data sheet

Supplier

Name or trade name	Ing. Petr Švec - PENTA s.r.o.
Address	Radiová 1122/1, Praha 10, 102 00 Czech Republic
Identification number (CRN)	02096013
VAT Reg No	CZ02096013
Phone	+420 226 060 681
E-mail	info@pentachemicals.eu
Web address	www.pentachemicals.eu

Competent person responsible for the safety data sheet

Name	Ing. Petr Švec - PENTA s.r.o.
E-mail	info@pentachemicals.eu

1.4. Emergency telephone number

European emergency number: 112 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification of the substance in accordance with Regulation (EC) No 1272/2008

The substance is classified as dangerous.

Acute Tox. 4, H302
STOT RE 2, H373 (kidneys)

Most serious adverse effects on human health and the environment

Harmful if swallowed. May cause damage to the kidneys through prolonged or repeated exposure.

2.2. Label elements

Hazard pictogram



Signal word

Warning

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Diethylene glycol

Creation date	12th June 2002	Version	4.0
Revision date	22nd April 2024		

Dangerous substance

2,2'-oxybisethanol
(Index: 603-140-00-6; CAS: 111-46-6)

Hazard statements

H302 Harmful if swallowed.
H373 May cause damage to the kidneys through prolonged or repeated exposure.

Precautionary statements

P260 Do not breathe vapours.
P301+P312 IF SWALLOWED: Call a doctor if you feel unwell.

2.3. Other hazards

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. Substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation (EC) No. 1907/2006 (REACH) as amended.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical characterization

The substance specified below.

Identification numbers	Substance name	Content in % weight	Classification according to Regulation (EC) No 1272/2008	Note
Index: 603-140-00-6 CAS: 111-46-6 EC: 203-872-2 Registration number: 01-2119457857-21-xxxx	substance main component 2,2'-oxybisethanol	>98	Acute Tox. 4, H302 STOT RE 2, H373 (kidneys)	

Full text of all classifications and hazard statements is given in the section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet. If unconscious, put the person in the stabilized (recovery) position on his side with his head slightly bent backwards and make sure that airways are free; never induce vomiting. If the person vomits by himself, make sure that the vomit is not inhaled. In life threatening conditions first of all provide resuscitation of the affected person and ensure medical assistance. Respiratory arrest - provide artificial respiration immediately. Cardiac arrest - provide indirect cardiac massage immediately.

If inhaled

Terminate the exposure immediately; move the affected person to fresh air. Protect the person against growing cold. Provide medical treatment if irritation, dyspnoea or other symptoms persist.

If on skin

Remove contaminated clothes. Wash the affected area with plenty of water, lukewarm if possible. Soap, soap solution or shampoo should be used if there is no skin injury. Provide medical treatment if skin irritation persists.

If in eyes

Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. Rinsing should continue at least for 10 minutes.

If swallowed

Rinse out the mouth with water and provide 2-5 dL of water. Provide medical treatment.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Diethylene glycol

Creation date	12th June 2002	Version	4.0
Revision date	22nd April 2024		

4.2. Most important symptoms and effects, both acute and delayed

If inhaled

Not expected.

If on skin

Not expected.

If in eyes

Not expected.

If swallowed

Irritation, nausea.

4.3. Indication of any immediate medical attention and special treatment needed

Symptomatic treatment.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Alcohol-resistant foam, carbon dioxide, powder, water spray jet, water mist.

Unsuitable extinguishing media

Water - full jet.

5.2. Special hazards arising from the substance or mixture

In the event of fire, carbon monoxide, carbon dioxide and other toxic gases may arise. Inhalation of hazardous degradation (pyrolysis) products may cause serious health damage.

5.3. Advice for firefighters

Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit only where personal (close) contact is likely. Use a self-contained breathing apparatus and full-body protective clothing. Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment for work. Follow the instructions in the Sections 7 and 8. Prevent contact with skin and eyes.

6.2. Environmental precautions

Prevent contamination of the soil and entering surface or ground water.

6.3. Methods and material for containment and cleaning up

Spilled product should be covered with suitable (non-flammable) absorbing material (sand, diatomaceous earth, earth and other suitable absorption materials); to be contained in well closed containers and removed as per the Section 13. In the event of leakage of the substantial amount of the product, inform fire brigade and other competent bodies. After removal of the product, wash the contaminated site with plenty of water. Do not use solvents.

6.4. Reference to other sections

See the Section 7, 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Prevent contact with skin and eyes. Do not eat, drink or smoke when using this product. Wash hands and exposed parts of the body thoroughly after handling. Use personal protective equipment as per Section 8. Observe valid legal regulations on safety and health protection.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in cold, dry and well ventilated areas designated for this purpose.

