

**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

Revision Date 20.02.2018

Version 12.4

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**SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Catalogue No. 105080

Product name Potassium permanganate cryst. 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. 7722-64-7

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

Identified uses Materials for use in technical applications  
For additional information on uses please refer to the Merck Chemicals portal ([www.merckgroup.com](http://www.merckgroup.com)).

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

Company Merck KGaA \* 64271 Darmstadt \* Germany \* Phone:+49 6151 72-0

Responsible Department LS-QHC \* e-mail: [prodsafe@merckgroup.com](mailto:prodsafe@merckgroup.com)

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

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## SECTION 2. Hazards identification

### 2.1 Classification of the substance or mixture

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

Oxidizing solid, Category 2, H272

Acute toxicity, Category 4, Oral, H302

Skin corrosion, Category 1C, H314

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

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

### 2.2 Label elements

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

##### *Hazard pictograms*



##### *Signal word*

Danger

##### *Hazard statements*

H272 May intensify fire; oxidizer.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H410 Very toxic to aquatic life with long lasting effects.

##### *Precautionary statements*

###### Prevention

P221 Take any precaution to avoid mixing with combustibles, heavy-metal compounds, acids and alkalis.

P273 Avoid release to the environment.

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P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

## Reduced labelling ( $\leq 125$ ml)

*Hazard pictograms*



*Signal word*

Danger

*Hazard statements*

H314 Causes severe skin burns and eye damage.

*Precautionary statements*

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

*Index-No.* 025-002-00-9

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula  $\text{KMnO}_4$  (Hill)

Index-No. 025-002-00-9

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EC-No. 231-760-3  
Molar mass 158,03 g/mol

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

*Chemical name (Concentration)*

CAS-No. Registration number Classification

Potassium permanganate (<= 100 % )

7722-64-7 \*)

Oxidizing solid, Category 2, H272  
Acute toxicity, Category 4, H302  
Skin corrosion, Category 1C, H314  
Acute aquatic toxicity, Category 1, H400  
Chronic aquatic toxicity, Category 1, H410  
M-Factor: 10

\*) 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.

For the full text of the H-Statements 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

*General advice*

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

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

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

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After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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

Irritation and corrosion, Cough, Shortness of breath, Nausea, Vomiting

Risk of corneal clouding.

Risk of blindness!

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

No information available.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

#### *Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### *Unsuitable extinguishing media*

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

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

Not combustible.

Has a fire-promoting effect due to release of oxygen.

Ambient fire may liberate hazardous vapours.

### 5.3 Advice for firefighters

#### *Special protective equipment 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.

#### *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: Avoid inhalation of dusts. 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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### 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*

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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

#### *Storage conditions*

Tightly closed. Dry. Do not store near combustible materials.

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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

### 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*

Tightly fitting safety goggles

#### *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      |

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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 dusts are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

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 let product enter drains.

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## **SECTION 9. Physical and chemical properties**

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

|                 |                |
|-----------------|----------------|
| Form            | solid          |
| Colour          | violet         |
| Odour           | odourless      |
| Odour Threshold | Not applicable |



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|                           |                                    |
|---------------------------|------------------------------------|
| pH                        | ca. 7 - 9<br>at 20 g/l<br>20 °C    |
| Melting point             | > 240 °C<br>(decomposition)        |
| Boiling point             | No information available.          |
| Flash point               | No information available.          |
| Evaporation rate          | No information available.          |
| Flammability (solid, gas) | The product is not flammable.      |
| Lower explosion limit     | No information available.          |
| Upper explosion limit     | No information available.          |
| Vapour pressure           | < 0,01 hPa<br>at 20 °C             |
| Relative vapour density   | No information available.          |
| Density                   | 2,70 g/cm <sup>3</sup><br>at 20 °C |
| Relative density          | No information available.          |
| Water solubility          | 64 g/l<br>at 20 °C                 |

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|  |   |
|--|---|
| Partition coefficient: n-octanol/water | log Pow: -1,73<br>(calculated)<br>(Lit.) Bioaccumulation is not expected. |
| Auto-ignition temperature              | No information available.   |
| Decomposition temperature              | > 240 °C  |
| Viscosity, dynamic                     | No information available.   |
| Explosive properties                   | Not classified as explosive.  |
| Oxidizing properties                   | The substance or mixture is classified as oxidizing with the category 2.  |

## 9.2 Other data

Bulk density ca. 1.300 - 1.600 kg/m<sup>3</sup>

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

strong oxidising agent

### 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:

powdered aluminium, Ammonia, ammonium compounds, arsenic, Dimethylformamide, acetic acid, Acetic anhydride, formaldehyde, oxidisable substances, Nitro compounds, phosphorus, pyridine, strong reducing agents, hydrochloric acid, sulfur, Titanium, sugars, ammonium nitrate, sulphuric acid, Combustible Liquids, Organic Substances, mineral acids, anhydrides, TRIFLUOROACETIC ACID, mineral wool

