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

**1.1. Product identifier**
- **Product form**: Substance
- **Substance name**: Potassium Permanganate
- **CAS No**: 7722-64-7
- **Product code**: LC19850
- **Formula**: KMnO4
- **Synonyms**: permanganate of potash / potassium salt permanganic acid
- **BIG no**: 10297

**1.2. Relevant identified uses of the substance or mixture and uses advised against**
- **Use of the substance/mixture**: Oxidant, Bleaching agent, Reagent, Disinfectant, Deodorizer, Algicide, Dyestuff/pigment: component, Medicine, Laboratory chemical, Food industry: additive, Insecticide, Germicide

**1.3. Details of the supplier of the safety data sheet**
- **LabChem Inc**
- **Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court**
- **Zelienople, PA 16063 - USA**
- **T 412-826-5230 - F 724-473-0647**
- **info@labchem.com - www.labchem.com**

**1.4. Emergency telephone number**
- **Emergency number**: CHEMTREC: 1-800-424-9300 or 011-703-527-3887

**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**
- **GHS-US classification**
  - Ox. Sol. 2: H272
  - Acute Tox. 4 (Oral): H302
  - Aquatic Acute 1: H400
  - Aquatic Chronic 1: H410

**2.2. Label elements**
- **GHS-US labelling**
  - **Hazard pictograms (GHS-US)**
    - GHS03
    - GHS07
    - GHS09
  - **Signal word (GHS-US)**: Danger
  - **Hazard statements (GHS-US)**
    - H272 - May intensify fire; oxidiser
    - H302 - Harmful if swallowed
    - H410 - Very toxic to aquatic life with long lasting effects
  - **Precautionary statements (GHS-US)**
    - P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking
    - P220 - Keep/Store away from clothing, combustible materials
    - P221 - Take any precaution to avoid mixing with combustibles
    - P264 - Wash exposed skin thoroughly after handling
    - P270 - Do not eat, drink or smoke when using this product
    - P273 - Avoid release to the environment
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2.3. Other hazards

Other hazards not contributing to the classification: None under normal conditions.

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type: Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Permanganate</td>
<td>(CAS No) 7722-64-7</td>
<td>100</td>
<td>Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general:
First-aid measures after inhalation:
Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact:
Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.
First-aid measures after eye contact:
Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.
First-aid measures after ingestion:

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

Symptoms/injuries after inhalation:
Symptoms/injuries after skin contact:
Irritation of the skin. May stain the skin. ON CONTINUOUS EXPOSURE/CONTACT: Caustic burns/corrosion of the skin.
Symptoms/injuries after eye contact:
Corrosion of the eye tissue. Inflammation/damage of the eye tissue. ON CONTINUOUS EXPOSURE/CONTACT: Permanent eye damage.
Symptoms/injuries after ingestion:
Chronic symptoms:

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

No additional information available
SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: EXTINGUISHING MEDIA FOR SURROUNDING FIRES: All extinguishing media allowed. Preferably: quantities of water.

Unsuitable extinguishing media: No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard: DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Promotes combustion.
Reactions involving a fire hazard: see "Reactivity Hazard".

Explosion hazard: INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

Reactivity: Decomposes on exposure to temperature rise: oxidation which increases fire hazard. Reacts with combustible materials: risk of spontaneous ignition. Violent to explosive reaction with (some) acids: release of toxic and corrosive gases/vapours. Reacts violently with many compounds e.g.: with organic material and with (strong) reducers. With (some) metals. With (increased) risk of fire/explosion.

5.3. Advice for firefighters

Precautionary measures fire: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation.

Firefighting instructions: Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.


SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel


Measures in case of dust release: In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection. Do not breathe dust.

Emergency procedures: If a major spill occurs, all personnel should be immediately evacuated and the area ventilated. Stop release. Ventilate area.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment: Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. If reacting: dilute toxic gas/vapour with water spray. Take account of toxic/corrosive precipitation water.

Methods for cleaning up: Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Spill must not return in its original container. See "Material-handling" for suitable container materials. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Keep away from naked flames/heat. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.
7.2. Conditions for safe storage, including any incompatibilities

Heat and ignition sources: KEEP SUBSTANCE AWAY FROM: heat sources.
Storage area: Store at ambient temperature. Keep out of direct sunlight. Store in a dry area. Fireproof storeroom. Unauthorized persons are not admitted. Keep only in the original container. Store only in a limited quantity. Meet the legal requirements.
Special rules on packaging: SPECIAL REQUIREMENTS: closing. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials: SUITABLE MATERIAL: steel. aluminium. glass. stoneware/porcelain. MATERIAL TO AVOID: wood. cellulosic material.

