

SAFETY DATA SHEET

according to Commission Regulation (EU) 2020/878 as amended



Protolab
Tworzymy unikalne rozwiązania

Ethane-1,2-diol (Ethylene Glycol)

Creation date	23rd May 2023	Version	3.0
Revision date			

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

1.1. Product identifier
Ethane-1,2-diol (Ethylene Glycol)
Substance / mixture substance
Number 603-027-00-1
Chemical name ethanediol
CAS number 107-21-1
Index number 603-027-00-1
EC (EINECS) number 203-473-3
Registration number 01-2119456816-28-XXXX

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

Substance's intended use

Laboratory chemical substances. Manufacture of substances

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

Protolab Stanisław Staniuk



Protolab
Tworzymy unikalne rozwiązania

Address

Owocowa 4-8, Słupsk, 76-200

Poland

Phone

+48 794 341 322

E-mail

protolab@protolab.pl

Competent person responsible for the safety data sheet

Name

Protolab Stanisław Staniuk

E-mail

protolab@protolab.pl

1.4. Emergency telephone number

European emergency number: 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) (ingestion)

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

Most serious adverse effects on human health and the environment

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

2.2. Label elements

Hazard pictogram



Signal word

Warning

Dangerous substance

ethanediol

(Index: 603-027-00-1; CAS: 107-21-1)

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Hazard statements

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

Precautionary statements

P260 Do not breathe dust/mist.
P264 Wash face, hands and exposed parts of the body thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P314 Get medical advice/attention if you feel unwell.
P501 Dispose of container to according to applicable regulations.

Requirements for child-resistant fastenings and tactile warning of danger

Container must carry a tactile warning of danger.

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: 603-027-00-1 CAS: 107-21-1 EC: 203-473-3	substance main component ethanediol	>99	Acute Tox. 4, H302	1

Notes

1 A substance for which exposure limits are set.

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.

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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 formation of gases and vapours in concentrations exceeding the occupational exposure limits. Prevent contact with skin and eyes. Wash hands and exposed parts of the body thoroughly after handling. Do not eat, drink or smoke when using this product. 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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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European Union

Commission Directive 2000/39/EC

Substance name (component)	Type	Value	Note
ethanediol (CAS: 107-21-1)	OEL 8 hours	52 mg/m ³	Skin
	OEL 8 hours	20 ppm	
	OEL 15 minutes	104 mg/m ³	
	OEL 15 minutes	40 ppm	

DNEL

Ethane-1,2-diol (Ethylene Glycol)

Workers / consumers	Route of exposure	Value	Effect	Value determination	Source
Workers	Inhalation	35 mg/m ³	Chronic effects local		
Consumers	Inhalation	7 mg/kg	Chronic effects local		
Workers	Dermal	106 mg/kg	Chronic effects local		
Consumers	Dermal	53 mg/kg	Chronic effects local		

PNEC

Ethane-1,2-diol (Ethylene Glycol)

Route of exposure	Value	Value determination	Source
Drinking water	10 mg/l		
Marine water	1 mg/l		
Freshwater sediment	20.9 mg/kg		
Sea sediments	-		
Soil (agricultural)	1.23 mg/kg		
Microorganisms in sewage treatment	199 mg/l		

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

It is not needed.

Skin protection

Hand protection: Protective gloves resistant to the product. Contaminated skin should be washed thoroughly.

Respiratory protection

Halfmask with a filter against organic vapours or a self-contained breathing apparatus as appropriate if exposure limit values of substances are exceeded or 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	colourless
Odour	without fragrance
Melting point/freezing point	-13 °C
Boiling point or initial boiling point and boiling range	196-198 °C
Flammability	data not available
Lower and upper explosion limit	
bottom	3,2 % (V)

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upper	15,3 % (V)
Flash point	111 °C (zamknięty tygiel)
Auto-ignition temperature	412 °C
Decomposition temperature	data not available
pH	data not available
Kinematic viscosity	data not available
Solubility in water	completely miscible
Solubility in fats	data not available
Partition coefficient n-octanol/water (log value)	lod Pow: -1,36
Vapour pressure	1 hPa at 51,1 °C
Density and/or relative density	
Density	1,113 g/cm ³ at 25 °C
Relative vapour density	data not available
Particle characteristics	data not available
Form	liquid

9.2. Other information

Evaporation rate	1
Vapour density	2,14 (air = 1)

SECTION 10: Stability and reactivity

10.1. Reactivity

Not available.

