SAFETY DATA SHEET

1. Product and Company Identification

Product identifier: Filter-Mate Potassium Permanganate
Other means of identification: Not available.
Recommended use: Regeneration of greensand iron filters
Recommended restrictions: None known.
Manufacturer information: Iron Out dba Summit Brands
7201 Engle Road
Fort Wayne, IN 46804-5875 US
Phone: 260-483-2519
Emergency Phone: 1-800-424-9300 (CHEMTREC)

2. Hazards Identification

Physical hazards: Oxidizing solids Category 2
Health hazards: Acute toxicity, oral Category 4
Skin corrosion/irritation Category 1B
Serious eye damage/eye irritation Category 1
Specific target organ toxicity, single exposure Category 1
Specific target organ toxicity, repeated exposure Category 1

Environmental hazards: Not classified.
OSHA defined hazards: Not classified.

Label elements

Signal word: Danger
Hazard statement: May intensify fire; oxidizer.
Harmful if swallowed.
Causes severe skin burns and eye damage.
Causes damage to organs.
Causes damage to organs through prolonged or repeated exposure.

Precautionary statement

Prevention: Keep away from heat. Take any precaution to avoid mixing with combustibles.
Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust.
Wear protective gloves/eye protection/face protection.

Response: In case of fire: Use appropriate media to extinguish.
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Wash contaminated clothing before reuse. Specific treatment (see information on this label).
Immediately call a poison center/doctor.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage: Store locked up.
Disposal: Dispose of contents/container in accordance with local/regional-national/international regulations.
Hazard(s) not otherwise classified (HNOC): None known.
Supplemental information: 100% of the mixture consists of component(s) of unknown acute inhalation toxicity. 100% of the mixture consists of component(s) of unknown acute dermal toxicity.

3. Composition/Information on Ingredients

Mixture
4. First Aid Measures

Inhalation
If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor.

Skin contact
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a poison center/doctor. Specific treatment (see information on this label).

Eye contact
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor.

Ingestion
If swallowed: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center/doctor.

Most important symptoms/effects, acute and delayed
Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Skin irritation. May cause redness and pain.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

5. Fire Fighting Measures

Suitable extinguishing media
Water.

Unsuitable extinguishing media
None known.

Specific hazards arising from the chemical
May intensify fire; oxidizer. Container may explode in heat of fire. May decompose spontaneously if exposed to temperatures above 150°C. Increases flammability of combustible materials.

Special protective equipment and precautions for firefighters
Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Fire-fighting equipment/instructions
Cool containers exposed to flames with water until well after the fire is out.

Specific methods
Cool containers exposed to flames with water until well after the fire is out.

General fire hazards
May intensify fire; oxidizer.

Hazardous combustion products
Oxides of manganese. Oxygen.

Explosion data
Not available.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up
Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water. Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.

Environmental precautions
Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.
7. Handling and Storage

Precautions for safe handling
Keep away from heat. Take any precaution to avoid mixing with combustibles. Do not get this material in contact with eyes. Do not taste or swallow. Avoid contact with skin. Avoid prolonged exposure. Avoid contact with clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Use care in handling/storage. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities
Keep away from heat. Store locked up. Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS). Do not store near combustible materials.

8. Exposure Controls/Personal Protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
<td>Ceiling</td>
<td>5 mg/m3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
<td>TWA</td>
<td>0.1 mg/m3</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
<td>0.02 mg/m3</td>
<td>Respirable fraction.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. NIOSH: Pocket Guide to Chemical Hazards Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
<td>STEL</td>
<td>3 mg/m3</td>
<td>Fume.</td>
</tr>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
<td>TWA</td>
<td>1 mg/m3</td>
<td>Fume.</td>
</tr>
</tbody>
</table>

Biological limit values
No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

| Eye/face protection | Chemical splash goggles. |
| Skin protection | Hand protection | Wear appropriate chemical resistant gloves. |
| Other | Wear appropriate chemical resistant clothing. |
| Respiratory protection | In case of insufficient ventilation, wear suitable respiratory equipment. |
| Thermal hazards | Not applicable. |

General hygiene considerations
When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and Chemical Properties

| Appearance | Crystals |
| Physical state | Solid. |
| Form | Solid. |
| Color | Dark Metallic Purple |
| Odor | Odorless |
| Odor threshold | Not available. |
| pH | Not available |
| Melting point/freezing point | Not available. |
| Initial boiling point and boiling range | Not applicable |
| Pour point | Not available. |
| Specific gravity | 2.7 |
| Partition coefficient (n-octanol/water) | Not available |
10. Stability and Reactivity

Reactivity
This product may react with acids. This product may react with oxidizing agents.

Possibility of hazardous reactions
No dangerous reaction known under conditions of normal use.

Chemical stability
Material is stable under normal conditions.

Conditions to avoid
Heat, open flames, static discharge, sparks and other ignition sources. Contact with incompatible materials.

Incompatible materials

Hazardous decomposition products
Oxides of manganese. Oxygen.

11. Toxicological Information

Routes of exposure
Eye, Skin contact, Inhalation, Ingestion.

Information on likely routes of exposure

Ingestion
Harmful if swallowed.

Inhalation
Prolonged inhalation may be harmful.

Skin contact
Causes severe skin burns.

Eye contact
Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics
Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause redness and pain.

Information on toxicological effects

Acute toxicity
Harmful if swallowed.

