Manganese (IV) Oxide

Section 1  Product Description

Product Name: Manganese (IV) Oxide
Recommended Use: Science education applications
Synonyms: N/A
Distributor: Carolina Biological Supply Company
2700 York Road, Burlington, NC 27215
1-800-227-1150

Chemical Information:
800-227-1150 (8am-5pm (ET) M-F)
Chemtrec: 800-424-9300 (Transportation Spill Response 24 hours)

Section 2  Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

WARNING

Harmful if inhaled.

GHS Classification:
Acute Toxicity - Inhalation Dust / Mist Category 4, Acute Toxicity - Oral Category 5

Acute Toxicity Dermal Contains 100 % of the mixture consists of ingredient(s) of unknown toxicity
Acute Toxicity Inhalation Gas 100 % of the mixture consists of ingredient(s) of unknown toxicity
Contains
Acute Toxicity Inhalation Vapor 100 % of the mixture consists of ingredient(s) of unknown toxicity
Contains

Section 3  Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese (IV) Oxide</td>
<td>1313-13-9</td>
<td>100</td>
</tr>
</tbody>
</table>

Section 4  First Aid Measures

Emergency and First Aid Procedures
Inhalation: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Eyes: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Ingestion: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Section 5  Firefighting Procedures

Extinguishing Media: Use dry chemical, CO2 or appropriate foam.
Fire Fighting Methods and Protection: Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.
Fire and/or Explosion Hazards: Product is a strong oxidizer.
Hazardous Combustion Products: Metal Oxides,

Section 6  Spill or Leak Procedures
Steps to Take in Case Material Is Released or Spilled:

Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section 8 of this SDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill. Avoid contact with material. Avoid creating and inhaling dust. Ventilate the contaminated area. Isolate area. Keep unnecessary personnel away. Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation. Reduce airborne dust and prevent scattering by moistening with water. Vacuum or sweep up material and place in a disposal container. Do not flush to sewer.

Avoid contact with material. Avoid creating and inhaling dust. Ventilate the contaminated area. Isolate area. Keep unnecessary personnel away.

Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation. Reduce airborne dust and prevent scattering by moistening with water. Vacuum or sweep up material and place in a disposal container. Do not flush to sewer. Contain the discharged material.

Section 7 Handling and Storage

Handling: Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Keep container tightly closed in a cool, well-ventilated place. Keep away from sources of ignition - No smoking. Store separately and away from flammable and combustible materials.

Storage: Store in a secure area suitable for oxidizing agents. Store away from flammable materials, organic solvents and combustible materials.

Storage Code: Green - general chemical storage

Section 8 Protection Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH (TWA)</th>
<th>ACGIH (STEL)</th>
<th>OSHA PEL (TWA)</th>
<th>OSHA PEL (STEL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese (IV) Oxide</td>
<td>0.02 mg/m3 TWA (as Mn, listed under respirable fraction); 0.1 mg/m3 TWA (as Mn)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Control Parameters

Engineering Measures: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure.

Personal Protective Equipment (PPE): Lab coat, apron, eye wash, safety shower.

Respiratory Protection: No respiratory protection required under normal conditions of use. Wear a NIOSH approved respirator if levels above the exposure limits are possible.

Eye Protection: Wear chemical splash goggles when handling this product. Have an eye wash station available.

Skin Protection: Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.

