

# Safety data sheet

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BASF Safety data sheet according to the United Nations' Globally Harmonized System (UN GHS)

Date / Revised: 04.04.2024

Version: 8.0

Product: **ETHYLENE GLYCOL - INDUSTRIAL GRADE**

(ID no. 30084587/SDS\_GEN\_00/EN)

Date of print 25.05.2024

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## 1. Identification

### Product identifier

## **ETHYLENE GLYCOL - INDUSTRIAL GRADE**

Chemical name: ethyleneglycol

CAS Number: 107-21-1

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

Relevant identified uses: Chemical, antifreezing agent, Intermediate, solvent(s), Monomer.

Not recommended use: Pharmaceutical

### Details of the supplier of the safety data sheet

Company:

BASF SE

67056 Ludwigshafen

GERMANY

Operating Division Petrochemicals

Telephone: +49 621 60-42151

E-mail address: sds-petrochemicals@basf.com

### Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

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## 2. Hazards Identification

## Classification of the substance or mixture

### According to UN GHS criteria

Acute Tox. 4 (oral)  
STOT RE (Kidney) 2

For the classifications not written out in full in this section the full text can be found in section 16.

## Label elements

### Globally Harmonized System (GHS)

Pictogram:



Signal Word:

Warning

Hazard Statement:

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

Precautionary Statements (Prevention):

P260	Do not breathe mist or vapour.
P270	Do not eat, drink or smoke when using this product.
P264	Wash contaminated body parts thoroughly after handling.

Precautionary Statements (Response):

P314	Get medical advice/attention if you feel unwell.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330	Rinse mouth.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.
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## Other hazards

### According to UN GHS criteria

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

See section 12 - Results of PBT and vPvB assessment.

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### 3. Composition/Information on Ingredients

#### Substances

##### Chemical nature

Ethane-1,2-diol (Content (W/W):  $\geq 99,5\%$ )

CAS Number: 107-21-1

EC-Number: 203-473-3

INDEX-Number: 603-027-00-1

##### Hazardous ingredients (GHS)

According to UN GHS criteria

Ethane-1,2-diol

Content (W/W):  $\geq 99,5\%$  -  $\leq 100\%$

CAS Number: 107-21-1

EC-Number: 203-473-3

INDEX-Number: 603-027-00-1

Acute Tox. 4 (oral)

STOT RE (Kidney) 2

H302, H373

For the classifications not written out in full in this section the full text can be found in section 16.

#### Mixtures

Not applicable

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### 4. First-Aid Measures

#### Description of first aid measures

Remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:

Wash thoroughly with soap and water

On contact with eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

On ingestion:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

### **Most important symptoms and effects, both acute and delayed**

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Hazards: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11. (Further) symptoms and / or effects are not known so far

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## **5. Fire-Fighting Measures**

### **Extinguishing media**

Suitable extinguishing media:

dry powder, water spray, carbon dioxide, alcohol-resistant foam

Unsuitable extinguishing media for safety reasons:

water jet

Additional information:

Use extinguishing measures to suit surroundings.

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

The product is combustible. Cool endangered containers with water-spray. See SDS section 7 - Handling and storage.

### **Advice for fire-fighters**

Special protective equipment:

Wear a self-contained breathing apparatus. Special protective equipment for firefighters

Further information:

Evacuate area of all unnecessary personnel. Fight fire from maximum distance.

Extend fire extinguishing measures to the surroundings. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

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## **6. Accidental Release Measures**

High risk of slipping due to leakage/spillage of product.

Shut off or stop source of leak. Shut off or stop released substance/product under safe conditions.

Pack in tightly closed containers for disposal.

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

Handle in accordance with good industrial hygiene and safety practice.

Avoid contact with the skin, eyes and clothing.

Take off immediately all contaminated clothing.

### **Environmental precautions**

Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

Discharge into the environment must be avoided. Collect contaminated washing water for appropriate disposal.

### **Methods and material for containment and cleaning up**

Pick up with suitable appliance and dispose of. Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of absorbed material in accordance with regulations.

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## **7. Handling and Storage**

### **Precautions for safe handling**

Handle in accordance with good industrial hygiene and safety practice.

Protection against fire and explosion:

No special precautions necessary. Substance/product is non-flammable.

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

The product in undamaged packing need not be stored separately.

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place. Protect from air. Protect from atmospheric humidity. Protect contents from the effects of light.

Storage stability:

Storage temperature: < 40 °C

The stated storage temperature should be noted.