Components

<table>
<thead>
<tr>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>Not available</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Not available</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Guinea pig 810 mg/kg</td>
</tr>
<tr>
<td>Mouse</td>
<td>1500 mg/kg, CCOHS</td>
</tr>
<tr>
<td></td>
<td>750 mg/kg</td>
</tr>
</tbody>
</table>
Components | Species | Test Results
--- | --- | ---

**Skin corrosion/irritation**
- Causes severe burns.

- **Exposure minutes**
  Not available.

- **Erythema value**
  Not available.

- **Oedema value**
  Not available.

**Serious eye damage/eye irritation**
- Causes serious eye damage.

- **Corneal opacity value**
  Not available.

- **Iris lesion value**
  Not available.

- **Conjunctival reddening value**
  Not available.

- **Conjunctival oedema value**
  Not available.

- **Recover days**
  Not available.

**Respiratory or skin sensitization**
- **Respiratory sensitization**
  Not available.

- **Skin sensitization**
  This product is not expected to cause skin sensitization.

**Germ cell mutagenicity**
- No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Mutagenicity**
- No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity**
- This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

- Not listed.

**Reproductive toxicity**
- This product is not expected to cause reproductive or developmental effects.

**Teratogenicity**
- Not classified.

**Specific target organ toxicity - single exposure**
- Causes damage to organs.

**Specific target organ toxicity - repeated exposure**
- Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard**
- Not classified.

**Chronic effects**
- Prolonged inhalation may be harmful.

**Further information**
- Not available.

**Name of Toxicologically Synergistic Products**
- Not available.

### 12. Ecological Information

**Ecotoxicity**
- See below

**Ecotoxicological data**

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Crustacea</strong></td>
<td>EC50</td>
<td>Amphipod (Crangonyx pseudogracilis) 0.86 - 1.12 mg/L, 48 hours</td>
</tr>
<tr>
<td><strong>Fish</strong></td>
<td>LC50</td>
<td>Rainbow trout, donaldson trout (Oncorhynchus mykiss) 0.275 - 0.339 mg/L, 96 hours</td>
</tr>
</tbody>
</table>

**Persistence and degradability**
- No data is available on the degradability of this product.

**Bioaccumulative potential**
- No data available.

**Mobility in soil**
- No data available.

**Mobility in general**
- Not available.

**Other adverse effects**
- Not available.
13. Disposal Considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

General
Canada: TDG Proof of Classification: In accordance with Part 2.2.1 (SOR/2014-152) of the Transportation of Dangerous Goods Regulations, we certify that the classification of this product is correct as of the SDS date of issue. If applicable, the technical name and the classification of the product will appear below.

U.S. Department of Transportation (DOT)
Basic shipping requirements:
- UN number: UN1490
- Proper shipping name: Potassium permanganate, mixture
- Hazard class: 5.1
- Packing group: II
- Special provisions: IB8, IP2, IP4, T3, TP33
- Packaging exceptions: 152
- Packaging non bulk: 212
- Packaging bulk: 240

Transportation of Dangerous Goods (TDG - Canada)
Basic shipping requirements:
- UN number: UN1490
- Proper shipping name: POTASSIUM PERMANGANATE
- Hazard class: 5.1
- Packing group: II

15. Regulatory Information

Canadian federal regulations
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.
Canada WHMIS Ingredient Disclosure: Listed substance

Potassium permanganate (CAS 7722-64-7) Listed.

WHMIS status
Controlled

WHMIS classification
Class C - Oxidizing Material, Class D - Division 2B, Class E - Corrosive Material

WHMIS labeling

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
Potassium permanganate (CAS 7722-64-7) Listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
No

SARA 311/312 Hazardous chemical
No

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate</td>
<td>7722-64-7</td>
<td>60 - 100</td>
</tr>
</tbody>
</table>

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Potassium permanganate (CAS 7722-64-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)
Hazardous substance

Safe Drinking Water Act (SDWA)
Not regulated.

Food and Drug Administration (FDA)
Total food additive
Direct food additive
Indirect food additive
Controlled substance

US state regulations
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>US - Minnesota Haz Subs: Listed substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US - New Jersey RTK - Substances: Listed substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US - North Carolina Toxic Air Pollutants: Listed substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
</tr>
</tbody>
</table>

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)
Not listed.

<table>
<thead>
<tr>
<th>US. Massachusetts RTK - Substance List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>US. Pennsylvania RTK - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>US. Rhode Island RTK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium permanganate (CAS 7722-64-7)</td>
</tr>
</tbody>
</table>
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

Inventory status

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A “Yes” indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

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16. Other Information

The data contained in this material safety data sheet was obtained from sources that were technically accurate, reliable, and state of the art when this document was prepared. If data was unavailable to complete certain sections, the absence of that data is identified in this document. Because the supplier cannot know the exact circumstances during actual use of this product, other hazards, exposure scenarios, disposal considerations, and regulations may apply and it is the responsibility of the user to read and understand the product label and this document before use. Do not use the product for purposes other than those stated in Section 1.

Issue date 23-February-2016
Effective date 23-February-2016
Expiry date 23-February-2019

Further information
For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

Prepared by Dell Tech Laboratories, Ltd. Phone: (519) 858-5021

Other information
This Safety Data Sheet was prepared to comply with the current OSHA Hazard Communication Standard (HCS) adoption of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Redbook revision # 4, 11/3/15