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 and bases, aldehydes and aluminum, as well as against oxidizing substances.

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. Inhalation of solvent vapors above values exceeding exposure limits for working environment may result in acute inhalation poisoning, depending on the level of concentration and exposure time.

Acute toxicity

Harmful if swallowed.

Ethane-1,2-diol (Ethylene Glycol)

Route of exposure	Parameter	Value	Exposure time	Species	Sex
Inhalation	LC ₅₀	>2.5 mg/l	6 hours	Rat (Rattus norvegicus)	F/M
Skin	LD ₅₀	>3500 mg/kg		Mouse	F/M
Oral	LD ₅₀	7112 mg/kg		Rat (Rattus norvegicus)	

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Skin corrosion/irritation

Based on available data the classification criteria are not met.

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Route of exposure	Result	Exposure time	Species
Dermal	Not irritating	20 hours	Rabbit

Serious eye damage/irritation

Based on available data the classification criteria are not met.

Ethane-1,2-diol (Ethylene Glycol)

Route of exposure	Result	Exposure time	Species
Eye	Not irritating	24 hours	Rabbit

Respiratory or skin sensitisation

Based on available data the classification criteria are not met.

Ethane-1,2-diol (Ethylene Glycol)

Route of exposure	Result	Method	Exposure time	Species	Sex
Oral	Negative	OECD 406		Guinea-pig (Cavia aperea f. porcellus)	

Germ cell mutagenicity

Based on available data the classification criteria are not met.

Ethane-1,2-diol (Ethylene Glycol)

Result	Exposure time	Specific target organ	Species	Sex
Negative			Bacteria (Salmonella typhimurium/ Escherichia coli)	

Carcinogenicity

Based on available data the classification criteria are not met.

Reproductive toxicity

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.

Toxicity for specific target organ - repeated exposure

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

Aspiration hazard

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

Acute toxicity

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Parameter	Method	Value	Exposure time	Species	Environment	Source
LC ₅₀		>72860 mg/l	96 hours	Fish (Pimephales promelas)		US-EPA
EC ₅₀	OECD 202	>100 mg/l	48 hours	Daphnia (Daphnia magna)		
IC ₅₀		>10000 mg/l	7 days	Algae (Scenedesmus quadricauda)		

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Parameter	Method	Value	Exposure time	Species	Environment	Source
EC ₂₀		>1995 mg/l	30 minutes	Bacteria (Salmonella typhimurium)	Activated sludge	ISO 8192

12.2. Persistence and degradability

Biodegradability

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Parameter	Method	Value	Exposure time	Environment	Result
	OECD 301A	90-100 %	10 days	Atmosphere	Easily biodegradable

not available

12.3. Bioaccumulative potential

Not available.

12.4. Mobility in soil

Not available.

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.

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

ADR/RID: No

IMDG: No

IATA: No

14.6. Special precautions for user

Reference in the Sections 4 to 8.

14.7. Maritime transport in bulk according to IMO instruments

not relevant

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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

not available

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 if swallowed.

Guidelines for safe handling used in the safety data sheet

P260 Do not breathe dust/mist.
P264 Wash face, hands and exposed parts of the body thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P314 Get medical advice/attention if you feel unwell.
P501 Dispose of container to according to applicable regulations.

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
EC₂₀ Concentration of a substance when it is affected 20% of the population
EC₅₀ 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
EuPCS European Product Categorisation System
IATA International Air Transport Association
IBC International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals
IC₅₀ 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
LC₅₀ Lethal concentration of a substance in which it can be expected death of 50% of the population

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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
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 3.0 replaces the SDS version from 14 June 2022. Changes were made in sections 1, 2, 7, 11, 12, 15 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. Protolab is not responsible for incorrect or incompetent handling of the reagent. The above information is believed to be correct, but not exhaustive, and should only be considered as recommended precautions when handling the product.