Storage duration: 12 Months

### **Specific end use(s)**

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

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## **8. Exposure Controls/Personal Protection**

### **Control parameters**

Components with occupational exposure limits

107-21-1: Ethane-1,2-diol

### **Exposure controls**

Personal protective equipment

**Respiratory protection:**

Wear respiratory protection if ventilation is inadequate. Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

**Hand protection:**

Suitable chemical resistant safety gloves (EN ISO 374-1) also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) etc. Manufacturer's directions for use should be observed because of great diversity of types.

Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

**Eye protection:**

Safety glasses with side-shields (frame goggles) (e.g. EN 166)

**Body protection:**

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

**General safety and hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

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## 9. Physical and Chemical Properties

### 9.1. Information on basic physical and chemical properties

State of matter:	liquid	
Form:	liquid	
Colour:	colourless, clear	
Odour:	odourless	
Odour threshold:	not determined	
Melting point:	-13 °C	
	Literature data.	
Boiling point:	197,4 °C	
	(1.013 hPa)	
	Literature data.	
Flammability:	hardly combustible	(derived from flash point)
Lower explosion limit:	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Flash point:	111 °C	
	Literature data.	
Auto-ignition temperature:	398 °C	
	Literature data.	

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Thermal decomposition: No decomposition if correctly stored and handled.

pH value: 5,0 (internal method)  
(500 g/kg, 20 °C)

Viscosity, dynamic: 16,1 mPa.s  
(25 °C)  
Literature data.

Thixotropy: not thixotropic

Solubility in water: miscible

Solubility (qualitative) solvent(s): polar solvents  
soluble

Partitioning coefficient n-octanol/water (log Kow): approx. - (Calculation Hansch/Leo)  
1,36  
(25 °C)  
Literature data.

Vapour pressure: 0,123 hPa (measured)  
(25 °C)  
Literature data.

Relative density: 1,11  
(20 °C)

Density: 1,11 g/cm<sup>3</sup>  
(20 °C)  
Literature data.

Relative vapour density (air): 2,14 (calculated)  
(20 °C)  
Heavier than air.

Particle characteristics

Particle size distribution: The substance / product is marketed or used in a non solid or granular form. -

**9.2. Other information****Information with regard to physical hazard classes**Explosives

Explosion hazard: Based on the chemical structure there is no indication of explosive properties.

Impact sensitivity:

Based on the chemical structure there is no shock-sensitivity.

Oxidizing properties

Fire promoting properties: Based on its structural properties the product is not classified as oxidizing.

Pyrophoric properties

Self-ignition temperature:

Test type: Spontaneous self-ignition at room-temperature.

Based on its structural properties the product is not classified as self-igniting.

Self-heating substances and mixtures

Self heating ability: It is not a substance capable of spontaneous heating.  
Not tested on account of the low melting-point.

Substances and mixtures, which emit flammable gases in contact with water

Formation of flammable gases:

Forms no flammable gases in the presence of water.

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Corrosion to metals

No corrosive effect on metal.

**Other safety characteristics**

Miscibility with water:

miscible in all proportions

pKA:

The substance does not dissociate.

Hygroscopy:

hygroscopic

Adsorption/water - soil:

KOC: 1,0; log KOC: 0,0

(calculated)

Surface tension:

Based on chemical structure, surface activity is not to be expected.

Molar mass:

62,07 g/mol

SAPT-Temperature:

Study scientifically not justified.

Evaporation rate:

Value can be approximated from Henry's Law Constant or vapor pressure.

**10. Stability and Reactivity****Reactivity**

Corrosion to metals: No corrosive effect on metal.

Reactions with water/air:

Reaction with:

air

Flammable gases:

no

Toxic gases:

no

Corrosive gases:

no

Smoke or fog:

no

Peroxides:

no

Formation of flammable gases:

Remarks:

Forms no flammable gases in the presence of water.

**Chemical stability**

The product is stable if stored and handled as prescribed/indicated.

**Possibility of hazardous reactions**

No hazardous reactions when stored and handled according to instructions.

**Conditions to avoid**

&gt; 40 °C

Avoid humidity. Avoid daylight. Disregard of the conditions mentioned may result in undesirable decomposition reactions.



## Incompatible materials

Substances to avoid:  
strong oxidizing agents

## Hazardous decomposition products

Possible decomposition products:  
carbonyl compounds, Dioxolan derivatives

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# 11. Toxicological Information

## Information on toxicological effects

### Acute toxicity

Assessment of acute toxicity:

Of moderate toxicity after single ingestion. Classification according to the effects on man. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation.

