

**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

Version 6.10

Revision Date 17.03.2023

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GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Ethylene glycol

Product Number : 102466

Brand : SIGALD

Index-No. : 603-027-00-1

REACH No. : 01-2119456816-28-XXXX

CAS-No. : 107-21-1

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

Identified uses : Laboratory chemicals, Manufacture of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Chemie GmbH  
Eschenstrasse 5  
D-82024 TAUFKIRCHEN

Telephone : +49 (0)89 6513-1130

Fax : +49 (0)89 6513-1161

E-mail address : technischerservice@merckgroup.com

**1.4 Emergency telephone**

Emergency Phone # : 0800 181 7059 (CHEMTREC Deutschland)  
+49 (0)696 43508409 (CHEMTREC weltweit)

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

Acute toxicity, Oral (Category 4), H302

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

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

**2.2 Label elements****Labelling according Regulation (EC) No 1272/2008**

Pictogram



Signal Word

Warning



Hazard statement(s)	
H302	Harmful if swallowed.
H373	May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.
Precautionary statement(s)	
P260	Do not breathe mist or vapors.
P264	Wash skin 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 contents/ container to an approved waste disposal plant.
Supplemental Hazard Statements	none

### Reduced Labeling (<= 125 ml)

Pictogram



Signal Word	Warning
Hazard statement(s)	none
Precautionary statement(s)	none
Supplemental Hazard Statements	none

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Synonyms	:	1,2-Ethanediol
Formula	:	C <sub>2</sub> H <sub>6</sub> O <sub>2</sub>
Molecular weight	:	62,07 g/mol
CAS-No.	:	107-21-1
EC-No.	:	203-473-3
Index-No.	:	603-027-00-1

Component	Classification	Concentration
<b>ethylene glycol</b>		
CAS-No.	107-21-1	Acute Tox. 4; STOT RE 2; H302, H373
EC-No.	203-473-3	
Index-No.	603-027-00-1	
		<= 100 %

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



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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Call in physician.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). 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

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

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Water Foam  
Carbon dioxide (CO<sub>2</sub>) Dry powder

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given. For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

### 5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### 5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.



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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.  
For personal protection see section 8.

### 6.2 Environmental precautions

Do not let product enter drains.

### 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage conditions

Tightly closed.

#### Storage class

Storage class (TRGS 510): 10: Combustible liquids

### 7.3 Specific end use(s)

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

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

##### Derived No Effect Level (DNEL)

Application Area	Routes of exposure	Health effect	Value
Workers	Inhalation	Long-term local effects	35 mg/m <sup>3</sup>
Workers	Skin contact	Long-term systemic effects	106mg/kg BW/d
Consumers	Inhalation	Long-term local effects	7 mg/m <sup>3</sup>
Consumers	Skin contact	Long-term systemic effects	53mg/kg BW/d

##### Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	1,53 mg/kg
Sea water	1 mg/l
Fresh water	10 mg/l
Sea sediment	3,7 mg/kg
Fresh water sediment	37 mg/kg
Sewage treatment plant	199,5 mg/l



## 8.2 Exposure controls

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

#### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

#### Body Protection

protective clothing

#### Respiratory protection

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |                                 |                                    |
|---------------------------------|------------------------------------|
| a) Physical state               | liquid                             |
| b) Color                        | colorless                          |
| c) Odor                         | odorless                           |
| d) Melting point/freezing point | Melting point: -13 °C at 1.013 hPa |



e) Initial boiling point and boiling range	197,4 °C at 1.013 hPa
f) Flammability (solid, gas)	No data available
g) Upper/lower flammability or explosive limits	Upper explosion limit: 15,3 %(V) Lower explosion limit: 3,2 %(V)
h) Flash point	115 °C - open cup
i) Autoignition temperature	412 °C at 1.013 hPa
j) Decomposition temperature	No data available
k) pH	No data available
l) Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m) Water solubility	at 20 °C completely miscible
n) Partition coefficient: n-octanol/water	log Pow: -1,36 - Bioaccumulation is not expected.
o) Vapor pressure	1 hPa at 51,1 °C
p) Density	1,113 g/cm <sup>3</sup> at 20 °C
Relative density	No data available
q) Relative vapor density	No data available
r) Particle characteristics	No data available
s) Explosive properties	No data available
t) Oxidizing properties	none

