

# MATERIAL SAFETY DATA SHEET (MSDS)

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**Revision Date:** February 05, 2026

**Product:** Low Impurity Manganese Dioxide

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## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

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### 1.1 Product Identifier

- **Product Name:** Low Impurity Manganese Dioxide for Power Tool Batteries
- **Chemical Name:** Manganese Dioxide
- **CAS No:** 1313-13-9
- **EC No:** 215-202-6

### 1.2 Relevant Identified Uses of the Substance or Mixture

- **Identified Uses:** Cathode material for lithium and alkaline batteries, industrial chemical.
- **Uses Advised Against:** No specific uses advised against.

### 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:** lixfirm@outlook.com
  - **Phone/WhatsApp:** +8618273793022
  - **Website:** [manganesesupply.com](http://manganesesupply.com)
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## SECTION 2: HAZARDS IDENTIFICATION

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### 2.1 Classification of the Substance or Mixture

According to GHS (Globally Harmonized System):

- **Acute Toxicity, Oral (Category 4):** H302
- **Acute Toxicity, Inhalation (Category 4):** H332
- **Specific Target Organ Toxicity - Repeated Exposure (Category 2):** H373  
(Brain/Central Nervous System through inhalation)

### 2.2 GHS Label Elements

- **Signal Word:** Warning
  - **Hazard Pictograms:**
    - GHS07 (Exclamation mark)
    - GHS08 (Health hazard)
  - **Hazard Statements:**
    - H302 + H332: Harmful if swallowed or if inhaled.
    - H373: May cause damage to organs through prolonged or repeated exposure.
  - **Precautionary Statements:**
    - P260: Do not breathe dust/fume/gas/mist/vapours/spray.
    - P264: Wash hands thoroughly after handling.
    - P270: Do not eat, drink or smoke when using this product.
    - P314: Get medical advice/attention if you feel unwell.
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## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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Component	CAS No.	EC No.	Concentration (%)
Manganese Dioxide (MnO <sub>2</sub> )	1313-13-9	215-202-6	99.5 – 99.9%
Trace Elements (Fe, Cu, Pb)	Various	-	< 0.01%

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## SECTION 4: FIRST AID MEASURES

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### 4.1 Description of First Aid Measures

- **Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist.
  - **Skin Contact:** Wash with soap and plenty of water. Remove contaminated clothing.
  - **Eye Contact:** Rinse thoroughly with plenty of water for at least 15 minutes. Consult a physician.
  - **Ingestion:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
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## SECTION 5: FIREFIGHTING MEASURES

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### 5.1 Extinguishing Media

- Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

### 5.2 Special Hazards Arising from the Substance

- Manganese oxides. Product is an oxidizer and may intensify fire.

## 5.3 Advice for Firefighters

- Wear self-contained breathing apparatus for firefighting if necessary.
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# SECTION 6: ACCIDENTAL RELEASE MEASURES

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## 6.1 Personal Precautions

- Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas.

## 6.2 Environmental Precautions

- Do not let product enter drains.

## 6.3 Methods for Cleaning Up

- Sweep up and shovel. Keep in suitable, closed containers for disposal.
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# SECTION 7: HANDLING AND STORAGE

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## 7.1 Precautions for Safe Handling

- Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition.

## 7.2 Conditions for Safe Storage

- Store in a cool, dry, well-ventilated place. Keep container tightly closed. Incompatible with strong acids and strong reducing agents.
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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### 8.1 Control Parameters

- **Occupational Exposure Limits:** TWA 0.2 mg/m<sup>3</sup> (as Mn).

### 8.2 Exposure Controls

- **Eye Protection:** Safety glasses with side-shields.
  - **Skin Protection:** Handle with gloves.
  - **Body Protection:** Protective clothing.
  - **Respiratory Protection:** Dust mask or respirator with P100 filter.
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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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Property	Value
<b>Appearance</b>	Black/Dark Brown Powder
<b>Odour</b>	Odourless
<b>pH</b>	5.0 – 7.0 (at 20°C)
<b>Melting Point</b>	535°C (decomposes)
<b>Density</b>	5.02 g/cm <sup>3</sup>
<b>Solubility in Water</b>	Insoluble
<b>Purity (MnO<sub>2</sub>)</b>	99.5 – 99.9%
<b>Active Oxygen</b>	≥ 47.0%

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## SECTION 10: STABILITY AND REACTIVITY

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- **Reactivity:** Stable under recommended storage conditions.
  - **Chemical Stability:** Stable under normal conditions.
  - **Conditions to Avoid:** Avoid moisture and high temperatures.
  - **Incompatible Materials:** Strong acids, strong reducing agents, organic materials.
  - **Hazardous Decomposition Products:** Manganese oxides.
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## SECTION 11: TOXICOLOGICAL INFORMATION

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- **Acute Toxicity:** LD50 Oral - Rat - > 3,478 mg/kg.
  - **Skin Corrosion/Irritation:** May cause mild skin irritation.
  - **Serious Eye Damage:** May cause eye irritation.
  - **Chronic Effects:** Long-term inhalation of manganese dust can lead to “manganism,” a neurological disorder similar to Parkinson’s disease.
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## SECTION 12: ECOLOGICAL INFORMATION

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- **Toxicity:** No data available.
  - **Persistence and Degradability:** Not readily biodegradable.
  - **Bioaccumulative Potential:** No data available.
  - **Mobility in Soil:** Insoluble in water; low mobility.
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## SECTION 13: DISPOSAL CONSIDERATIONS

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- **Waste Treatment Methods:** Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
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## SECTION 14: TRANSPORT INFORMATION

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- **DOT (US):** Not dangerous goods.
  - **IMDG:** Not dangerous goods.
  - **IATA:** Not dangerous goods.
  - *(Note: While MnO<sub>2</sub> is an oxidizer, in this form and concentration, it is often not classified as a restricted hazardous material for transport unless specified by specific carrier regulations).*
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## SECTION 15: REGULATORY INFORMATION

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- **Safety, Health and Environmental Regulations:** Comply with all local, state, and federal regulations. This substance is listed on the TSCA inventory.
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## SECTION 16: OTHER INFORMATION

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- **Disclaimer:** The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. BTLnewmaterial shall not be held liable for any damage resulting from handling or from contact with the above product.