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Potassium Permanganate (7722-64-7)

<table>
<thead>
<tr>
<th></th>
<th>USA ACGIH TWA (mg/m³)</th>
<th>USA OSHA OSHA PEL (Ceiling) (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
<td>0.1 mg/m³</td>
<td>5 mg/m³ as Mn</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation.


Hand protection: Gloves.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid
Appearance: Crystalline solid. Crystalline powder.
Molecular mass: 158.03 g/mol
Colour: Dark violet-brown.
Odour: Odourless.
Odour threshold: No data available
pH: 7.0 - 8.5 (1.6 %)
pH solution: 1.6 %
Relative evaporation rate (butylacetate=1): No data available
Melting point: > 240 °C
Freezing point: No data available
Boiling point: Not applicable
Flash point: Not applicable
Self ignition temperature: Not applicable
Decomposition temperature: > 240 °C
Flammability (solid, gas): No data available
Vapour pressure: < 0.10 hPa
Relative vapour density at 20 °C: No data available
Relative density: 2.7
Density: 2700 kg/m³
Potassium Permanganate
Safety Data Sheet

Water: 6.4 g/100ml

Log Pow: -1.73 (Estimated value)

Log Kow: No data available

Viscosity, kinematic: No data available

Viscosity, dynamic: No data available

Explosive properties: No data available

Oxidising properties: May intensify fire; oxidiser.

Explosive limits: No data available


SECTION 10: Stability and reactivity

10.1. Reactivity
Decomposes on exposure to temperature rise: oxidation which increases fire hazard. Reacts with combustible materials: risk of spontaneous ignition. Violent to explosive reaction with (some) acids: release of toxic and corrosive gases/vapours. Reacts violently with many compounds e.g.: with organic material and with (strong) reducers. With (some) metals. With (increased) risk of fire/explosion.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Reacts exothermically with combustible materials: (increased) risk of fire.

10.4. Conditions to avoid
Incompatible materials.

10.5. Incompatible materials
Strong reducing agents. Organic compounds. combustible materials. metals.

10.6. Hazardous decomposition products
manganese.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Harmful if swallowed.

Potassium Permanganate (if) 7722-64-7

| LD50 oral rat | 1090 mg/kg (Rat) |

Skin corrosion/irritation: Not classified
pH: 7.0 - 8.5 (1.6 %)

Serious eye damage/irritation: Not classified
pH: 7.0 - 8.5 (1.6 %)

Respiratory or skin sensitisation: Not classified

Germ cell mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive toxicity: Not classified

Specific target organ toxicity (single exposure): Not classified

Specific target organ toxicity (repeated exposure): Not classified

Aspiration hazard: Not classified
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Symptoms/injuries after skin contact: Tingling/irritation of the skin. May stain the skin. ON CONTINUOUS EXPOSURE/CONTACT: Caustic burns/corrosion of the skin.

Symptoms/injuries after eye contact: Corrosion of the eye tissue. Inflammation/damage of the eye tissue. ON CONTINUOUS EXPOSURE/CONTACT: Permanent eye damage.


Likely routes of exposure: Skin and eye contact; Inhalation

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: Dangerous for the environment.
Ecology - air: TA-Luft Klasse 5.2.2/III.

Potassium Permanganate (7722-64-7)

<table>
<thead>
<tr>
<th>LC50 fishes 1</th>
<th>0.261 mg/l (96 h; Ictalurus punctatus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 Daphnia 1</td>
<td>0.235 mg/l (24 h; Daphnia magna)</td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>1.22 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss))</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
<td>0.5 mg/l (96 h; Crustacea)</td>
</tr>
<tr>
<td>TLM fish 1</td>
<td>5.4 ppm (48 h; Lepomis macrochirus)</td>
</tr>
<tr>
<td>Threshold limit other aquatic organisms 1</td>
<td>&gt; 0.64 mg/l (Plankton)</td>
</tr>
<tr>
<td>Threshold limit algae 1</td>
<td>10 mg/l (4 h; Chlorella sp.)</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

Potassium Permanganate (7722-64-7)

<table>
<thead>
<tr>
<th>Persistence and degradability</th>
<th>Biodegradability: not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ThOD</td>
<td>Not applicable</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

Potassium Permanganate (7722-64-7)

<table>
<thead>
<tr>
<th>Log Pow</th>
<th>-1.73 (Estimated value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulative potential</td>
<td>Bioaccumulation: not applicable.</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste disposal recommendations: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Immobilize the toxic or harmful components. Remove to an authorized dump (Class I).

