

# Manganese Powder

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## **SAFETY DATA SHEET**

### **1 PRODUCT AND SUPPLIER IDENTIFICATION**

**Product Name:** Manganese Powder

**Formula:** Mn

**Supplier:** ESPI Metals

1050 Benson Way

Ashland, OR 97520

**Telephone:** 800-638-2581

**Fax:** 541-488-8313

**Email:** [sales@espimetals.com](mailto:sales@espimetals.com)

**Emergency:** Infotrac 800-535-5053 (US) or 352-323-3500 (24 hour)

**Recommended Uses:** Scientific Research

### **2 HAZARDS IDENTIFICATION**

**GHS Classification (29 CFR 1910.1200):** Flammable solids, category 2

**GHS Label Elements:**



**Signal Word:** Warning

**Hazard Statements:** H228 Flammable solid.

**Precautionary Statements:** P210 Keep away from heat/sparks/open flames/hot surfaces - No smoking, P280 Wear protective gloves/protective clothing/eye protection/face protection, P370+P378 In case of fire: Use Class D dry chemical extinguishing agent for extinction.

### **3 COMPOSITION/INFORMATION ON INGREDIENTS**

**Ingredient:** Manganese  
**CAS#:** 7439-96-5  
**%:** 100  
**EC#:** 231-105-1

### **4 FIRST AID MEASURES**

**General Measures:** Remove patient from area of exposure.

**INHALATION:** Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek medical attention.

**INGESTION:** Rinse mouth with water. Do not induce vomiting. Seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

**SKIN:** Remove contaminated clothing, brush material off skin, wash affected area with soap and water. Seek medical attention if symptoms persist.

**EYES:** Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

**Most Important Symptoms/Effects, Acute and Delayed:** May cause irritation. See section 11 for more information.

**Indication of Immediate Medical Attention and Special Treatment:** No other relevant information available.

### **5 FIREFIGHTING MEASURES**

**Extinguishing Media:** Use Class D dry powder extinguishing agent.

**Unsuitable Extinguishing Media:** Do not use water, foam, halogenated gas or carbon dioxide.

**Specific Hazards Arising from the Material:** Flammable in the form of dust when exposed to heat, sparks or flame. May react with water under fire conditions to liberate flammable hydrogen gas. May emit fumes of manganese oxide under fire conditions.

**Special Protective Equipment and Precautions for Firefighters:** Full face, self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.

### **6 ACCIDENTAL RELEASE MEASURES**

**Personal Precautions, Protective Equipment, and Emergency Procedures:** Wear appropriate respiratory and protective equipment specified in section 8. Isolate spill area and provide ventilation. Avoid breathing dust or fume. Avoid contact with skin and eyes. Eliminate all sources of ignition.

**Methods and Materials for Containment and Cleaning Up:** Avoid dust formation. Use only non-sparking tools and natural bristle brushes. Sweep or scoop spilled product and place carefully in dry water-tight sealed containers for further handling and disposal. Do not use wet clean-up methods as wet manganese particulate may oxidize, generate heat and release hydrogen gas, which is flammable.

**Environmental Precautions:** Do not allow to enter drains or to be released to the environment.

## **7 HANDLING AND STORAGE**

**Precautions for Safe Handling:** Handle in an enclosed, controlled process. Avoid creating dust. Provide adequate ventilation if dusts are created. Protect from moisture and sources of ignition. Avoid breathing dust or fumes. Avoid contact with skin and eyes. Wash thoroughly before eating or smoking. See section 8 for information on personal protection equipment.

**Conditions for Safe Storage, Including Any Incompatibilities:** Store in a cool, dry area. Store material tightly sealed in properly labeled containers, preferably under argon. Hygroscopic, protect from moisture. Store away from heat and ignition sources. Do not store together with oxidizers, acids or halogens. See section 10 for more information on incompatible materials.

