

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 09.11.2010

Version 12.

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

### 1.1 Product identifier

Catalogue No.	105082
Product name	Potassium permanganate for analysis EMSURE® ACS, Reag. Ph Eur
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	Reagent for analysis, Chemical production For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merck-chemicals.com">www.merck-chemicals.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	EQ-RS * e-mail: <a href="mailto:prodsafe@merck.de">prodsafe@merck.de</a>

### 1.4 Emergency telephone number

**+44 870 1906777**

## 2. Hazards identification

### 2.1 Classification of the substance or mixture

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

Oxidising solid, Category 2, H272

Acute toxicity, Category 4, Oral, H302

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.

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

O; R8

Xn; R22

N; R50/53

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*  
H272 May intensify fire; oxidiser.  
H302 Harmful if swallowed.  
H410 Very toxic to aquatic life with long lasting effects.

*Precautionary statements*  
P210 Keep away from heat.  
P273 Avoid release to the environment.

**Reduced labelling (≤125 ml)**

*Hazard pictograms*



*Signal word*  
Danger

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

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

Symbol(s)	O Xn N	Oxidising Harmful Dangerous for the environment
R-phrases(s)	8-22-50/53	Contact with combustible material may cause fire. Harmful if swallowed. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrases(s)	60-61	This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/ Safety data sheets.
EC-No.	231-760-3	EC Label

**Reduced labelling (≤125 ml)**

Symbol(s)	O Xn N	Oxidising Harmful Dangerous for the environment
R-phrases(s)	22	Harmful if swallowed.

**2.3 Other hazards**

None known.

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**3. Composition/information on ingredients**

Formula	KMnO <sub>4</sub> (Hill)
CAS-No.	7722-64-7
Index-No.	025-002-00-9
EC-No.	231-760-3
Molar mass	158,03 g/mol

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#### 4. First aid measures

##### 4.1 Description of first aid measures

After inhalation: fresh air. Consult doctor if feeling unwell.

After skin contact: wash off with plenty of water. Remove contaminated clothing. Consult a physician.

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

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately.

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

Irritation and corrosion, irritant effects, Cough, Shortness of breath, Nausea, Vomiting  
Risk of corneal clouding.

##### 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*

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

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

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

##### 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*

Suppress (knock down) gases/vapours/mists with a water spray jet. 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

Advice for non-emergency personnel: Avoid substance contact. Avoid inhalation of dusts. 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.

##### 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).

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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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### 7. Handling and storage

#### 7.1 Precautions for safe handling

|| Observe label precautions.

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

Tightly closed. Dry. Away from combustible materials and sources of ignition and heat.

Storage temperature: no restrictions.

#### 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

##### Components with workplace control parameters

##### Components

Basis	Value	Threshold limits	Ceiling Limit Value, Remarks
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##### *Potassium permanganate (7722-64-7)*

IR_OEL	Time Weighted Average (TWA):	0,2 mg/m <sup>3</sup>	Expressed as: as Mn
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##### Recommended monitoring procedures

Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689.

#### 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.

##### 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

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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 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 empty into drains.

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## 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	solid
Colour	violet
Odour	odourless
Odour Threshold	No information available.
pH	ca. 7 - 9 at 20 g/l 20 °C
Melting point	> 240 °C (decomposition)
Boiling point	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.

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Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	< 0,01 hPa at 20 °C
Relative vapour density	No information available.
Relative density	2,70 g/cm <sup>3</sup> at 20 °C
Water solubility	64 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: -1,73 Method: (calculated) (Lit.) Bioaccumulation is not expected (log Pow <1).
Autoignition temperature	No information available.
Decomposition temperature	> 240 °C
Viscosity, dynamic	No information available.
Explosive properties	No information available.
Oxidizing properties	May intensify fire; oxidiser.

## 9.2 Other data

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

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## 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

A risk of explosion and/or of toxic gas formation exists with the following substances:

Hydrogen chloride gas, dimethyl sulfoxide, Acetic anhydride, formaldehyde, pyridine, strong reducing agents, hydrogen sulfide, triethanolamine, acetic acid, anhydrides, Ammonia, Aldehydes, silanes, oxidisable substances, solvent, acids, mineral acids, oxalic acid, Organic Substances, combustible substances, hydrogen peroxide, hydroxylamine, Dimethylformamide, glycerol, Hydrogen fluoride, sulfur, ammonium compounds, Alcohols, phosphorus, carbides, Aluminium, antimony, arsenic

### 10.4 Conditions to avoid

Strong heating.

### 10.5 Incompatible materials

no information available

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**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: 100 mg/kg

(IUCLID)

LD50 rat

Dose: 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

absorption

*Acute inhalation toxicity*

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

*Skin irritation*

Causes skin burns.

*Eye irritation*

Causes eye burns. Risk of corneal clouding.

*Carcinogenicity*

No indication of carcinogenic activity.

*Specific target organ toxicity - single exposure*

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

*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*

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

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: Ictalurus catus (catfish)

Dose: 0,1 mg/l

Exposure time: 96 h

(ECOTOX Database)

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*Toxicity to daphnia and other aquatic invertebrates.*

EC50

Species: Daphnia magna (Water flea)

Dose: 0,056 mg/l

Exposure time: 48 h

(ECOTOX Database)

**12.2 Persistence and degradability**

No information available.

**12.3 Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: -1,73

Method: (calculated)

(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**

*Additional ecological information*

Biological effects:

Bactericidal effect.

Hazard for drinking water supplies.

Further information on ecology

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

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**13. Disposal considerations**

*Waste treatment methods*

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other 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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**14. Transport information**

**ADR/RID**

UN 1490 POTASSIUM PERMANGANATE, 5.1, II

**IATA**

UN 1490 POTASSIUM PERMANGANATE, 5.1, II

**IMDG**

UN 1490 POTASSIUM PERMANGANATE, 5.1, II

EmS F-H S-Q

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**

The Safety Data Sheets for catalogue items are available at [www.merck-chemicals.com](http://www.merck-chemicals.com)



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*EU regulations*

Major Accident Hazard Legislation 96/82/EC  
Oxidising  
3  
Quantity 1: 50 t  
Quantity 2: 200 t

96/82/EC  
Dangerous for the environment  
9a  
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. Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers.

*National legislation*

Storage class VCI 5.1 B Oxidising agents (TRG 515 Group 2+3)

## 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.

H272 May intensify fire; oxidiser.  
H302 Harmful if swallowed.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

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

R 8 Contact with combustible material may cause fire.  
R22 Harmful if swallowed.  
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### Training advice

Provide adequate information, instruction and training for operators.

Regional representation: Merck Chemicals Ltd \* Boulevard Industrial Park \* Padge Road \*  
Beeston \* Nottingham \* NG9 2JR \* United Kingdom \* Tel.: +44  
1159 430840 \* Fax: +44 1159 430 951 \*  
information@merckchem.co.uk.

### 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.*