

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 04.11.2010

Version 17.12

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

### 1.1 Product identifier

|                           |  |
|---------------------------|--|
| Catalogue No.             | 822283   |
| Product name              | Methanol 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. |

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

|                 |   |
|-----------------|---|
| Identified uses | Chemical for synthesis<br>For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merck-chemicals.com">www.merck-chemicals.com</a> ). |
|-----------------|---|

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

|                        |   |
|------------------------|---|
| Company                | Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0              |
| Responsible Department | EQ-EPS * e-mail: <a href="mailto:prodsafe@merck.de">prodsafe@merck.de</a> |

**1.4 Emergency telephone number**      **Please contact the regional Merck representation in your country.**

## 2. Hazards identification

### 2.1 Classification of the substance or mixture

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

Flammable liquid, Category 2, H225

Acute toxicity, Category 3, Inhalation, H331

Acute toxicity, Category 3, Oral, H301

Acute toxicity, Category 3, Dermal, H311

Specific target organ toxicity - single exposure, Category 1, H370

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

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

F; R11

T; R23/24/25 - 39/23/24/25

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

### 2.2 Label elements

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

*Hazard pictograms*



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*Signal word*  
Danger

*Hazard statements*  
H225 Highly flammable liquid and vapour.  
H331 Toxic if inhaled.  
H311 Toxic in contact with skin.  
H301 Toxic if swallowed.  
H370 Causes damage to organs.

*Precautionary statements*  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P233 Keep container tightly closed.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

*Index-No.* 603-001-00-X

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

|             |                             |   |
|-------------|-----------------------------|---|
| Symbol(s)   | F<br>T                      | Highly flammable<br>Toxic   |
| R-phrase(s) | 11-23/24/25-<br>39/23/24/25 | Highly flammable. Toxic by inhalation, in contact with skin and if swallowed. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.   |
| S-phrase(s) | 7-16-36/37-45               | Keep container tightly closed. Keep away from sources of ignition - No smoking. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). |

EC-No. 200-659-6 EC Label

**Reduced labelling (≤125 ml)**

|             |                      |   |
|-------------|----------------------|---|
| Symbol(s)   | F<br>T               | Highly flammable<br>Toxic   |
| R-phrase(s) | 23/24/25-39/23/24/25 | Toxic by inhalation, in contact with skin and if swallowed. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. |
| S-phrase(s) | 36/37-45             | Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).                 |

EC Label

**2.3 Other hazards**

None known.

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**3. Composition/information on ingredients**

|            |                    |                          |
|------------|--------------------|--------------------------|
| Formula    | CH <sub>3</sub> OH | CH <sub>4</sub> O (Hill) |
| CAS-No.    | 67-56-1            |                          |
| Index-No.  | 603-001-00-X       |                          |
| EC-No.     | 200-659-6          |                          |
| Molar mass | 32,04 g/mol        |                          |

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#### 4. First aid measures

##### 4.1 Description of first aid measures

*General advice*

First aider needs to protect himself.

After inhalation: fresh air. If breathing stops: immediately apply artificial respiration, if necessary oxygen. Immediately call in physician.

In case of skin contact Take off all contaminated clothing immediately. If on skin, rinse well with water. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

After swallowing: fresh air. Make victim drink ethanol (e.g. 1 drinking glass of a 40% alcoholic beverage). Call a doctor immediately (mention methanol ingestion). Only in exceptional cases, if no medical care is available within one hour, induce vomiting (only in fully conscious persons) and make victim drink ethanol again (approx. 0.3 ml of a 40% alcoholic beverage/kg body weight/hour).

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

irritant effects, Drowsiness, Dizziness, narcosis, agitation, spasms, inebriation, Nausea, Vomiting, Headache, blindness, Impairment of vision, Coma  
Drying-out effect resulting in rough and chapped skin.

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

No information available.

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#### 5. Fire-fighting measures

##### 5.1 Extinguishing media

*Suitable extinguishing media*

Carbon dioxide (CO<sub>2</sub>), Foam, 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 material, Vapours are heavier than air and may spread along floors.  
Development of hazardous combustion gases or vapours possible in the event of fire.  
Forms explosive mixtures with air at ambient temperatures.  
Pay attention to flashback.

##### 5.3 Advice for firefighters

*Special protective equipment for fire-fighters*

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

*Further information*

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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#### 6. Accidental release measures

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

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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 empty into drains. Risk of explosion.