7.3. Specific end use(s)

not available

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Diethylene glycol

Creation date	12th June 2002	Version	4.0
Revision date	22nd April 2024		

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL

2,2'-oxybisethanol					
Workers / consumers	Route of exposure	Value	Effect	Value determination	Source
Workers	Inhalation	60 mg/m ³	Chronic effects systemic		
Workers	Dermal	43 mg/kg bw/day	Chronic effects systemic		
Consumers	Inhalation	12 mg/m ³	Chronic effects systemic		
Consumers	Dermal	21 mg/kg bw/day	Chronic effects systemic		

PNEC

2,2'-oxybisethanol			
Route of exposure	Value	Value determination	Source
Marine water	1 mg/l		
Drinking water	10 mg/l		
Soil (agricultural)	1.53 mg/kg		
Microorganisms in sewage treatment	199.5 mg/l		
Sea sediments	2.09 mg/kg		
Freshwater sediment	20.9 mg/kg		

8.2. Exposure controls

Follow the usual measures intended for health protection at work and especially for good ventilation. This can be achieved only by local suction or efficient general ventilation. Do not eat, drink and smoke during work. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

Eye/face protection

Safety glasses or protective shield.

Skin protection

Hand protection: Protective gloves resistant to the product (nitrile rubber). When choosing appropriate thickness, material and permeability of the gloves, observe recommendations of their particular manufacturer. Contaminated skin should be washed thoroughly.

Respiratory protection

Mask with a filter against organic vapours in a poorly ventilated environment.

Thermal hazard

Not available.

Environmental exposure controls

Observe usual measures for protection of the environment, see Section 6.2.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	liquid
Colour	colorless to yellowish
Odour	without fragrance
Melting point/freezing point	-10 °C
Boiling point or initial boiling point and boiling range	242-245 °C
Flammability	data not available

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Diethylene glycol

Creation date	12th June 2002	Version	4.0
Revision date	22nd April 2024		

Lower and upper explosion limit	
bottom	1.6 %
upper	10.8 %
Flash point	138 °C
Auto-ignition temperature	data not available
Decomposition temperature	data not available
pH	data not available
Kinematic viscosity	data not available
Solubility in water	soluble
Partition coefficient n-octanol/water (log value)	data not available
Vapour pressure	data not available
Density and/or relative density	
Density	1.116-1.118 g/cm ³ at 20 °C
Relative vapour density	data not available
Particle characteristics	data not available
Form	liquid

9.2. Other information

not available

SECTION 10: Stability and reactivity

10.1. Reactivity

The substance is non-flammable.

10.2. Chemical stability

The product is stable under normal conditions.

10.3. Possibility of hazardous reactions

Unknown.

10.4. Conditions to avoid

The product is stable and no degradation occurs under normal use. Protect against flames, sparks, overheating and against frost.

10.5. Incompatible materials

Protect against strong acids, bases and oxidizing agents.

10.6. Hazardous decomposition products

Not developed under normal uses. Dangerous outcomes such as carbon monoxide and carbon dioxide are formed at high temperature and in fire.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

No toxicological data is available for the substance.

Acute toxicity

Harmful if swallowed.

2,2'-oxybisethanol					
Route of exposure	Parameter	Value	Exposure time	Species	Sex
Oral	LD ₅₀	>16500 mg/kg		Rat	
Dermal	LD ₅₀	13300 mg/kg		Rat	
Inhalation	LC ₅₀	>4.6 mg/l	4 hours	Rat (Rattus norvegicus)	

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Diethylene glycol

Creation date	12th June 2002	Version	4.0
Revision date	22nd April 2024		

Skin corrosion/irritation

No data available for the substance. Based on available data the classification criteria are not met.

Serious eye damage/irritation

No data available for the substance. Based on available data the classification criteria are not met.

Respiratory or skin sensitisation

No data available for the substance. Based on available data the classification criteria are not met.

Germ cell mutagenicity

No data available for the substance. Based on available data the classification criteria are not met.

Carcinogenicity

No data available for the substance. Based on available data the classification criteria are not met.

Reproductive toxicity

No data available for the substance. Based on available data the classification criteria are not met.

Toxicity for specific target organ - single exposure

Based on available data the classification criteria are not met.

2,2'-oxybisethanol					
Route of exposure	Parameter	Value	Result	Species	Sex
Oral	NOAEL	100 mg/kg		Rat (Rattus norvegicus)	
Dermal	NOAEL	3549 mg/kg		Mouse	

Toxicity for specific target organ - repeated exposure

May cause damage to the kidneys through prolonged or repeated exposure.

