SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Identification of the substance
Potassium permanganate solution

Article number
KK69

Registration number (REACH)
not relevant (mixture)

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses:
laboratory chemical  
laboratory and analytical use

1.3 Details of the supplier of the safety data sheet
Carl Roth GmbH + Co KG  
Schoemperlenstr. 3-5  
D-76185 Karlsruhe  
Germany  

Telephone: +49 (0) 721 - 56 06 0  
Telefax: +49 (0) 721 - 56 06 149  
e-mail: sicherheit@carlroth.de  
Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment  
e-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

<table>
<thead>
<tr>
<th>Name</th>
<th>Street</th>
<th>Postal code/city</th>
<th>Telephone</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Poisons Information Centre Childrens Hospital</td>
<td>Hawkesbury Road</td>
<td>2145 Westmead, NSW</td>
<td>131126</td>
<td></td>
</tr>
</tbody>
</table>

Emergency information service: Poison Centre Munich: +49/(0)89 19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

<table>
<thead>
<tr>
<th>Section</th>
<th>Hazard class</th>
<th>Hazard class and category</th>
<th>Hazard statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2</td>
<td>skin corrosion/irritation</td>
<td>(Skin Irrit. 2)</td>
<td>H315</td>
</tr>
<tr>
<td>3.3</td>
<td>serious eye damage/eye irritation</td>
<td>(Eye Irrit. 2A)</td>
<td>H319</td>
</tr>
<tr>
<td>4.1C</td>
<td>hazardous to the aquatic environment - chronic hazard</td>
<td>(Aquatic Chronic 3)</td>
<td>H412</td>
</tr>
</tbody>
</table>
2.2 Label elements

Labelling GHS

Signal word: Warning

Pictograms:

GHS07

Hazard statements

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H412</td>
<td>Harmful to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

Precautionary statements - prevention

P280 Wear protective gloves.

Precautionary statements - response

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

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

P321 Specific treatment (see on this label).

P337+P313 If eye irritation persists: Get medical advice/attention.

Precautionary statements - disposal

P501 Dispose of contents/container to industrial combustion plant.

Labelling of packages where the contents do not exceed 125 ml

Signal word: Warning

Symbol(s):

H319 Causes serious eye irritation.

H412 Harmful to aquatic life with long lasting effects.

P280 Wear protective gloves.

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

P337+P313 If eye irritation persists: Get medical advice/attention.

2.3 Other hazards

There is no additional information.
SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description of the mixture
Composition/information on ingredients.

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>Identifier</th>
<th>wt%</th>
<th>Classification acc. to 1272/2008/EC</th>
<th>Pictograms</th>
<th>M-Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate</td>
<td>CAS No 7722-64-7</td>
<td>≤2.5</td>
<td>Ox. Sol. 2 / H272</td>
<td></td>
<td>M-factor (acute) = 10.0</td>
</tr>
<tr>
<td></td>
<td>EC No 231-760-3</td>
<td></td>
<td>Acute Tox. 4 / H302</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index No 025-002-00-9</td>
<td></td>
<td>Aquatic Acute 1 / H400</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REACH Reg. No 01-2119480139-34-xxxx</td>
<td></td>
<td>Aquatic Chronic 1 / H410</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks
For full text of Hazard- and EU Hazard-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes
Take off contaminated clothing.

Following inhalation
Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact
Rinse skin with water/shower. In case of skin irritation, consult a physician.

Following eye contact
Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion
Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Irritation

4.3 Indication of any immediate medical attention and special treatment needed

none
SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO2)

Unsuitable extinguishing media
water jet

5.2 Special hazards arising from the substance or mixture
Non-combustible.
Hazardous combustion products
none

5.3 Advice for firefighters
Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Use personal protective equipment as required. Avoid contact with skin, eyes and clothes.

6.2 Environmental precautions
Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill
Covering of drains.

Advices on how to clean up a spill
Wipe up with absorbent material (e.g. cloth, fleece). Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases
Place in appropriate containers for disposal.

6.4 Reference to other sections
### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling
No special measures are necessary.

**Advice on general occupational hygiene**
Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

#### 7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed.

**Incompatible substances or mixtures**
Observe hints for combined storage.

**Consideration of other advice**
- **Ventilation requirements**
  Use local and general ventilation.
- **Specific designs for storage rooms or vessels**
  Recommended storage temperature: 15 – 25 °C.