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Alcohols, with, sulphuric acid

alkali salts, with, sulphuric acid

Risk of ignition or formation of inflammable gases or vapours with:

Acetaldehyde, Alcohols, antimony, Aldehydes, silanes, dimethyl sulfoxide, Ethylene glycol, ethanol, Hydrogen fluoride, organic solvent, glycerol, hydroxylamine, Organic Substances, oxalic acid, sulphuric acid, hydrogen sulphide, hydrogen peroxide, triethanolamine, Esters, BENZALDEHYDE

glycerol, with, sulphuric acid

sulphuric acid, with, Organic Substances

Exothermic reaction with:

Reducing agents, Nitric acid, carbides

Generates dangerous gases or fumes in contact with:

Hydrogen chloride gas, Release of:, Chlorine

## 10.4 Conditions to avoid

Strong heating (decomposition).

## 10.5 Incompatible materials

no information available

## 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*

LD50 Rat: 750 mg/kg

(RTECS)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach., Nausea, Vomiting

#### *Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, Inhalation may lead to the formation of oedemas in the respiratory tract.

#### *Acute dermal toxicity*

This information is not available.

#### *Skin irritation*

Rabbit

Result: Corrosive

OECD Test Guideline 404

Burns after prolonged exposure.

#### *Eye irritation*

Causes serious eye damage.

Risk of blindness!

#### *Sensitisation*

This information is not available.

#### *Germ cell mutagenicity*

This information is not available.

#### *Carcinogenicity*

No indication of carcinogenic activity.

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### *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*

This information is not available.

### *Aspiration hazard*

This information is not available.

## 11.2 Further information

Manganese compounds are generally only very slightly absorbable via the gastrointestinal tract.

Other dangerous properties can not be excluded.

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 *Ictalurus catus* (catfish): 0,1 mg/l; 96 h

(ECOTOX Database)

#### *Toxicity to daphnia and other aquatic invertebrates*

EC50 *Daphnia magna* (Water flea): 0,056 mg/l; 48 h

(ECOTOX Database)

### 12.2 Persistence and degradability

#### *Biodegradability*

The methods for determining the biological degradability are not applicable to inorganic substances.

### 12.3 Bioaccumulative potential

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*Partition coefficient: n-octanol/water*

log Pow: -1,73  
(calculated)

(Lit.) Bioaccumulation is not expected.

## 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

Discharge into the environment must be avoided.

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## SECTION 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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## SECTION 14. Transport information

### Land transport (ADR/RID)

|                                   |                        |
|-----------------------------------|------------------------|
| 14.1 UN number                    | UN 1490                |
| 14.2 Proper shipping name         | POTASSIUM PERMANGANATE |
| 14.3 Class                        | 5.1                    |
| 14.4 Packing group                | II                     |
| 14.5 Environmentally hazardous    | yes                    |
| 14.6 Special precautions for user | yes                    |
| Tunnel restriction code           | E                      |

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

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**14.1 UN number** UN 1490  
**14.2 Proper shipping name** POTASSIUM PERMANGANATE  
**14.3 Class** 5.1  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** yes  
**14.6 Special precautions for user** no

#### Sea transport (IMDG)

**14.1 UN number** UN 1490  
**14.2 Proper shipping name** POTASSIUM PERMANGANATE  
**14.3 Class** 5.1  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** yes  
**14.6 Special precautions for user** yes

EmS F-H S-Q

**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

#### *EU regulations*

Major Accident Hazard SEVESO III  
Legislation OXIDIZING LIQUIDS AND SOLIDS  
P8  
Quantity 1: 50 t  
Quantity 2: 200 t

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SEVESO III  
ENVIRONMENTAL HAZARDS

E1

Quantity 1: 100 t

Quantity 2: 200 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of  $\geq 0.1$  % (w/w).

### *National legislation*

Storage class 5.1B

## 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.

|      |   |
|------|---|
| H272 | May intensify fire; oxidizer.                         |
| H302 | Harmful if swallowed.                                 |
| H314 | Causes severe skin burns and eye damage.              |
| H400 | Very toxic to aquatic life.                           |
| H410 | Very toxic to aquatic life with long lasting effects. |

### Training advice

Provide adequate information, instruction and training for operators.

### Labelling

#### *Hazard pictograms*



#### *Signal word*

Danger

#### *Hazard statements*

H272 May intensify fire; oxidizer.  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H410 Very toxic to aquatic life with long lasting effects.

#### *Precautionary statements*

##### Prevention

P221 Take any precaution to avoid mixing with combustibles, heavy-metal compounds, acids and alkalis.

P273 Avoid release to the environment.

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P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

## 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).

## Regional representation

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

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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.*