2,2'-oxybisethanol							
Route of exposure	Parameter	Value	Exposure time	Specific target organ	Result	Species	Sex
Oral	NOAEL	100 mg/kg	225 days	Kidney		Rat (Rattus norvegicus)	

Aspiration hazard

No data available for the substance. Based on available data the classification criteria are not met.

11.2. Information on other hazards

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data the classification criteria are not met.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Diethylene glycol

Creation date	12th June 2002	Version	4.0
Revision date	22nd April 2024		

Acute toxicity

2,2'-oxybisethanol				
Parameter	Value	Exposure time	Species	Environment
LC ₅₀	75200 mg/l	96 hours	Fish (Pimephales promelas)	
EC ₅₀	>10000 mg/l	24 hours	Invertebrates (Daphnia magna)	
IC ₅₀	2700 mg/l	8 days	Algae (Scenedesmus subspicatus)	

12.2. Persistence and degradability

The following data are available.

Biodegradability

Diethylene glycol				
Parameter	Value	Exposure time	Environment	Result
				Easily biodegradable

2,2'-oxybisethanol				
Parameter	Value	Exposure time	Environment	Result
	90-100 %	28 days		Easily biodegradable

12.3. Bioaccumulative potential

No data available for the substance.

12.4. Mobility in soil

No data available for the substance.

12.5. Results of PBT and vPvB assessment

Product does not contain any substance meeting the criteria for PBT or vPvB in accordance with the Annex XIII of Regulation (EC) No 1907/2006 (REACH) as amended.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms as it does not meet the criteria set out in section B of Regulation (EU) No 2017/2100.

12.7. Other adverse effects

Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Proceed in accordance with valid regulations on waste disposal. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity. Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste. Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

Waste management legislation

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended. Decision 2000/532/EC establishing a list of wastes, as amended.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Diethylene glycol

Creation date	12th June 2002	Version	4.0
Revision date	22nd April 2024		

SECTION 14: Transport information

- 14.1. UN number or ID number**
not subject to transport regulations
- 14.2. UN proper shipping name**
not relevant
- 14.3. Transport hazard class(es)**
not relevant
- 14.4. Packing group**
not relevant
- 14.5. Environmental hazards**
not relevant
- 14.6. Special precautions for user**
not available
- 14.7. Maritime transport in bulk according to IMO instruments**
not relevant

SECTION 15: Regulatory information

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
- 15.2. Chemical safety assessment**
A Chemical Safety Assessment has been carried out.

SECTION 16: Other information

A list of standard risk phrases used in the safety data sheet

H302	Harmful if swallowed.
H373	May cause damage to the kidneys through prolonged or repeated exposure.

Guidelines for safe handling used in the safety data sheet

P260	Do not breathe vapours.
P301+P312	IF SWALLOWED: Call a doctor if you feel unwell.

Other important information about human health protection

The product must not be - unless specifically approved by the manufacturer/importer - used for purposes other than as per the Section 1. The user is responsible for adherence to all related health protection regulations.

Key to abbreviations and acronyms used in the safety data sheet

ADR	European agreement concerning the international carriage of dangerous goods by road
BCF	Bioconcentration Factor
CAS	Chemical Abstracts Service
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures
EC	Identification code for each substance listed in EINECS
EC ₅₀	Concentration of a substance when it is affected 50% of the population
EINECS	European Inventory of Existing Commercial Chemical Substances
EmS	Emergency plan
EU	European Union

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Diethylene glycol

Creation date	12th June 2002	Version	4.0
Revision date	22nd April 2024		

EuPCS	European Product Categorisation System
IATA	International Air Transport Association
IBC	International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals
IC ₅₀	Concentration causing 50% blockade
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
INCI	International Nomenclature of Cosmetic Ingredients
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LC ₅₀	Lethal concentration of a substance in which it can be expected death of 50% of the population
LD ₅₀	Lethal dose of a substance in which it can be expected death of 50% of the population
log K _{ow}	Octanol-water partition coefficient
NOAEL	No observed adverse effect level
OEL	Occupational Exposure Limits
PBT	Persistent, Bioaccumulative and Toxic
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Agreement on the transport of dangerous goods by rail
UN	Four-figure identification number of the substance or article taken from the UN Model Regulations
UVCB	Substances of unknown or variable composition, complex reaction products or biological materials
VOC	Volatile organic compounds
vPvB	Very Persistent and very Bioaccumulative

Acute Tox.	Acute toxicity
STOT RE	Specific target organ toxicity - repeated exposure

Training guidelines

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

Recommended restrictions of use

not available

Information about data sources used to compile the Safety Data Sheet

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended.
REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

The changes (which information has been added, deleted or modified)

The version 4.0 replaces the SDS version from 24 January 2022. Changes were made in sections 1, 2, 11 and 16.

More information

Classification procedure - calculation method.

Statement

The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.