Material Safety Data Sheet
Potassium Permanganate

ACC# 19520

Section 1 - Chemical Product and Company Identification

MSDS Name: Potassium Permanganate
Synonyms: Permanganic acid, potassium salt; Permanganate of potash
Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>7722-64-7</td>
<td>Permanganic permanganate</td>
<td>100</td>
<td>231-760-3</td>
</tr>
</tbody>
</table>

Hazard Symbols: XN O N
Risk Phrases: 22 8

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: dark purple solid. Danger! Strong oxidizer. Contact with other material may cause a fire. May cause kidney damage. May be harmful if swallowed. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. Causes severe eye and skin irritation with possible burns. Reproductively active.
Target Organs: Blood, kidneys, central nervous system, liver, lungs, respiratory system, eyes, skin.

Potential Health Effects
Eye: Causes severe eye irritation and possible burns. May cause chemical conjunctivitis and corneal damage.
Skin: May be harmful if absorbed through the skin. Causes skin irritation and possible burns. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color. Skin contact can cause brown stains in the area, and possible hardening of the outer skin layer.
Ingestion: Harmful if swallowed. May cause severe and permanent damage to the digestive tract. May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. May cause liver and kidney damage. May cause perforation of the digestive tract. May cause central nervous system effects. May be harmful if swallowed. May form methemoglobin which in sufficient concentration causes cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). In high doses, manganese may increase anemia by interfering with iron absorption. Manganese in general is a central nervous system poison, and potassium permanganate has
also been shown to have this property.

**Inhalation:** Aspiration may lead to pulmonary edema. Causes respiratory tract irritation with possible burns. May cause central nervous system effects such as nausea and headache.

**Chronic:** Prolonged or repeated skin contact may cause defatting and dermatitis. Effects may be delayed. Laboratory experiments have resulted in mutagenic effects. Chronic manganese toxicity through inhalation may result in "manganism", which is a disease of the central nervous system involving psychic and neurological disorders. May cause kidney damage. May cause adverse reproductive effects.

---

**Section 4 - First Aid Measures**

**Eyes:** Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

**Skin:** Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

**Ingestion:** Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

**Notes to Physician:** Absorption of this product into the body may cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Moderate degrees of cyanosis need to be treated only by supportive measures: bed rest and oxygen inhalation. If cyanosis is severe, intravenous injection of Methylene Blue, 1mg/kg of body weight may be of value.

---

**Section 5 - Fire Fighting Measures**

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with combustible materials may cause a fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Some oxidizers may react explosively with hydrocarbons(fuel). May accelerate burning if involved in a fire. Containers may explode when heated.

**Extinguishing Media:** Cool containers with flooding quantities of water until well after fire is out. For small fires, do NOT use dry chemicals, carbon dioxide, halon or foams. USE WATER ONLY. For large fires, flood fire area with water from a distance.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 0; Instability: 1; Special Hazard: OX

---

**Section 6 - Accidental Release Measures**

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation. Do not get water inside containers. Do not use combustible materials such as paper towels to clean up spill.
Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Do not ingest or inhale. Do not store near combustible materials. Discard contaminated shoes.

Storage: Keep away from sources of ignition. Do not store near combustible materials. Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanganic permanganate</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: Permanganic permanganate: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: dark purple
Odor: odorless
pH: Not available.
Vapor Pressure: Not available.
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: Not available.
Freezing/Melting Point: 464 deg F
Decomposition Temperature: Not available.
Solubility: Moderately soluble in water.
Specific Gravity/Density: 2.703
Molecular Formula: KMnO4
Molecular Weight: 158.0339

Section 10 - Stability and Reactivity
**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** High temperatures, incompatible materials, dust generation, combustible materials, reducing agents.

**Incompatibilities with Other Materials:** Strong reducing agents, peroxides, aluminum, zinc, lead, copper, copper alloys, organic materials, sulfuric acid, glycerol, phosphorus, combustible organics, ammonium nitrate, dimethyl formamide, ethylene glycol, hydroxylamine, hydrogen trisulfide, antimony, ammonium salts, acids, sulfur, acetic acid, acetic anhydride, arsenites, bromides, iodides, hydrochloric acid, charcoal, ferric salts, mercurous salts, hypophosphites, sulfites, alcohols, rubber.

**Hazardous Decomposition Products:** Irritating and toxic fumes and gases, oxygen, oxides of potassium, oxides of manganese.

**Hazardous Polymerization:** Has not been reported.

---

### Section 11 - Toxicological Information

**RTECS#:**

CAS# 7722-64-7: SD6475000

**LD50/LC50:**

CAS# 7722-64-7:
- Oral, mouse: LD50 = 2157 mg/kg;
- Oral, rat: LD50 = 1090 mg/kg;

**Carcinogenicity:**

CAS# 7722-64-7: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

**Epidemiology:** No information available.

**Teratogenicity:** No information available.

**Reproductive Effects:** Intratesticular, rat: TDLo = 400 mg/kg (male 1 day(s) pre-mating) Fertility - male fertility index (e.g. # males impregnating females per # males exposed to fertile nonpregnant females); Oral, mouse: TDLo = 513 mg/kg (male 5 day(s) pre-mating) Paternal Effects - spermatogenesis (incl. genetic material, sperm morphology, motility, and count); Intratesticular, gerbil: TDLo = 25 mg/kg (male 1 day(s) pre-mating) Fertility - male fertility index (e.g. # males impregnating females per # males exposed to fertile nonpregnant females).