Gloves: Nitrile

Section 9 Physical Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula: MnO2</td>
<td></td>
</tr>
<tr>
<td>Molecular Weight: 86.94</td>
<td></td>
</tr>
<tr>
<td>Appearance: Black Powder</td>
<td></td>
</tr>
<tr>
<td>Odor: No data available</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold: No data available</td>
<td></td>
</tr>
<tr>
<td>pH: No data available</td>
<td></td>
</tr>
<tr>
<td>Melting Point: 535 C</td>
<td></td>
</tr>
<tr>
<td>Boiling Point: No data available</td>
<td></td>
</tr>
<tr>
<td>Flash Point: No data available</td>
<td></td>
</tr>
<tr>
<td>Flammable Limits in Air: N/A</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure: 0 hPa at 20 °C</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate (BuAc=1): N/A</td>
<td></td>
</tr>
<tr>
<td>Vapor Density (Air=1): N/A</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity: 5.0</td>
<td></td>
</tr>
<tr>
<td>Solubility in Water: Practically Insoluble</td>
<td></td>
</tr>
<tr>
<td>Log Pow (calculated): &lt;0 at 20 °C</td>
<td></td>
</tr>
<tr>
<td>Autoignition Temperature: No data available</td>
<td></td>
</tr>
<tr>
<td>Decomposition Temperature: No data available</td>
<td></td>
</tr>
<tr>
<td>Viscosity: No data available</td>
<td></td>
</tr>
<tr>
<td>Percent Volatile by Volume: 0% at 21 °C</td>
<td></td>
</tr>
</tbody>
</table>

Section 10 Reactivity Data

Reactivity: No data available
Safety Data Sheet

Chemical Stability: Stable under normal conditions.
Conditions to Avoid: None known.
Incompatible Materials: Strong acids, Strong oxidizing agents, Organics,
Hazardous Decomposition Products: Metal Oxides,
Hazardous Polymerization: Will not occur

Section 11  Toxicity Data

Routes of Entry: Inhalation, ingestion, eye or skin contact.
Symptoms (Acute): Respiratory disorders, Central Nervous System Disorders, Gastrointestinal,
Delayed Effects: No data available

Acute Toxicity:
Chemical Name: Manganese (IV) Oxide
CAS Number: 1313-13-9
Oral LD50: Oral LD50 Rat 3478 mg/kg
Dermal LD50: Not determined
Inhalation LC50: Not determined

Carcinogenicity:
Chemical Name: No data available
CAS Number: 1313-13-9
IARC: Not listed
NTP: Not listed
OSHA: Not listed

Chronic Effects:
Mutagenicity: No evidence of a mutagenic effect.
Teratogenicity: No evidence of a teratogenic effect (birth defect).
Sensitization: No evidence of a sensitization effect.
Reproductive: No evidence of negative reproductive effects.
Target Organ Effects:
Acute: See Section 2
Chronic: Reproductive data cited., Not listed as a carcinogen by IARC, NTP or OSHA.

Section 12  Ecological Data

Overview: This material is not expected to be harmful to the ecology.
Mobility: No data
Persistence: No data
Bioaccumulation: No data
Degradability: No data
Other Adverse Effects: No data

Chemical Name: N/A
CAS Number: 1313-13-9
Eco Toxicity: N/A

Section 13  Disposal Information

Disposal Methods: Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.
Waste Disposal Code(s): Not Determined

Section 14  Transport Information

Ground - DOT Proper Shipping Name: Not Regulated for Transport
Air - IATA Proper Shipping Name: Not regulated for air transport by IATA.

Section 15  Regulatory Information

TSCA Status: All components in this product are on the TSCA Inventory.

Chemical Name: Manganese (IV) Oxide
CAS Number: 1313-13-9
§ 313 Name: § 304 RQ: CERCLA RQ: § 302 TPQ: CAA 112(2) TQ:

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**Section 16 Additional Information**

| Revised: 09/03/2014 | Replaces: 09/03/2014 | Printed: 04-21-2015 |

The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

**Glossary**

- ACGIH: American Conference of Governmental Industrial Hygienists
- CAS: Chemical Abstract Service Number
- CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
- DOT: U.S. Department of Transportation
- IARC: International Agency for Research on Cancer
- N/A: Not Available
- NTP: National Toxicology Program
- OSHA: Occupational Safety and Health Administration
- PEL: Permissible Exposure Limit
- ppm: Parts per million
- RCRA: Resource Conservation and Recovery Act
- SARA: Superfund Amendments and Reauthorization Act
- TLV: Threshold Limit Value
- TSCA: Toxic Substances Control Act
- IDLH: Immediately dangerous to life and health