

Safety Data Sheet (SDS / MSDS)

Product Name: Water-Soluble Manganese Oxide Precursor **Manufacturer:** BTLnewmaterial **Website:** manganesesupply.com **Email:** lixifirm@outlook.com
Phone: +8618273793022 **Address:** Room 706, No. 154, Wuyi East Road, Niezhou Residential Committee, Caizichi Sub-district Office, Leiyang City, Hengyang City, Hunan Province, China

Section 1: Identification

- **Product Name:** Water-Soluble Manganese Oxide Precursor
- **Chemical Name:** Manganese (II) Oxide (Concentrate)
- **CAS Number:** 1344-43-0
- **Recommended Use:** Intermediate raw material for liquid micronutrient fertilizers, foliar sprays, and fertigation solutions.
- **Supplier Details:**
 - **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
 - **Phone:** +8618273793022
 - **Email:** lixifirm@outlook.com
 - **Website:** manganesesupply.com

Section 2: Hazard Identification

- **GHS Classification:**
 - Acute Toxicity (Oral) - Category 4
 - Acute Toxicity (Inhalation) - Category 4

- Specific Target Organ Toxicity (Repeated Exposure) - Category 2 (Brain/Nervous System)
- **Signal Word:** Warning
- **Hazard Statements:**
 - H302: Harmful if swallowed.
 - H332: Harmful if inhaled.
 - H373: May cause damage to organs (brain, nervous system) through prolonged or repeated exposure.
- **Precautionary Statements:**
 - P260: Do not breathe dust/fume/gas/mist/vapors/spray.
 - P264: Wash hands thoroughly after handling.
 - P270: Do not eat, drink, or smoke when using this product.
 - P271: Use only outdoors or in a well-ventilated area.
 - P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
 - P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Section 3: Composition/Information on Ingredients

Chemical Name	CAS No.	Concentration (%)
Manganese (II) Oxide (MnO)	1344-43-0	90–95%
Arsenic (As)	7440-38-2	≤ 10 ppm
Lead (Pb)	7439-92-1	≤ 20 ppm
Cadmium (Cd)	7440-43-9	≤ 5 ppm

Section 4: First Aid Measures

- **Eye Contact:** Flush eyes with plenty of water for at least 15 minutes, lifting eyelids. Seek medical attention if irritation persists.

- **Skin Contact:** Wash skin with soap and water. Remove contaminated clothing and shoes. Seek medical attention if irritation develops.
- **Inhalation:** Move victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention.
- **Ingestion:** Rinse mouth with water. Do NOT induce vomiting unless directed by medical personnel. Seek medical attention immediately.

Section 5: Firefighting Measures

- **Suitable Extinguishing Media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment (e.g., water spray, dry chemical, carbon dioxide, or foam).
- **Specific Hazards:** The product is not flammable. However, thermal decomposition may lead to release of irritating gases and vapors.
- **Protective Equipment for Firefighters:** Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Section 6: Accidental Release Measures

- **Personal Precautions:** Use personal protective equipment. Avoid dust formation. Ensure adequate ventilation. Do not breathe dust.
- **Environmental Precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains or water sources.
- **Methods for Containment and Cleaning Up:** Pick up and arrange disposal without creating dust. Sweep up and shovel into suitable containers for disposal.

Section 7: Handling and Storage

- **Handling:** Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.
- **Storage:** Keep container tightly closed in a dry and well-ventilated place. Store away from incompatible materials (strong acids, strong oxidizing agents).

Section 8: Exposure Controls/Personal Protection

- **Exposure Limits:**
 - ACGIH TLV: 0.02 mg/m³ (Mn, respirable fraction); 0.1 mg/m³ (Mn, inhalable fraction).
 - OSHA PEL: 5 mg/m³ (Mn compounds, Ceiling).
- **Engineering Controls:** Use local exhaust ventilation or other engineering controls to maintain airborne levels below exposure limits.
- **Personal Protective Equipment (PPE):**
 - **Eye/Face:** Safety glasses with side-shields or goggles.
 - **Skin:** Protective gloves and clothing.
 - **Respiratory:** Use a dust mask or NIOSH-approved respirator if exposure limits are exceeded.

Section 9: Physical and Chemical Properties

- **Appearance:** Greenish-brown powder.
- **Odor:** Odorless.
- **MnO Purity:** $\geq 90\text{--}95\%$
- **Manganese (Mn) Content:** $\geq 60\%$
- **Particle Size:** 80–200 mesh
- **Melting Point:** 1,650 °C (approx.)
- **Bulk Density:** 1.0–1.5 g/cm³
- **Solubility in Water:** Low (requires acid for conversion into soluble salts).
- **Acid Solubility:** $\geq 90\%$ in mineral acid.
- **Moisture:** $\leq 1.5\%$

Section 10: Stability and Reactivity

- **Reactivity:** Stable under recommended storage conditions. Reacts with mineral acids to form soluble manganese salts.

- **Chemical Stability:** Stable under normal temperatures and pressures.
- **Possibility of Hazardous Reactions:** No dangerous reactions known under normal use.
- **Conditions to Avoid:** Incompatible materials, dust generation, moisture.
- **Incompatible Materials:** Strong oxidizing agents, strong acids.
- **Hazardous Decomposition Products:** Manganese oxides.

Section 11: Toxicological Information

- **Acute Toxicity:** LD50 Oral (Rat): > 2,000 mg/kg (estimated).
- **Chronic Toxicity:** Chronic exposure to manganese dust/fumes may cause “manganism,” a neurodegenerative disease with symptoms similar to Parkinson’s disease.
- **Carcinogenicity:** Not listed as a carcinogen by IARC, ACGIH, NTP, or OSHA.

Section 12: Ecological Information

- **Toxicity:** Manganese is an essential trace element for organisms but can be toxic at high concentrations.
- **Persistence and Degradability:** Inorganic material, not biodegradable.
- **Bioaccumulative Potential:** Low potential for bioaccumulation.
- **Mobility in Soil:** Low mobility in soil.

Section 13: Disposal Considerations

- **Waste Treatment Methods:** Dispose of in accordance with local, state, and federal regulations. Do not discharge into sewer systems or water bodies.
- **Contaminated Packaging:** Dispose of as unused product.

Section 14: Transport Information

- **DOT (US):** Not regulated as a dangerous good.
- **IMDG:** Not regulated as a dangerous good.
- **IATA:** Not regulated as a dangerous good.

Section 15: Regulatory Information

- **TSCA Inventory Status:** Listed.
- **SARA 313:** This product contains manganese compounds, which are subject to reporting requirements of Section 313 of SARA Title III.
- **International Regulations:** Complies with GHS (Globally Harmonized System).

Section 16: Other Information

- **Revision Date:** March 17, 2026
- **Disclaimer:** The information provided in this Safety Data Sheet is correct to the best of our knowledge at the date of its publication. The information is designed only as guidance for safe handling, use, processing, storage, transportation, and disposal and is not to be considered a warranty or quality specification.

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