## **8 EXPOSURE CONTROLS AND PERSONAL PROTECTION**

**Exposure Limits:** Manganese

**OSHA/PEL:** 5 mg/m<sup>3</sup>

**ACGIH/TLV:** 0.2 mg/m<sup>3</sup>

**Appropriate Engineering Controls:** Handle in an enclosed, controlled process under dry argon when possible. Ensure adequate ventilation to maintain exposures below occupational limits. Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

**Individual Protection Measures, Such as Personal Protective Equipment:**

**Respiratory Protection:** If permissible levels are exceeded, use NIOSH approved dust respirator.

**Eye Protection:** Safety glasses with side shields

**Skin Protection:** Wear impermeable gloves, protective work clothing as necessary.

## **9 PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:**

**Form:** Powder

**Color:** Gray

**Odor:** Not determined

**Odor Threshold:** Not determined

**pH:** N/A

**Melting Point:** 1244±3 °C

**Boiling Point:** 1962 °C

**Flash Point:** N/A

**Evaporation Rate:** N/A

**Flammability:** Flammable solid

<b>Upper Flammable Limit:</b>	No data
<b>Lower Flammable Limit:</b>	No data
<b>Vapor Pressure:</b>	1 mm Hg @ 1292 °C
<b>Vapor Density:</b>	N/A
<b>Relative Density (Specific Gravity):</b>	7.20 g/cc
<b>Solubility in H<sub>2</sub>O:</b>	Decomposes
<b>Partition Coefficient (n-octanol/water):</b>	Not determined
<b>Autoignition Temperature:</b>	No data
<b>Decomposition Temperature:</b>	No data
<b>Viscosity:</b>	N/A

## **10 STABILITY AND REACTIVITY**

**Reactivity:** No data

**Chemical Stability:** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Manganese dusts dispersed in air in sufficient concentrations, and in the presence of an ignition source, may be flammable in open spaces or explosive in confined spaces. Reacts slowly with water to produce hydrogen gas. Reaction with steam produces incandescence and high temperature.

**Conditions to Avoid:** Avoid contact with water or moisture, ignition sources.

**Incompatible Materials:** Acids, water or steam, chloride, fluoride, hydrogen peroxide, nitrous oxide, phosphorous vapor, sulfur dioxide, all alkalis.

**Hazardous Decomposition Products:** Manganese oxides, hydrogen gas.

## **11 TOXICOLOGICAL INFORMATION**

**Likely Routes of Exposure:** Inhalation, skin and eyes.

**Symptoms of Exposure:** Dust may cause irritation to upper respiratory tract, skin or eyes.

**Acute and Chronic Effects:** Chronic inhalation exposure of humans to high levels of manganese may result in a syndrome called manganism which typically begins with feelings of weakness and lethargy and progresses to other symptoms such as gait disturbances, clumsiness, tremors, speech disturbances, a mask-like facial expression and psychological disturbances. Manganese is an essential micronutrient in humans.

**Acute Toxicity:** No data

**Carcinogenicity:** **NTP:** Not identified as carcinogenic **IARC:** Not identified as carcinogenic

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

## **12 ECOLOGICAL INFORMATION**

**Ecotoxicity:** No data

**Persistence and Degradability:** No data

**Bioaccumulative Potential:** No data

**Mobility in Soil:** No data

**Other Adverse Effects:** Possibly harmful to aquatic life. Do not allow material to be released to the environment. No further relevant information available.

### **13 DISPOSAL CONSIDERATIONS**

**Waste Disposal Method:**

**Product:** Dispose of in accordance with Federal, State and Local regulations.

**Packaging:** Dispose of in accordance with Federal, State and Local regulations.

### **14 TRANSPORT INFORMATION**

**UN Number:** UN3089

**UN Proper Shipping Name:** Metal powder, flammable, n.o.s., (Manganese)

**Transport Hazard Class:** 4.1

**Packing Group:** III

**Marine Pollutant:** No

### **15 REGULATORY INFORMATION**

**TSCA Listed:** All components are listed.

**Regulation (EC) No 1272/2008 (CLP):** Flammable solids, category 2.

**Canada WHMIS Classification (CPR, SOR/88-66):** Flammable solids.

**HMIS Ratings:** Health: 1 Flammability: 2 Physical: 1

**NFPA Ratings:** Health: 1 Flammability: 2 Instability: 1

**Chemical Safety Assessment:** A chemical safety assessment has not been carried out.

### **16 OTHER INFORMATION**

The information contained in this document is based on the state of our knowledge at the time of publication and is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI Metals makes no representation, warranty, or guarantee of any kind with respect to the information contained in this document or any use of the product based on this information. ESPI Metals shall not be held liable for any damages resulting from handling or from contact with the above product. Users should satisfy themselves that they have all current data relevant to their particular use.

**Prepared by:** ESPI Metals

**Revised/Reviewed:** July 2015