#### 7.3 Specific end use(s)
No information available.

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

**National limit values**

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of agent</th>
<th>CAS No</th>
<th>Notation</th>
<th>Identifier</th>
<th>TWA [ppm]</th>
<th>TWA [mg/m³]</th>
<th>STEL [ppm]</th>
<th>STEL [mg/m³]</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>manganese compounds</td>
<td>7722-64-7</td>
<td>Mn</td>
<td>WES</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>WES</td>
</tr>
</tbody>
</table>

**Notation**
- **Mn**: Calculated as Mn (manganese)
- **STEL**: Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
- **TWA**: Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

**Relevant DNELs/DMELs/PNECs and other threshold levels**

- relevant DNELs of components of the mixture

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>End-point</th>
<th>Threshold level</th>
<th>Protection goal, route of exposure</th>
<th>Used in</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>DNEL</td>
<td>0.218 mg/m³</td>
<td>human, inhalatory</td>
<td>worker (industry)</td>
<td>chronic - systemic effects</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.

Skin protection

• hand protection
Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

• type of material
NBR (Nitrile rubber)

• material thickness
>0,11 mm

• breakthrough times of the glove material
>480 minutes (permeation: level 6)

• other protection measures
Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection

Usually no personal respirative protection necessary. Respiratory protection necessary at: Aerosol or mist formation. Type: B (against inorganic gases and vapours, colour code: Grey).

Environmental exposure controls
Keep away from drains, surface and ground water.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

**Appearance**
- Physical state: liquid (fluid)
- Colour: violet
- Odour: odourless
- Odour threshold: No data available

**Other physical and chemical parameters**
- pH (value): This information is not available
- Melting point/freezing point: <0 °C
- Initial boiling point and boiling range: 100 °C
- Flash point: not determined
- Evaporation rate: no data available
- Flammability (solid, gas): not relevant (fluid)

**Explosive limits**
- lower explosion limit (LEL): this information is not available
- upper explosion limit (UEL): this information is not available
- Explosion limits of dust clouds: not relevant
- Vapour pressure: 23 hPa
- Vapour density: This information is not available
- Bulk density: Not applicable
- Relative density: Information on this property is not available
- Water solubility: miscible in any proportion
- Partition coefficient: n-octanol/water (log KOW)
  - This information is not available
- Auto-ignition temperature: Information on this property is not available
- Decomposition temperature: no data available
- Viscosity: not determined
- Explosive properties: Shall not be classified as explosive
- Oxidising properties: none

9.2 Other information

There is no additional information.
SECTION 10: Stability and reactivity

10.1 Reactivity
This material is not reactive under normal ambient conditions.

10.2 Chemical stability
The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions
No known hazardous reactions

10.4 Conditions to avoid
There are no specific conditions known which have to be avoided.

10.5 Incompatible materials
There is no additional information.

10.6 Hazardous decomposition products
Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Shall not be classified as acutely toxic.

- **Acute toxicity of components of the mixture**

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Exposure route</th>
<th>ATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>oral</td>
<td>2,000 mg/kg</td>
</tr>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>dermal</td>
<td>2,000 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Causes skin irritation.

Serious eye damage/eye irritation
Causes serious eye irritation.

Summary of evaluation of the CMR properties
Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

- **Specific target organ toxicity - single exposure**
Shall not be classified as a specific target organ toxicant (single exposure).

- **Specific target organ toxicity - repeated exposure**
Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard
Shall not be classified as presenting an aspiration hazard.
Symptoms related to the physical, chemical and toxicological characteristics

- **If swallowed**
  data are not available

- **If in eyes**
  Irritating to eyes

- **If inhaled**
  data are not available

- **If on skin**
  causes skin irritation

**Other information**
None

### SECTION 12: Ecological information

#### 12.1 Toxicity
Harmful to aquatic life with long lasting effects.

**Aquatic toxicity (acute)**

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>LC50</td>
<td>0.47 mg/l</td>
<td>Poecilia reticulata</td>
<td>96 h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>EC50</td>
<td>0.06 mg/l</td>
<td>daphnia magna</td>
<td>48 h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>ErC50</td>
<td>0.8 mg/l</td>
<td>algae</td>
<td>72 h</td>
</tr>
</tbody>
</table>

**Aquatic toxicity (chronic)**
May cause long-term adverse effects in the aquatic environment.

#### 12.2 Process of degradability
The methods for determining the biological degradability are not applicable to inorganic substances.

