MATERIAL SAFETY DATA SHEET

Section 1- PRODUCT IDENTIFICATION

<table>
<thead>
<tr>
<th>COMPOSITION</th>
<th>PRODUCT NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>MnO2</td>
<td>Manganese Oxide</td>
</tr>
</tbody>
</table>

Section 2- HAZARDOUS INGREDIENTS

Note: Products under normal conditions do not represent an inhalation, ingestion or contact health hazard.

<table>
<thead>
<tr>
<th>MATERIAL OR COMPONENT</th>
<th>CAS NUMBER</th>
<th>WT%</th>
<th>EXPOSURE LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Oxide</td>
<td>1313-13-9</td>
<td>100%</td>
<td>OSHA PEL (Mg/M³) 5mg/m³</td>
</tr>
</tbody>
</table>

Section 3- PHYSICAL DATA

<table>
<thead>
<tr>
<th>MATERIAL IS (AT NORMAL CONDITIONS)</th>
<th>APPEARANCE AND ODOR</th>
<th>SPECIFIC GRAVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>Black Odorless Powder</td>
<td>5.0gm/cc</td>
</tr>
</tbody>
</table>

Section 4- FIRE AND EXPLOSION

Flash Point (Method Used) N/A

Flammable Limits

LEL N/A UEL N/A

EXTINGUISHING MEDIA

Use graphite, dry sodium chloride, dry chemical, carbon dioxide or an agent for metal fires.

SPECIAL FIRED FIGHTING PROCEDURES

Wear full face, self-contained breathing apparatus with full protective clothing.

Isolate runoff to prevent environmental pollution.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Flammable by chemical reaction. Violent thermaite reaction when heated with aluminum. Potentially explosive with hydrogen peroxide.

Section 5- REACTIVITY DATA

STABILITY

Stable.

INCOMPATABILITY (MATERIALS TO AVOID)

Strong oxidizers, hydrogen peroxide, sulfuric acid, sodium peroxide, chlorates, organic materials, aluminum powder & sulfur

CONDITIONS TO AVOID

None

HAZARDOUS DECOMPOSITION PRODUCTS

Manganese may react w/water to produce hydrogen peroxide and unsaturated hydrocarbons in the event of combustion.
Section 6- HEALTH HAZARD GUIDE

MAJOR EXPOSURE HAZARD  
☐ Inhalation  ☐ Skin  ☐ Skin Absorption  ☐ Eye Contact  ☐ Ingestion

EFFECTS OF OVEREXPOSURE

INHALATION: Considered the primary route of exposure, may cause irritation to the respiratory tract. Inhalation of fine metal dusts may cause metal fume fever. Chronic inhalation of manganese compound dust particles for a period of three months may cause pulmonary pneumonitis. Manganese may also cause manganism, psychic and neurological disorders affecting the central nervous system.

INGESTION: Possibility of absorption is poor under normal circumstances.

SKIN: May cause irritation. Moderately toxic by subcutaneous route.

EYE: May cause chronic conjunctivitis damage.

TARGET ORGANS: May affect central nervous system, kidneys, respiratory system and liver.

EMERGENCY & FIRST AID PROCEDURES

INGESTION: Induce vomiting with milk or water.

INHALATION: Remove from exposed area to fresh air immediately; keep warm and quiet, give oxygen if breathing is difficult.

SKIN CONTACT: Remove contaminated clothing. Wash affected area with soap or mild detergent and large amounts of water.

EYE CONTACT: Flush eyes with lukewarm water lifting up the upper and lower lids for at least fifteen minutes. If irritation persists, seek medical attention.

Section 7- SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCEDURES

Wear appropriate protective equipment. Isolate spill area, provide ventilation, vacuum spill and place in a closed container for disposal.

WASTE DISPOSAL METHODS

Observe all federal, state and local regulations when storing or disposing.

Section 8- SPECIAL PROTECTION

RESPIRATORY:

NIOSH approved dust-mist-vapor respirator.

VENTILATION

Local exhaust: Maintain concentration at or below the PEL & TLV.

EYE PROTECTION & PROTECTIVE CLOTHING

Safety glasses, rubber gloves, and protective gear suitable to prevent contamination.

Section 9- SPECIAL PRECAUTIONS

Implement engineering and work practices to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Don not use tobacco or food in work area. Wash thoroughly before eating and smoking.

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