Experimental/calculated data:

LD (human) human (oral): approx. 1.600 mg/kg

LC50 rat (by inhalation): > 2,5 mg/l 6 h

No mortality was observed. An aerosol was tested.

LD50 mouse (dermal): > 3.500 mg/kg

No mortality was observed.

### Irritation

Assessment of irritating effects:

Not irritating to eyes and skin.

Experimental/calculated data:

Skin corrosion/irritation rabbit: non-irritant non-irritant (BASF-Test)

Serious eye damage/irritation rabbit: non-irritant (BASF-Test)

### Respiratory/Skin sensitization

Assessment of sensitization:

Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:

Guinea pig maximization test guinea pig: Non-sensitizing. (similar to OECD guideline 406)

### Germ cell mutagenicity

Assessment of mutagenicity:

The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in a test with mammals.

#### Carcinogenicity

Assessment of carcinogenicity:

In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.

#### Reproductive toxicity

Assessment of reproduction toxicity:

The results of animal studies gave no indication of a fertility impairing effect.

#### Developmental toxicity

Assessment of teratogenicity:

Developmental toxicity was observed after oral ingestion of high doses in studies with rats and mice, but this effect was not seen in a study with rabbits. Mechanistic studies show that the rabbit is the relevant species for the classification for human health. As such, and since ethylene glycol is not a developmental toxicant in the rabbit, no classification is warranted.

#### Specific target organ toxicity (single exposure)

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

#### Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:

The substance may cause damage to the kidney after repeated ingestion. The substance may cause damage to the kidney after repeated skin contact with high doses.

#### Aspiration hazard

No aspiration hazard expected.

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## 12. Ecological Information

### Toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:

LC50 (96 h) 72.860 mg/l, *Pimephales promelas* (EPA 72-1, static)

Aquatic invertebrates:

EC50 (48 h) > 100 mg/l, *Daphnia magna* (OECD Guideline 202, part 1, static)

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Aquatic plants:

EC50 (96 h) 6.500 - 13.000 mg/l (growth rate), *Pseudokirchneriella subcapitata* (Algal growth inhibition test)

Microorganisms/Effect on activated sludge:

EC20 (30 min) > 1.995 mg/l, activated sludge, domestic (DIN EN ISO 8192, aerobic)

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Chronic toxicity to fish:

No observed effect concentration (28 d) > 40 mg/l, *Menidia peninsulae* (other, Flow through.)

Chronic toxicity to aquatic invertebrates:

No observed effect concentration (7 d) 8.590 mg/l, *Ceriodaphnia* sp. (Daphnia test chronic, semistatic)

Assessment of terrestrial toxicity:

No data available concerning terrestrial toxicity.

## **Persistence and degradability**

Assessment biodegradation and elimination (H<sub>2</sub>O):

Readily biodegradable (according to OECD criteria).

Elimination information:

90 - 100 % DOC reduction (10 d) (OECD 301 A (new version)) (aerobic, activated sludge, domestic)

Assessment of stability in water:

According to structural properties, hydrolysis is not expected/probable.

Information on Stability in Water (Hydrolysis):

No data available.

## **Bioaccumulative potential**

Assessment bioaccumulation potential:

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Bioaccumulation potential:

No data available.

## **Mobility in soil**

Assessment transport between environmental compartments:

Volatility: The substance will not evaporate into the atmosphere from the water surface.

Adsorption in soil: Adsorption to solid soil phase is not expected.

## **Results of PBT and vPvB assessment**

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According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification

### Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

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## 13. Disposal Considerations

### Waste treatment methods

Must be disposed of or incinerated in accordance with local regulations.

Contaminated packaging:

Uncontaminated packaging can be re-used.

Packs that cannot be cleaned should be disposed of in the same manner as the contents.

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## 14. Transport Information

### Land transport

ADR

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

RID

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

### Inland waterway transport

ADN

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Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user:	None known

#### Transport in inland waterway vessel

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable

#### Sea transport

##### IMDG

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user:	None known

#### Air transport

##### IATA/ICAO

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user:	None known

#### **Maritime transport in bulk according to IMO instruments**

Regulation:	IBC-Code
Product name:	Ethylene glycol
Pollution category:	Z
Ship Type:	2G

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## 15. Regulatory Information

### **Safety, health and environmental regulations/legislation specific for the substance or mixture**

Not applicable

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## 16. Other Information

Full text of classifications, hazard symbols and hazard statements, if mentioned in section 2 or 3:

Acute Tox.	Acute toxicity
STOT RE	Specific target organ toxicity — repeated exposure
H302	Harmful if swallowed.
H373	May cause damage to organs (Kidney) through prolonged or repeated exposure.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

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