

# Safety Data Sheet: Manganese Dioxide

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## SECTION 1: Identification

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### 1.1. Product Identifier

- **Product Name:** Manganese Dioxide Powder
- **Synonyms:** Pyrolusite, Manganese(IV) oxide
- **CAS Number:** 1313-13-9
- **EC Number:** 215-202-6

### 1.2. Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

- **Identified Uses:** Decolorizing agent in glass manufacturing, battery cathodes, catalysts, and pigments.
- **Uses Advised Against:** No specific uses advised against are identified.

### 1.3. Details of the Supplier of the Safety Data Sheet

- **Company Name:** BTLnewmaterial
- **Address:** Room 706, No. 154, Wuyi East Road, Niezhou Residential Committee, Caizichi Sub-district Office, Leiyang City, Hengyang City, Hunan Province, China
- **Email:** lixifirm@outlook.com
- **Phone/WhatsApp:** +8618273793022

### 1.4. Emergency Telephone Number

- For emergencies, please contact the number provided above or local emergency services.

# SECTION 2: Hazards Identification

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## 2.1. Classification of the Substance or Mixture

- **GHS Classification:**
  - Oxidizing Solids (Category 3), H272
  - Acute Toxicity, Oral (Category 4), H302
  - Acute Toxicity, Inhalation (Category 4), H332
  - Specific Target Organ Toxicity - Repeated Exposure (Category 2), H373 (Inhalation)

## 2.2. Label Elements

- **Pictograms:**
  - GHS03 (Flame over circle)
  - GHS07 (Exclamation mark)
  - GHS08 (Health hazard)
- **Signal Word:** Warning
- **Hazard Statements:**
  - H272: May intensify fire; oxidizer.
  - H302: Harmful if swallowed.
  - H332: Harmful if inhaled.
  - H373: May cause damage to organs (lungs) through prolonged or repeated exposure if inhaled.
- **Precautionary Statements:**
  - P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  - P220: Keep/Store away from clothing/combustible materials.
  - P260: Do not breathe dust/fume/gas/mist/vapors/spray.
  - P280: Wear protective gloves/protective clothing/eye protection/face protection.
  - P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

- P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

### 2.3. Other Hazards

- No other hazards identified.

## SECTION 3: Composition/Information on Ingredients

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### 3.1. Substances

- **Substance Name:** Manganese Dioxide
- **CAS Number:** 1313-13-9
- **Concentration:** 85-92%

## SECTION 4: First-Aid Measures

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### 4.1. Description of First-Aid Measures

- **General Advice:** Consult a physician. Show this safety data sheet to the doctor in attendance.
- **If Inhaled:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
- **In Case of Skin Contact:** Wash off with soap and plenty of water. Consult a physician.
- **In Case of Eye Contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
- **If Swallowed:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2. Most Important Symptoms and Effects, Both Acute and Delayed

- The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

- No data available.

## SECTION 5: Fire-Fighting Measures

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### 5.1. Extinguishing Media

- **Suitable Extinguishing Media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2. Special Hazards Arising from the Substance or Mixture

- Manganese oxides. Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

### 5.3. Advice for Firefighters

- Wear self-contained breathing apparatus for firefighting if necessary.

## SECTION 6: Accidental Release Measures

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### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

- Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

### 6.2. Environmental Precautions

- Do not let product enter drains.

### 6.3. Methods and Materials for Containment and Cleaning Up

- Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

## SECTION 7: Handling and Storage

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### 7.1. Precautions for Safe Handling

- Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

## 7.2. Conditions for Safe Storage, Including Any Incompatibilities

- Store in a cool place. Keep container tightly closed in a dry and well-ventilated place.

# SECTION 8: Exposure Controls/Personal Protection

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## 8.1. Control Parameters

- **Occupational Exposure Limits:**
  - USA - OSHA: Ceiling limit 5 mg/m<sup>3</sup> for Manganese compounds (as Mn)
  - USA - ACGIH: TWA 0.02 mg/m<sup>3</sup> (respirable fraction), 0.1 mg/m<sup>3</sup> (inhalable fraction) for Manganese, elemental and inorganic compounds

## 8.2. Exposure Controls

- **Appropriate Engineering Controls:** Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- **Personal Protective Equipment:**
  - **Eye/Face Protection:** Safety glasses with side-shields conforming to EN166.
  - **Skin Protection:** Handle with gloves.
  - **Body Protection:** Complete suit protecting against chemicals.
  - **Respiratory Protection:** Where risk assessment shows air-purifying respirators are appropriate, use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges.