**Neurotoxicity:** No information available.

**Mutagenicity:** Micronucleus Test: Oral, mouse = 205 mg/kg/24H (Continuous); Cytogenetic Analysis: Oral, mouse = 718 mg/kg/7D (Continuous); Cytogenetic Analysis: Mouse, Mammary gland = 1 mmol/L/48H; Sperm Morphology: Oral, mouse = 513 mg/kg/5D (Continuous).

**Other Studies:** No information available.

---

### Section 12 - Ecological Information

**Ecotoxicity:** Fish: Channel catfish: LC50 = 0.75 mg/L; 96 Hr; UnspecifiedFish: Goldfish: LC50 = 3.6 mg/L; 24 Hr; UnspecifiedFish: Striped bass: LC50 = 1.5-5.0 mg/L; 24 Hr; Static bioassay No data available.

**Environmental:** No information available.

**Physical:** No information available.

**Other:** Harmful to aquatic life in very low concentrations.

---

### Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators...
must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.
**RCRA U-Series:** None listed.

### Section 14 - Transport Information

<table>
<thead>
<tr>
<th>US DOT</th>
<th>IATA</th>
<th>RID/ADR</th>
<th>IMO</th>
<th>Canada TDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTASSIUM PERMANGANATE</td>
<td>POTASSIUM PERMANGANATE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazard Class: 5.1</td>
<td></td>
<td></td>
<td></td>
<td>5.1</td>
</tr>
<tr>
<td>UN Number: UN1490</td>
<td></td>
<td></td>
<td></td>
<td>UN1490</td>
</tr>
<tr>
<td>Packing Group: II</td>
<td></td>
<td></td>
<td></td>
<td>II</td>
</tr>
</tbody>
</table>

### Section 15 - Regulatory Information

**US FEDERAL**

**TSCA**
CAS# 7722-64-7 is listed on the TSCA inventory.

**Health & Safety Reporting List**
None of the chemicals are on the Health & Safety Reporting List.

**Chemical Test Rules**
None of the chemicals in this product are under a Chemical Test Rule.

**Section 12b**
None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule**
None of the chemicals in this material have a SNUR under TSCA.

**SARA**

**CERCLA Hazardous Substances and corresponding RQs**
CAS# 7722-64-7: 100 lb final RQ; 45.4 kg final RQ

**SARA Section 302 Extremely Hazardous Substances**
None of the chemicals in this product have a TPQ.

**SARA Codes**
CAS # 7722-64-7: acute, flammable.

**Section 313**
This material contains Permanganic permanganate (listed as Manganese), 100%, (CAS# 7722-64-7) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

**Clean Air Act:**
This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

**Clean Water Act:**
CAS# 7722-64-7 is listed as a Hazardous Substance under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**
None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**
CAS# 7722-64-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.
California No Significant Risk Level: None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives

Hazard Symbols:
XN O N

Risk Phrases:
R 22 Harmful if swallowed.
R 8 Contact with combustible material may cause fire.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:
S 60 This material and its container must be disposed of as hazardous waste.
S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)
CAS# 7722-64-7: 2

Canada - DSL/NDSL
CAS# 7722-64-7 is listed on Canada's DSL List.

Canada - WHMIS
This product has a WHMIS classification of C, E.

Canadian Ingredient Disclosure List
CAS# 7722-64-7 is listed on the Canadian Ingredient Disclosure List.

Exposure Limits
CAS# 7722-64-7: OEL-AUSTRALIA:TWA 5 mg(Mn)/m3 JANUARY 1993 OEL-BELGIUM:TWA 5 mg(Mn)/m3 JANUARY 1993 OEL-CZECHOSLOVAKIA:TWA 2 mg(Mn)/m3 STEL 6 mg(Mn)/m3 JANUARY 1993 OEL-DENMARK:TWA 2.5 mg(Mn)/m3 JANUARY 1993 OEL-FINLAND:TWA 2.5 mg(Mn)/m3 JANUARY 1993 OEL-HUNGARY:TWA 0.3 mg(Mn)/m3 STEL 0.6 mg(Mn)/m3 JANUARY 1993 OEL-JAPAN:TWA 0.3 mg(Mn)/m3 JANUARY 1993 OEL-THE NETHERLANDS:TWA 1 mg(Mn)/m3 JANUARY 1993 OEL-Poland:TWA 0.3 mg(Mn)/m3 JANUARY 1993 OEL-SWEDEN:TWA 1 mg(Mn)/m3 STEL 2.5 mg(Mn)/m3 (resp. dust) OEL-SWEDEN:TWA 2.5 mg(Mn)/m3; STEL 5 mg(Mn)/m3 (total dust) OEL-UNITED KINGDOM:TWA 5 mg(Mn)/m3 JANUARY 1993 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

Section 16 - Additional Information

MSDS Creation Date: 3/02/1999
Revision #4 Date: 3/13/2003

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

https://fscimage.fishersci.com/msds/19520.htm