#### 12.3 Bioaccumulative potential
Data are not available.

**Bioaccumulative potential of components of the mixture**

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>BCF</th>
<th>Log KOW</th>
<th>BOD5/COD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>-1.73</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 12.4 Mobility in soil
Data are not available.

#### 12.5 Results of PBT and vPvB assessment
Data are not available.
12.6 Other adverse effects
Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information
Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings
It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

Sewage disposal-relevant information
Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings
It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks
Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number
3082

14.2 UN proper shipping name
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

14.3 Transport hazard class(es)
Potassium permanganate

14.4 Packing group
III (substance presenting low danger)

14.5 Environmental hazards
hazardous to the aquatic environment (Potassium permanganate)

14.6 Special precautions for user
Provisions for dangerous goods (ADR) should be complied within the premises.
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

<table>
<thead>
<tr>
<th>UN number</th>
<th>3082</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper shipping name</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.</td>
</tr>
<tr>
<td>Particulars in the transport document</td>
<td>UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (Potassium permanganate, solution), 9, III, (-)</td>
</tr>
<tr>
<td>Class</td>
<td>9</td>
</tr>
<tr>
<td>Classification code</td>
<td>M6</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Danger label(s)</td>
<td>9 + &quot;fish and tree&quot;</td>
</tr>
</tbody>
</table>

- Environmental hazards: yes (hazardous to the aquatic environment)
- Special provisions (SP): 274, 335, 375, 601
- Excepted quantities (EQ): E1
- Limited quantities (LQ): 5 L
- Transport category (TC): 3
- Tunnel restriction code (TRC): -
- Hazard identification No: 90

Emergency Action Code

3Z

• International Maritime Dangerous Goods Code (IMDG)

<table>
<thead>
<tr>
<th>UN number</th>
<th>3082</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper shipping name</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.</td>
</tr>
<tr>
<td>Particulars in the shipper's declaration</td>
<td>UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (Potassium permanganate, solution), 9, III</td>
</tr>
<tr>
<td>Class</td>
<td>9</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>yes (P) (hazardous to the aquatic environment)</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Danger label(s)</td>
<td>9 + &quot;fish and tree&quot;</td>
</tr>
</tbody>
</table>
**Potassium permanganate solution 0,1 mol/l - 0,5 N volumetric standard solution**

article number: KK69

- **Special provisions (SP)**: 274, 335, 969
- **Excepted quantities (EQ)**: E1
- **Limited quantities (LQ)**: 5 L
- **EmS**: F-A, S-F
- **Stowage category**: A

**• International Civil Aviation Organization (ICAO-IATA/DGR)**

- **UN number**: 3082
- **Proper shipping name**: Environmentally hazardous substance, liquid, n.o.s.
- **Particulars in the shipper's declaration**: UN3082, Environmentally hazardous substance, liquid, n.o.s., (Potassium permanganate, solution), 9, III
- **Class**: 9
- **Environmental hazards**: yes (hazardous to the aquatic environment)
- **Packing group**: III
- **Danger label(s)**: 9 + "fish and tree"

- **Special provisions (SP)**: A97, A158, A197
- **Excepted quantities (EQ)**: E1
- **Limited quantities (LQ)**: 30 kg

**SECTION 15: Regulatory information**

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

<table>
<thead>
<tr>
<th>Country</th>
<th>National inventories</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>AICS</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>CA</td>
<td>DSL</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>CN</td>
<td>IECSC</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>EU</td>
<td>ECSI</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>EU</td>
<td>REACH Reg.</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>JP</td>
<td>CSCL-ENCS</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>KR</td>
<td>KECI</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>MX</td>
<td>INSQ</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>NZ</td>
<td>NZIoC</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>PH</td>
<td>PICCS</td>
<td>all ingredients are listed</td>
</tr>
</tbody>
</table>

**Safe Work Australia - Code of Practice**

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Potassium permanganate solution  0,1 mol/l - 0,5 N volumetric standard solution

article number: KK69

<table>
<thead>
<tr>
<th>Country</th>
<th>National Inventories</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR</td>
<td>CICR</td>
<td>not all ingredients are listed</td>
</tr>
<tr>
<td>TW</td>
<td>TCSI</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>US</td>
<td>TSCA</td>
<td>all ingredients are listed</td>
</tr>
</tbody>
</table>