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

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7.2 and 10.5).

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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## 7. Handling and storage

### 7.1 Precautions for safe handling

Work under hood. Do not inhale substance. Avoid generation of vapours/aerosols.

*Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

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

Keep locked up or in an area accessible only to qualified or authorised persons. Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place.

Store at +15°C to +25°C.

### 7.3 Specific end uses

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

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## 8. Exposure controls/personal protection

### 8.1 Control parameters

### 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.

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. Do not eat, drink or smoke when using this product. Work under hood. Do not inhale substance.

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*Eye/face protection*

Safety glasses

*Hand protection*

full contact:

Glove material: butyl-rubber  
Glove thickness: 0,7 mm  
Break through time: > 480 min

splash contact:

Glove material: Viton (R)  
Glove thickness: 0,70 mm  
Break through time: > 120 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 898 Butoject® (full contact), KCL 890 Vitoject® (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:*

Flame retardant antistatic protective clothing

*Respiratory protection*

required when vapours/aerosols are generated.

Recommended Filter type: Filter AX (EN 371)

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.

*Environmental exposure controls*

Do not empty into drains.

Risk of explosion.

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## 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|                             |                           |
|-----------------------------|---------------------------|
| Form                        | liquid                    |
| Colour                      | colourless                |
| Odour                       | characteristic            |
| Odour Threshold             | No information available. |
| pH                          | No information available. |
| Melting point               | -98 °C                    |
| Boiling point/boiling range | 64,5 °C<br>at 1.013 hPa   |

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|  |  |
|--|--|
| Flash point                            | 11 °C<br>Method: c.c.  |
| Evaporation rate                       | No information available.  |
| Flammability (solid, gas)              | No information available.  |
| Lower explosion limit                  | 5,5 %(V)   |
| Upper explosion limit                  | 36,5 %(V)  |
| Vapour pressure                        | 128 hPa<br>at 20 °C  |
| Relative vapour density                | 1,11   |
| Relative density                       | 0,792 g/cm <sup>3</sup><br>at 20 °C  |
| Water solubility                       | at 20 °C<br>soluble  |
| Partition coefficient: n-octanol/water | log Pow: -0,77<br>Method: (experimental)<br>(Lit.) Bioaccumulation is not expected (log Pow <1). |
| Autoignition temperature               | No information available.  |
| Decomposition temperature              | No information available.  |
| Viscosity, dynamic                     | 0,597 mPa.s<br>at 20 °C  |
| Explosive properties                   | No information available.  |
| Oxidizing properties                   | No information available.  |

## 9.2 Other data

|                         |                     |
|-------------------------|---------------------|
| Ignition temperature    | 455 °C<br>DIN 51794 |
| Minimum ignition energy | 0,14 mJ             |

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## 10. Stability and reactivity

### 10.1 Reactivity

Vapours may form explosive mixture with air.

### 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:

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Oxidizing agents, perchloric acid, perchlorates, salts of oxyhalogenic acids, chromium(VI) oxide, halogen oxides, nitrous acid, nitrogen oxides, nonmetallic oxides, chromosulfuric acid, chlorates, hydrides, zinc diethyl, halogens, magnesium, hydrogen peroxide

Exothermic reaction with:

acid halides, Acid anhydrides, Reducing agents, acids

Generates dangerous gases or fumes in contact with:

Alkaline earth metals, Alkali metals

#### 10.4 Conditions to avoid

Warming.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

#### 10.5 Incompatible materials

various plastics, magnesium, zinc alloys

#### 10.6 Hazardous decomposition products

no information available

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### 11. Toxicological information

#### 11.1 Information on toxicological effects

*Acute oral toxicity*

LDLO human

Dose: 143 mg/kg

(RTECS)

LD50 rat

Dose: 5.628 mg/kg

(IUCLID)

Symptoms: Nausea, Vomiting, inebriation

*Acute inhalation toxicity*

LC50 rat

Dose: 85,26 mg/l, 4 h

(IUCLID)

Symptoms: Drowsiness, Headache, Irritation symptoms in the respiratory tract.

*Acute dermal toxicity*

absorption

*Skin irritation*

Drying-out effect resulting in rough and chapped skin.

*Eye irritation*

slight irritation Irritations of mucous membranes

*Sensitisation*

Sensitisation test: guinea pig

Result: negative

(IUCLID)

*Genotoxicity in vivo*

Mutagenicity (mammal cell test): micronucleus.

