



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 17.11.2015

Version 1.2

## SECTION 1. Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Catalogue No.	100949
Product name	Ethylene glycol EMPLURA®
REACH Registration Number	A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	107-21-1

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

Identified uses	Reagent for analysis, Chemical production For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merckgroup.com">www.merckgroup.com</a> ).
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### 1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	EHS Manager *+61 (3) 8727 6300 * Monday through Friday, 8:00am to 5:00pm (EST)
Regional representation	Merck Pty. Limited ABN 80 001 239 818 Ground Floor, Building 1 885 Mountain Highway Bayswater VIC 3153 Australia <a href="http://www.merckmillipore.com">www.merckmillipore.com</a>

### 1.4 Emergency telephone number

+61 (3) 8727 6300  
After hours: CHEMCALL +64 4 917 9888  
Poisons Information Centre: 13 1126

## SECTION 2. Hazards identification

### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**

Acute toxicity, Category 4, Oral, H302  
Specific target organ toxicity - repeated exposure, Category 2, Oral, Kidney, H373  
For the full text of the H-Statements mentioned in this Section, see Section 16.

**Classification (67/548/EEC or 1999/45/EC)**

Xn Harmful R22 - 48/22

For the full text of the R-phrases mentioned in this Section, see Section 16.

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## 2.2 Label elements

### Labelling (REGULATION (EC) No 1272/2008)

#### Hazard pictograms



#### Signal word

Warning

#### Hazard statements

H302 Harmful if swallowed.

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

#### Precautionary statements

Response

P314 Get medical advice/ attention if you feel unwell.

#### Reduced labelling (≤125 ml)

#### Hazard pictograms



#### Signal word

Warning

CAS-No. 107-21-1

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	HOCH <sub>2</sub> CH <sub>2</sub> OH	C <sub>2</sub> H <sub>6</sub> O <sub>2</sub> (Hill)
EC-No.	203-473-3	
Molar mass	62.07 g/mol	

### Hazardous components (REGULATION (EC) No 1272/2008)

#### Chemical Name (Concentration)

CAS-No.	Registration number	Classification
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ethylene glycol (<= 100 % )

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

107-21-1	*)	
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Acute toxicity, Category 4, H302  
Specific target organ toxicity - repeated exposure, Category 2,  
H373

\*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

**Hazardous components (1999/45/EC)**

*Chemical Name (Concentration)*

CAS-No.	Classification
ethylene glycol (<= 100 % )	
107-21-1	Xn, Harmful; R22-48/22

For the full text of the R-phrases mentioned in this Section, see Section 16.

**3.2 Mixture**

Not applicable

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**SECTION 4. First aid measures**

**4.1 Description of first aid measures**

After inhalation: fresh air. Call in physician.

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

After eye contact: rinse out with plenty of water.

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

Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

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

Unconsciousness, agitation, Nausea, Vomiting, Tiredness, ataxia (impaired locomotor coordination), CNS disorders

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

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

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**SECTION 5. Firefighting measures**

**5.1 Extinguishing media**

*Suitable extinguishing media*

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder

*Unsuitable extinguishing media*

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

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

Combustible.

Vapours 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**

*Special protective equipment for firefighters*

In the event of fire, wear self-contained breathing apparatus.

*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 vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment 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**

Indications about waste treatment see section 13.

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**SECTION 7. Handling and storage**

**7.1 Precautions for safe handling**

*Advice on safe handling*

Observe label precautions.

*Hygiene measures*

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

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

*Storage conditions*

Tightly closed.

Recommended storage temperature see product label.

**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**

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*ethylene glycol (107-21-1)*

AU OEL	Skin designation:	Can be absorbed through the skin. Form of exposure: Particulate.
	Skin designation:	Can be absorbed through the skin. Form of exposure: Vapor.
Time Weighted Average (TWA):	10 mg/m <sup>3</sup>	Form of exposure: Particulate.
Short Term Exposure Limit (STEL):	40 ppm 104 mg/m <sup>3</sup>	Form of exposure: Vapor.
Time Weighted Average (TWA):	20 ppm 52 mg/m <sup>3</sup>	Form of exposure: Vapor.

## 8.2 Exposure controls

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

### Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

#### *Eye/face protection*

Safety glasses

#### *Hand protection*

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

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)).

#### *Other protective equipment*

protective clothing

#### *Respiratory protection*

required when vapours/aerosols are generated.

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

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devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Environmental exposure controls**

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**

Form	liquid
Colour	colourless
Odour	odourless
Odour Threshold	Not applicable
pH	6 - 7.5 at 100 g/l 20 °C
Melting point	-14 - -10 °C
Boiling point/boiling range	197.6 °C at 1,013 hPa
Flash point	111 °C Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	3.2 %(V)
Upper explosion limit	15.3 %(V)
Vapour pressure	0.053 hPa at 20 °C
Relative vapour density	2.14
Density	1.11 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	1,000 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: -1.36 (experimental) (Lit.) Bioaccumulation is not expected.