**Legend**

- AICS: Australian Inventory of Chemical Substances
- CICR: Chemical Inventory and Control Regulation
- CSCL-ENCS: List of Existing and New Chemical Substances (CSCL-ENCS)
- DSL: Domestic Substances List (DSL)
- ECSI: EC Substance Inventory (EINECS, ELINCS, NLP)
- IECSC: Inventory of Existing Chemical Substances Produced or Imported in China
- INSQ: National Inventory of Chemical Substances
- KECL: Korea Existing Chemicals Inventory
- NZIoC: New Zealand Inventory of Chemicals
- PICCS: Philippine Inventory of Chemicals and Chemical Substances
- REACH Reg.: REACH registered substances
- TCSI: Taiwan Chemical Substance Inventory
- TSCA: Toxic Substance Control Act

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

**SECTION 16: Other information**

**Abbreviations and acronyms**

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox.</td>
<td>acute toxicity</td>
</tr>
<tr>
<td>ADN</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)</td>
</tr>
<tr>
<td>ADR</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)</td>
</tr>
<tr>
<td>Aquatic Acute</td>
<td>hazardous to the aquatic environment - acute hazard</td>
</tr>
<tr>
<td>Aquatic Chronic</td>
<td>hazardous to the aquatic environment - chronic hazard</td>
</tr>
<tr>
<td>ATE</td>
<td>Acute Toxicity Estimate</td>
</tr>
<tr>
<td>BCF</td>
<td>bioconcentration factor</td>
</tr>
<tr>
<td>BOD</td>
<td>Biochemical Oxygen Demand</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)</td>
</tr>
<tr>
<td>CMR</td>
<td>Carcinogenic, Mutagenic or toxic for Reproduction</td>
</tr>
<tr>
<td>COD</td>
<td>chemical oxygen demand</td>
</tr>
<tr>
<td>DGR</td>
<td>Dangerous Goods Regulations (see IATA/DGR)</td>
</tr>
<tr>
<td>DMEL</td>
<td>Derived Minimal Effect Level</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived No-Effect Level</td>
</tr>
<tr>
<td>EC No</td>
<td>The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
</tr>
<tr>
<td>EmS</td>
<td>Emergency Schedule</td>
</tr>
</tbody>
</table>
Potassium permanganate solution 0,1 mol/l - 0,5 N volumetric standard solution

article number: KK69

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHS</td>
<td>&quot;Globally Harmonized System of Classification and Labelling of Chemicals&quot; developed by the United Nations</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IATA/DGR</td>
<td>Dangerous Goods Regulations (DGR) for the air transport (IATA)</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods Code</td>
</tr>
<tr>
<td>Index No</td>
<td>the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008</td>
</tr>
<tr>
<td>log KOW</td>
<td>n-octanol/water</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships (abbr. of &quot;Marine Pollutant&quot;)</td>
</tr>
<tr>
<td>M-factor</td>
<td>means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present</td>
</tr>
<tr>
<td>NLP</td>
<td>No-Longer Polymer</td>
</tr>
<tr>
<td>Ox. Sol.</td>
<td>oxidising solid</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted No-Effect Concentration</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorisation and Restriction of Chemicals</td>
</tr>
<tr>
<td>RID</td>
<td>Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)</td>
</tr>
<tr>
<td>STEL</td>
<td>short-term exposure limit</td>
</tr>
<tr>
<td>TWA</td>
<td>time-weighted average</td>
</tr>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
<tr>
<td>WES</td>
<td>Safe Work Australia: Workplace exposure standards for airborne contaminants</td>
</tr>
</tbody>
</table>

Key literature references and sources for data
- UN Recommendations on the Transport of Dangerous Good
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

<table>
<thead>
<tr>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>H272</td>
<td>may intensify fire; oxidiser</td>
</tr>
<tr>
<td>H302</td>
<td>harmful if swallowed</td>
</tr>
<tr>
<td>H315</td>
<td>causes skin irritation</td>
</tr>
<tr>
<td>H319</td>
<td>causes serious eye irritation</td>
</tr>
<tr>
<td>H400</td>
<td>very toxic to aquatic life</td>
</tr>
<tr>
<td>H410</td>
<td>very toxic to aquatic life with long lasting effects</td>
</tr>
<tr>
<td>H412</td>
<td>harmful to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>
Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.