Additional information: LWCRA (the Netherlands): KGA category 06. Hazardous waste according to Directive 2008/98/EC.
SECTION 14: Transport information

In accordance with DOT

Transport document description : UN1490 Potassium permanganate, 5.1, II
UN-No.(DOT) : 1490
DOT NA no. : UN1490
DOT Proper Shipping Name : Potassium permanganate
Department of Transportation (DOT) Hazard Classes : 5.1 - Class 5.1 - Oxidizer 49 CFR 173.128
Hazard labels (DOT) : 5.1 - Oxidiser

Packing group (DOT) : II - Medium Danger
DOT Special Provisions (49 CFR 172.102) : IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.
IP4 - Flexible, fiberboard or wooden IBCs must be silt-proof and water-resistant or be fitted with a silt-proof and water-resistant liner.
T3 - 2.65 178.274(d)(2) Normal............. 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 152
DOT Packaging Non Bulk (49 CFR 173.xxx) : 212
DOT Packaging Bulk (49 CFR 173.xxx) : 240
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 25 kg
DOT Vessel Stowage Location : D - The material must be stowed “on deck only” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.
DOT Vessel Stowage Other : 56 - Stow “separated from” ammonium compounds, 58 - Stow “separated from” cyanides
Marine pollutant : P

Additional information

Other information : No supplementary information available.
State during transport (ADR-RID) : as solid.

ADR

Transport document description : UN 1490 Potassium permanganate, 5.1, II, (E)
Packing group (ADR) : II
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Class (ADR) : 5.1 - Oxidizing substances
Hazard identification number (Kemler No.) : 50
Classification code (ADR) : O2
Danger labels (ADR) : 5.1 - Oxidizing substances

Orange plates : 
(E)

Tunnel restriction code : E

Transport by sea
UN-No. (IMDG) : 1490
Class (IMDG) : 5.1 - Oxidizing substances
EmS-No. (1) : F-H
EmS-No. (2) : S-Q

Air transport
UN-No.(IATA) : 1490
Class (IATA) : 5 - Oxidizing substances
Packing group (IATA) : II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations
Potassium Permanganate (7722-64-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on SARA Section 313 (Specific toxic chemical listings)
RQ (Reportable quantity, section 304 of EPA's List of Lists) : 100 lb
SARA Section 311/312 Hazard Classes Reactive hazard

15.2. International regulations

CANADA
Potassium Permanganate (7722-64-7)
Listed on the Canadian DSL (Domestic Substances List) inventory.
WHMIS Classification
Class C - Oxidizing Material
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations
No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Ox. Sol. 2 H272
Acute Tox. 4 (Oral) H302
Aquatic Acute 1 H400
Aquatic Chronic 1 H410

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC
O: R8
Xn; R22
N: R50/53

02/04/2014 EN (English)
Potassium Permanganate
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Full text of R-phrases: see section 16

15.2.2. National regulations

Potassium Permanganate (7722-64-7)
Listed on the Canadian Ingredient Disclosure List

15.3. US State regulations
No additional information available

SECTION 16: Other information

Full text of H-phrases: see section 16:

<table>
<thead>
<tr>
<th>Acute Tox. 4 (Oral)</th>
<th>Acute toxicity (oral), Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute 1</td>
<td>Hazardous to the aquatic environment — AcuteHazard, Category 1</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
<td>Hazardous to the aquatic environment — Chronic Hazard, Category 1</td>
</tr>
<tr>
<td>Ox. Sol. 2</td>
<td>Oxidising Solids, Category 2</td>
</tr>
<tr>
<td>H272</td>
<td>May intensify fire; oxidiser</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</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>
</tbody>
</table>

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard : 0 - Materials that will not burn.
NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
NFPA specific hazard : OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.

HMIS III Rating
Health : 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability : 0 Minimal Hazard
Physical : 0 Minimal Hazard
Personal Protection : F

SDS US (GHS HazCom 2012)

Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.