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

1.4 Emergency telephone number

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

<table>
<thead>
<tr>
<th>Classification acc. to GHS</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. 2)</td>
<td>H319</td>
</tr>
<tr>
<td>4.1C</td>
<td>hazardous to the aquatic environment - chronic hazard</td>
<td>(Aquatic Chronic 2)</td>
<td>H411</td>
</tr>
</tbody>
</table>

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word
Warning
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>![Pictogram]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index No 025-002-00-9</td>
<td></td>
<td>Aquatic Acute 1 / H400</td>
<td>![Pictogram]</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>![Pictogram]</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

Advises on how to contain a spill
Covering of drains.

Advises 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>EU</td>
<td>manganese, inorganic compounds</td>
<td>7722-64-7</td>
<td>r</td>
<td>IOELV</td>
<td>0,05</td>
<td>2017/164/ EU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MT</td>
<td>manganese, inorganic compounds</td>
<td>7722-64-7</td>
<td>Mn, i</td>
<td>OELV</td>
<td>0,2</td>
<td>CAP. 424</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MT</td>
<td>manganese, inorganic compounds</td>
<td>7722-64-7</td>
<td>Mn, r</td>
<td>OELV</td>
<td>0,05</td>
<td>CAP. 424</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notation

i Inhalable fraction
Mn Calculated as Mn (manganese)
r Respirable fraction
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>Endpoint</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>

• relevant PNECs of components of the mixture

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Environmental compartment</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>PNEC</td>
<td>0,6 mg/l</td>
<td>water</td>
<td>intermittent release</td>
</tr>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>PNEC</td>
<td>0,06 mg/l</td>
<td>freshwater</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>PNEC</td>
<td>1,64 mg/l</td>
<td>sewage treatment plant (STP)</td>
<td>short-term (single instance)</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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid (fluid)</td>
</tr>
<tr>
<td>Colour</td>
<td>violet</td>
</tr>
<tr>
<td>Odour</td>
<td>odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Other physical and chemical parameters

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH (value)</td>
<td>This information is not available.</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>&lt;0 °C</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>100 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>not determined</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>not relevant (fluid)</td>
</tr>
</tbody>
</table>
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

Density ~ 1,009 g/cm³ at 20 °C

Vapour density This information is not available.

Bulk density Not applicable

Relative density Information on this property is not available.

Solubility(ies)

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>500 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Causes skin irritation.

Serious eye damage/eye irritation
Causes serious eye irritation.

Respiratory or skin sensitisation
Shall not be classified as a respiratory or skin sensitiser.

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
Toxic to aquatic life with long lasting effects.

**Aquatic toxicity (acute)** of components of the mixture

<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>
<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>
<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></td>
<td>-1.73</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 sheet.
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.

SECTION 14: Transport information

14.1 UN number
3082

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

Hazardous ingredients
Potassium permanganate

14.3 Transport hazard class(es)
Class 9 (miscellaneous dangerous substances and articles) (environmentally hazardous)

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)

UN number
3082

Proper shipping name
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Particulars in the transport document
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (Potassium permanganate, solution), 9, III, (-)

Class
9
### Classification code
- M6

### Packing group
- III

### Danger label(s)
- 9 + "fish and tree"

### 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

**• 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>

<table>
<thead>
<tr>
<th>Special provisions (SP)</th>
<th>274, 335, 969</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excepted quantities (EQ)</td>
<td>E1</td>
</tr>
<tr>
<td>Limited quantities (LQ)</td>
<td>5 L</td>
</tr>
<tr>
<td>EmS</td>
<td>F-A, S-F</td>
</tr>
<tr>
<td>Stowage category</td>
<td>A</td>
</tr>
</tbody>
</table>

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

<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>
</tbody>
</table>
Safety data sheet
according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

Potassium permanganate solution 0,1 mol/l - 0,5 N volumetric standard solution
article number: KK69

| 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

Relevant provisions of the European Union (EU)

- Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)
  None of the ingredients are listed.
- Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)
  None of the ingredients are listed.
- Regulation 850/2004/EC on persistent organic pollutants (POP)
  None of the ingredients are listed.
- Restrictions according to REACH, Annex XVII
  None of the ingredients are listed.