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Auto-ignition temperature	No information available.
Decomposition temperature	> 200 - 250 °C
Viscosity, dynamic	21 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	Not applicable

#### 9.2 Other data

Ignition temperature	410 °C Method: DIN 51794
Conductivity	< 1 µS/cm

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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:

Aluminium, 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, sulphuric acid

#### 10.4 Conditions to avoid

Strong heating.

#### 10.5 Incompatible materials

various plastics

#### 10.6 Hazardous decomposition products

no information available

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**SECTION 11. Toxicological information**

**11.1 Information on toxicological effects**

*Acute oral toxicity*

LDLO human: 786 mg/kg

(RTECS)

Symptoms: Nausea, Vomiting  
absorption

*Acute inhalation toxicity*

LC50 Rat: > 2.5 mg/l; 6 h ; aerosol  
(ECHA)

*Acute dermal toxicity*

absorption  
LD50 Mouse: > 3,500 mg/kg  
(ECHA)

*Skin irritation*

Rabbit  
Result: No irritation

(ECHA)

*Eye irritation*

Rabbit  
Result: No eye irritation

(ECHA)

*Sensitisation*

Patch test:  
Result: negative

(IUCLID)

*Germ cell mutagenicity*

*Genotoxicity in vivo*

Chromosome aberration test

Rat

male and female

Oral

Result: negative

(ECHA)

*Genotoxicity in vitro*

Ames test

Escherichia coli/Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Mutagenicity (mammal cell test): chromosome aberration.

Result: negative

(ECHA)



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*Carcinogenicity*

Did not show carcinogenic effects in animal experiments.

*Reproductive toxicity*

This information is not available.

*Teratogenicity*

This information is not available.

*Specific target organ toxicity - single exposure*

This information is not available.

*Specific target organ toxicity - repeated exposure*

Target Organs: Kidney

May cause damage to organs through prolonged or repeated exposure.

*Aspiration hazard*

This information is not available.

**11.2 Further information**

After absorption:

agitation, CNS disorders

Systemic effects:

After a latency period:

Tiredness, ataxia (impaired locomotor coordination), Unconsciousness

Handle in accordance with good industrial hygiene and safety practice.

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**SECTION 12. Ecological information**

**12.1 Toxicity**

*Toxicity to fish*

LC50 Oncorhynchus mykiss (rainbow trout): > 18,500 mg/l; 96 h  
(External MSDS)

*Toxicity to daphnia and other aquatic invertebrates*

static test Daphnia magna (Water flea): > 100 mg/l; 48 h

Analytical monitoring: yes

OECD Test Guideline 202

*Toxicity to algae*

IC5 Scenedesmus quadricauda (Green algae): > 10,000 mg/l; 7 d  
(Lit.)

*Toxicity to bacteria*

static test EC5 Pseudomonas putida: > 10,000 mg/l; 16 h

DIN 38412

**12.2 Persistence and degradability**

*Biodegradability*

100 %; 10 d; aerobic

OECD Test Guideline 301A

Readily biodegradable

*Biochemical Oxygen Demand (BOD)*

780 mg/g (5 d)

(IUCLID)

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*Chemical Oxygen Demand (COD)*  
1,190 mg/g

(IUCLID)

*Theoretical oxygen demand (ThOD)*  
1,290 mg/g

(IUCLID)

*Ratio BOD/ThBOD*  
BOD5 60 %  
(IUCLID)

### 12.3 Bioaccumulative potential

*Partition coefficient: n-octanol/water*  
log Pow: -1.36  
(experimental)

(Lit.) Bioaccumulation is not expected.

### 12.4 Mobility in soil

No information available.

### 12.5 Results of PBT and vPvB assessment

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

### 12.6 Other adverse effects

Discharge into the environment must be avoided.

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## SECTION 13. Disposal considerations

### *Waste treatment methods*

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

### Sea transport (IMDG)

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**14.1 - 14.6** Not classified as dangerous in the meaning of transport regulations.

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**  
Not relevant

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**SECTION 15. Regulatory information**

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

*National legislation*

Storage class 10 - 13

**15.2 Chemical Safety Assessment**

For this product a chemical safety assessment was not carried out.

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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 R-phrases referred to under sections 2 and 3**

R22 Harmful if swallowed.  
R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

**Training advice**

Provide adequate information, instruction and training for operators.

**Labelling**

*Hazard pictograms*



*Signal word*

Warning

*Hazard statements*


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

*Precautionary statements*

*Response*

P314 Get medical advice/ attention if you feel unwell.

**Labelling (67/548/EEC or 1999/45/EC)**


*Symbol(s)*  Xn Harmful

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<i>R</i> -phrase(s)	22-48/22	Harmful if swallowed. Harmful: danger of serious damage to health by prolonged exposure if swallowed.
<i>S</i> -phrase(s)	22-36	Do not breathe dust. Wear suitable protective clothing.
EC-No.	203-473-3	
<b>Reduced labelling (≤125 ml)</b>		
Symbol(s)	 Xn	Harmful
<i>R</i> -phrase(s)	22-48/22	Harmful if swallowed. Harmful: danger of serious damage to health by prolonged exposure if swallowed.

**Key or legend to abbreviations and acronyms used in the safety data sheet**  
Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*