## 9.2 Other safety information

Surface tension	48,4 mN/m at 20 °C
Relative vapor density	2,14 - (Air = 1.0)

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Forms explosive mixtures with air on intense heating.  
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Risk of explosion with:  
Aluminum



perchloric acid  
Risk of ignition or formation of inflammable gases or vapours with:  
chromyl chloride  
Strong oxidizing agents  
chlorates  
Peroxides  
potassium permanganate  
Exothermic reaction with:  
chlorosulfonic acid  
Sodium hydroxide  
fuming sulfuric acid  
sulfuric acid

#### **10.4 Conditions to avoid**

Strong heating.

#### **10.5 Incompatible materials**

various plastics, Strong oxidizing agents

#### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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### **SECTION 11: Toxicological information**

#### **11.1 Information on toxicological effects**

##### **Acute toxicity**

LD50 Oral - 500,1 mg/kg

Oral: (Regulation (EC) No 1272/2008, Annex VI)

LC50 Inhalation - Rat - male and female - 6 h - > 2,5 mg/l - aerosol

Remarks: (ECHA)

LD50 Dermal - Mouse - male and female - > 3.500 mg/kg

Remarks: (ECHA)

##### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 20 h

Remarks: (ECHA)

##### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation - 24 h

Remarks: (ECHA)

##### **Respiratory or skin sensitization**

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

##### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative



Test Type: dominant lethal test

Species: Rat

Application Route: Oral

Result: negative

### **Carcinogenicity**

This product is or contains a component that is probably not carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

### **Reproductive toxicity**

Laboratory experiments have shown teratogenic effects.

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

### **Specific target organ toxicity - single exposure**

No data available

### **Specific target organ toxicity - repeated exposure**

Oral - May cause damage to organs through prolonged or repeated exposure.

- Kidney

### **Aspiration hazard**

No data available

## **11.2 Additional Information**

### **Endocrine disrupting properties**

#### **Product:**

Assessment

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: KW2975000

When ingested early symptoms mimic alcohol inebriation and are followed by nausea, vomiting, abdominal pain, weakness, muscle tenderness, respiratory failure, convulsions, cardiovascular collapse, pulmonary edema, hypocalcemic tetany, and severe metabolic acidosis. Without treatment, death may occur in 8 to 24 hours. Victims who survive the initial toxicity period usually develop renal failure along with brain and liver damage., Exposure to and/or consumption of alcohol may increase toxic effects. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

agitation

CNS disorders

Systemic effects:

After a latency period:

Tiredness

ataxia (impaired locomotor coordination)

Unconsciousness





Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Central nervous system - Irregularities - Based on Human Evidence

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## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish	static test LC50 - Pimephales promelas (fathead minnow) - > 72.860 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	IC5 - Scenedesmus quadricauda (Green algae) - > 10.000 mg/l - 7 d Remarks: (Lit.)
Toxicity to bacteria	static test EC20 - activated sludge - > 1.995 mg/l - 30 min (ISO 8192)
Toxicity to fish(Chronic toxicity)	flow-through test LC50 - Menidia peninsulae (tidewater silverside) - > 1.500 mg/l - 28 d Remarks: (in analogy to similar products) (ECHA) The value is given in analogy to the following substances: triethylene glycol

### 12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 10 d Result: 90 - 100 % - Readily biodegradable. (OECD Test Guideline 301A)
Biochemical Oxygen Demand (BOD)	780 mg/g Remarks: (IUCLID)
Chemical Oxygen Demand (COD)	1.190 mg/g Remarks: (IUCLID)
Theoretical oxygen demand	1.290 mg/g Remarks: (IUCLID)
Ratio BOD/ThBOD	60 % Remarks: (IUCLID)

### 12.3 Bioaccumulative potential

Does not bioaccumulate.

### 12.4 Mobility in soil

No data available



This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Assessment	: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
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No data available

Not classified as dangerous in the meaning of transport regulations.

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

### Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

## 15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

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## SECTION 16: Other information

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

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

### Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

### Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the



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