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Wt%</th>
<th>Type of registration</th>
<th>Conditions of restriction</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate solution</td>
<td>100</td>
<td>1907/2006/EC annex XVII</td>
<td>R3</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Legend

R3

1. Shall not be used in:
- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- tricks and jokes,
- games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
2. Articles not complying with paragraph 1 shall not be placed on the market.
3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
- can be used as fuel in decorative oil lamps for supply to the general public, and,
- present an aspiration hazard and are labelled with R65 or H304,
4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
   (a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: 'Keep lamps filled with this liquid out of the reach of children'; and, by 1 December 2010, 'Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage';
   (b) grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: 'Just a sip of grill lighter may lead to life threatening lung damage';
   (c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and
Potassium permanganate solution 0,1 mol/l - 0,5 N volumetric standard solution

Legend

- fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.
- Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.

- Restrictions according to REACH, Title VIII
  None.
- List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list
  none of the ingredients are listed
- Seveso Directive

<table>
<thead>
<tr>
<th>2012/18/EU (Seveso III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>E2</td>
</tr>
</tbody>
</table>

Notation

57) Hazardous to the Aquatic Environment in category Chronic 2

- Directive 75/324/EEC relating to aerosol dispensers
  Filling batch

| VOC content | 0 % |

- Directive on industrial emissions (VOCs, 2010/75/EU)

| VOC content | 0 % |

| VOC content Water content was discounted | 0 g/l |

- Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II
  None of the ingredients are listed.
- Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)
  None of the ingredients are listed.
- Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)
  None of the ingredients are listed.
- Regulation 98/2013/EU on the marketing and use of explosives precursors
  none of the ingredients are listed
Potassium permanganate solution  0,1 mol/l - 0,5 N volumetric standard solution

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Classification</th>
<th>CN Code</th>
<th>Threshold level</th>
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<tbody>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>Category 2b</td>
<td>2841 61 00</td>
<td>100 kg</td>
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</table>

National inventories

<table>
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<th>Country</th>
<th>National inventories</th>
<th>Status</th>
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<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>
<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
KECI  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
Abbr. | Descriptions of used abbreviations
---|---
Acute Tox. | acute toxicity
ADN | 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)
ADR | Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Acute | hazardous to the aquatic environment - acute hazard
Aquatic Chronic | hazardous to the aquatic environment - chronic hazard
ATE | Acute Toxicity Estimate
BCF | bioconcentration factor
BOD | Biochemical Oxygen Demand
CAP. 424 | Occupational Health and Safety Authority Act (CAP. 424)
CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR | Carcinogenic, Mutagenic or toxic for Reproduction
CN Code | Combined Nomenclature
COD | chemical oxygen demand
DGR | Dangerous Goods Regulations (see IATA/DGR)
DMEL | Derived Minimal Effect Level
DNEL | Derived No-Effect Level
EC No | 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)
EINECS | European Inventory of Existing Commercial Chemical Substances
ELINCS | European List of Notified Chemical Substances
EmS | Emergency Schedule
GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA | International Air Transport Association
IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO | International Civil Aviation Organization
IMDG | International Maritime Dangerous Goods Code
index No | the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV | indicative occupational exposure limit value
log KOW | n-octanol/water
MARPOL | International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
M-factor | 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
Potassium permanganate solution  0,1 mol/l - 0,5 N volumetric standard solution

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<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<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>SVHC</td>
<td>Substance of Very High Concern</td>
</tr>
<tr>
<td>TWA</td>
<td>time-weighted average</td>
</tr>
<tr>
<td>VOC</td>
<td>Volatile Organic Compounds</td>
</tr>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
</tbody>
</table>

Key literature references and sources for data
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- 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)

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<thead>
<tr>
<th>Code</th>
<th>Text</th>
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</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>H411</td>
<td>toxic 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.