Result: negative

(IUCLID)

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*Genotoxicity in vitro*

Ames test  
Result: negative  
(IUCLID)

*Carcinogenicity*

Did not show carcinogenic effects in animal experiments. (IUCLID)

*Specific target organ toxicity - single exposure*

Causes damage to organs.

*Specific target organ toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

*Aspiration hazard*

No aspiration toxicity classification

## 11.2 Further information

*Further information*

Systemic effects:

acidosis, drop in blood pressure, agitation, spasms, narcosis, Coma, Symptoms may be delayed.

If inhaled

Dizziness

If swallowed

Impairment of vision, blindness, Irreversible damage of the optical nerve.

Damage to:

Liver, Kidney, Cardiac

Further data:

Handle in accordance with good industrial hygiene and safety practice.

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## 12. Ecological information

### 12.1 Toxicity

*Toxicity to fish*

LC50

Species: *Lepomis macrochirus* (Bluegill sunfish)

Dose: 15.400 mg/l

Exposure time: 96 h

(in soft water) (ECOTOX Database)

*Toxicity to daphnia and other aquatic invertebrates.*

EC5

Species: *E. sulcatum*

Dose: > 10.000 mg/l

Exposure time: 72 h

(Lit.)

EC50

Species: *Daphnia magna* (Water flea)

Dose: > 10.000 mg/l

Exposure time: 48 h

(IUCLID)



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*Toxicity to algae*

IC5

Species: *Scenedesmus quadricauda* (Green algae)

Dose: 8.000 mg/l

Exposure time: 8 d

(IUCLID)

*Toxicity to bacteria*

EC5

Species: *Pseudomonas fluorescens*

Dose: 6.600 mg/l

Exposure time: 16 h

(IUCLID)

**12.2 Persistence and degradability**

*Biodegradability*

Result: Readily biodegradable.

99 %

Exposure time: 30 d

Method: OECD Test Guideline 301D

*Biochemical Oxygen Demand (BOD)*

600 - 1.120 mg/g (5 d)

(IUCLID)

*Chemical Oxygen Demand (COD)*

1.420 mg/g

(IUCLID)

*Theoretical oxygen demand (ThOD)*

1.500 mg/g

(Lit.)

*Ratio BOD/ThBOD*

BOD5 76 %

Closed Bottle test

**12.3 Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: -0,77

Method: (experimental)

(Lit.) Bioaccumulation is not expected (log Pow <1).

**12.4 Mobility in soil**

No information available.

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

**12.6 Other adverse effects**

*Stability in water*

2,2 yr

reaction with hydroxyl radicals (IUCLID)

*Additional ecological information*

Do not allow to run into surface waters, wastewater, or soil.

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### 13. Disposal considerations

*Waste treatment methods*

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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### 14. Transport information

**ADR/RID**

UN 1230 METHANOL, 3 (6.1), II

**IATA**

UN 1230 METHANOL, 3 (6.1), II

**IMDG**

UN 1230 METHANOL, 3 (6.1), II

EmS F-E S-D

The transport regulations are cited according to international regulations and in the form applicable in Germany. Possible national deviations in other countries are not considered.

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### 15. Regulatory information

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

*EU regulations*

|                       |                     |
|-----------------------|---------------------|
| Major Accident Hazard | 96/82/EC            |
| Legislation           | Methanol            |
|                       | 26                  |
|                       | Quantity 1: 500 t   |
|                       | Quantity 2: 5.000 t |

*National legislation*

|                   |                     |
|-------------------|---------------------|
| Storage class VCI | 3 Flammable Liquids |
|-------------------|---------------------|

#### 15.2 Chemical Safety Assessment

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

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### 16. Other information

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

|      |                                     |
|------|-------------------------------------|
| H225 | Highly flammable liquid and vapour. |
| H301 | Toxic if swallowed.                 |
| H311 | Toxic in contact with skin.         |
| H331 | Toxic if inhaled.                   |
| H370 | Causes damage to organs.            |

**Full text of R-phrases referred to under sections 2 and 3**

|              |   |
|--------------|---|
| R11          | Highly flammable.   |
| R23/24/25    | Toxic by inhalation, in contact with skin and if swallowed.   |
| R39/23/24/25 | Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. |

#### Training advice

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Provide adequate information, instruction and training for operators.

Regional representation: This information is given on the authorised Safety Data Sheet for your country.

**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.*