# SECTION 9: Physical and Chemical Properties

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## 9.1. Information on Basic Physical and Chemical Properties

- **Appearance:** Black/brown powder
- **Odor:** Odorless

- **pH:** Not applicable
- **Melting Point/Freezing Point:** 535 °C (decomposes)
- **Initial Boiling Point and Boiling Range:** Not applicable
- **Flash Point:** Not applicable
- **Density:** 5.026 g/cm<sup>3</sup>
- **Solubility in Water:** Insoluble

## 9.2. Other Information

- No other relevant information.

# SECTION 10: Stability and Reactivity

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## 10.1. Reactivity

- No data available.

## 10.2. Chemical Stability

- Stable under recommended storage conditions.

## 10.3. Possibility of Hazardous Reactions

- No data available.

## 10.4. Conditions to Avoid

- No data available.

## 10.5. Incompatible Materials

- Strong reducing agents, combustible material, organic chemicals, powdered metals.

## 10.6. Hazardous Decomposition Products

- Hazardous decomposition products formed under fire conditions - Manganese oxides.

## SECTION 11: Toxicological Information

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### 11.1. Information on Toxicological Effects

- **Acute Toxicity:**
  - LD50 Oral - Rat - > 3,478 mg/kg
  - LC50 Inhalation - Rat - 4 h - > 1.5 mg/l
- **Skin Corrosion/Irritation:** No data available.
- **Serious Eye Damage/Eye Irritation:** No data available.
- **Respiratory or Skin Sensitization:** No data available.
- **Germ Cell Mutagenicity:** No data available.
- **Carcinogenicity:** This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or OSHA classification.
- **Reproductive Toxicity:** No data available.
- **Specific Target Organ Toxicity - Single Exposure:** No data available.
- **Specific Target Organ Toxicity - Repeated Exposure:** Inhalation - May cause damage to organs through prolonged or repeated exposure.
- **Aspiration Hazard:** No data available.

## SECTION 12: Ecological Information

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### 12.1. Toxicity

- **Toxicity to fish:** LC50 - *Oncorhynchus mykiss* (rainbow trout) - > 100 mg/l - 96 h

### 12.2. Persistence and Degradability

- The methods for determining biodegradability are not applicable to inorganic substances.

### 12.3. Bioaccumulative Potential

- No data available.

### 12.4. Mobility in Soil

- No data available.

### 12.5. Results of PBT and vPvB Assessment

- This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6. Other Adverse Effects

- No data available.

## SECTION 13: Disposal Considerations

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### 13.1. Waste Treatment Methods

- **Product:** Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
- **Contaminated Packaging:** Dispose of as unused product.

## SECTION 14: Transport Information

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### 14.1. UN Number

- **ADR/RID:** 2208
- **IMDG:** 2208
- **IATA:** 2208

### 14.2. UN Proper Shipping Name

- **ADR/RID:** MANGANESE DIOXIDE
- **IMDG:** MANGANESE DIOXIDE
- **IATA:** Manganese dioxide

### 14.3. Transport Hazard Class(es)

- **ADR/RID:** 5.1

- **IMDG:** 5.1
- **IATA:** 5.1

#### 14.4. Packing Group

- **ADR/RID:** III
- **IMDG:** III
- **IATA:** III

#### 14.5. Environmental Hazards

- **ADR/RID:** no
- **IMDG Marine pollutant:** no
- **IATA:** no

#### 14.6. Special Precautions for User

- No data available.

## SECTION 15: Regulatory Information

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### 15.1. Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

- This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

### 15.2. Chemical Safety Assessment

- For this product a chemical safety assessment was not carried out.

## SECTION 16: Other Information

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- **Disclaimer:** The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to

the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.