Safety Data Sheet (SDS / MSDS)

Product Name: Industrial Manganese Dioxide (MnO_2) for Welding Electrode Coatings **Revision Date:** March 14, 2026 **Version:** 1.0 **Standard:** According to GHS (Globally Harmonized System)

SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identifier

- **Product Name:** Industrial Manganese Dioxide (MnO_2) for Welding Electrode Coatings
- **Chemical Name:** Manganese Dioxide
- **CAS No.:** 1313-13-9
- **EC No.:** 215-202-6

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

- **Identified Uses:** Industrial use only. Primarily used in welding electrode flux formulations, oxidation reactions, and slag formation.
- **Uses Advised Against:** No data available.

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
- **Website:** manganesesupply.com

SECTION 2: Hazards Identification

2.1 Classification of the Substance or Mixture

According to GHS classification:

- **Acute Toxicity, Oral (Category 4):** H302 - Harmful if swallowed.
- **Acute Toxicity, Inhalation (Category 4):** H332 - Harmful if inhaled.
- **Specific Target Organ Toxicity - Repeated Exposure (Category 2):** H373 - May cause damage to organs (Brain/Nervous System) through prolonged or repeated exposure via inhalation.

2.2 GHS Label Elements

- **Signal Word:** Warning
- **Hazard Pictograms:**
  - Exclamation Mark (GHS07)
  - Health Hazard (GHS08)
- **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 skin thoroughly after handling.
  - P270: Do not eat, drink or smoke when using this product.
  - 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

Component	CAS No.	EC No.	Concentration (w/w)
Manganese Dioxide (MnO_2)	1313-13-9	215-202-6	90% – 95%
Other Impurities (Silica, etc.)	N/A	N/A	5% – 10%

SECTION 4: First Aid Measures

4.1 Description of First Aid Measures

- **Inhalation:** Remove to fresh air. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist.
- **Skin Contact:** Wash with soap and water. Seek medical attention if irritation develops.
- **Eye Contact:** Flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation persists.
- **Ingestion:** Rinse mouth. Do NOT induce vomiting. Seek medical attention immediately.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- **Suitable Extinguishing Media:** Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
- **Unsuitable Extinguishing Media:** None known.

5.2 Special Hazards Arising from the Substance

- **Hazardous Combustion Products:** Manganese oxides. Manganese dioxide is an oxidizer and may increase the intensity of a fire.

5.3 Advice for Firefighters

- Wear self-contained breathing apparatus and full protective clothing.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

- Use personal protective equipment. Avoid dust formation. Ensure adequate ventilation.

6.2 Environmental Precautions

- Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and Materials for Containment and Cleaning Up

- Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation.

7.2 Conditions for Safe Storage

- Store in a cool, dry, well-ventilated place. Keep container tightly closed. Keep away from heat, sparks, and open flames. Store away from incompatible materials (reducing agents, strong acids).

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- **Occupational Exposure Limits (Manganese compounds, as Mn):**
  - TWA: 0.2 mg/m^3 (ACGIH)

8.2 Exposure Controls

- **Engineering Controls:** Use local exhaust ventilation or other engineering controls to maintain airborne levels below exposure limits.
- **Personal Protective Equipment:**
  - **Eye/Face Protection:** Safety glasses with side-shields.
  - **Skin Protection:** Handle with gloves. Use appropriate skin protection.
  - **Respiratory Protection:** Use N95 or P100 dust masks where dust is generated.

SECTION 9: Physical and Chemical Properties

- **Appearance:** Black or dark grey powder
- **Odour:** Odourless
- **pH:** 5.0 – 7.0 (at 10% slurry)
- **Melting Point:** 535 °C (decomposes)
- **Boiling Point:** Not applicable
- **Flash Point:** Not applicable
- **Relative Density:** 5.02 g/cm^3

- **Bulk Density:** 0.6 – 0.9 g/cm^3
- **Solubility in Water:** Insoluble
- **Oxidizing Properties:** Strong oxidizer

SECTION 10: Stability and Reactivity

- **10.1 Reactivity:** Strong oxidizing agent.
- **10.2 Chemical Stability:** Stable under recommended storage conditions.
- **10.3 Possibility of Hazardous Reactions:** Reacts violently with reducing agents and combustible materials.
- **10.4 Conditions to Avoid:** High temperatures, moisture, and dust generation.
- **10.5 Incompatible Materials:** Strong acids, strong reducing agents, organic materials, combustible materials.
- **10.6 Hazardous Decomposition Products:** Manganese oxides.

SECTION 11: Toxicological Information

- **Acute Toxicity:** Harmful if swallowed or inhaled. LD50 Oral (Rat) > 3478 mg/kg.
- **Skin Corrosion/Irritation:** May cause mild irritation.
- **Serious Eye Damage/Irritation:** May cause mild irritation.
- **Respiratory or Skin Sensitization:** No data available.
- **STOT-Repeated Exposure:** May cause damage to the central nervous system (Manganism) through prolonged inhalation.

SECTION 12: Ecological Information

- **12.1 Toxicity:** Low toxicity to aquatic organisms in insoluble form.
- **12.2 Persistence and Degradability:** Not biodegradable.
- **12.3 Bioaccumulative Potential:** Does not bioaccumulate significantly.

- **12.4 Mobility in Soil:** Low mobility in soil due to low solubility.

SECTION 13: Disposal Considerations

- **Product:** Offer surplus and non-recyclable solutions to a licensed disposal company.
- **Contaminated Packaging:** Dispose of as unused product.

SECTION 14: Transport Information

- **DOT (US):** Not dangerous goods (unless specifically regulated).
- **IMDG:** Not dangerous goods.
- **IATA:** Not dangerous goods.
- **Note:** While MnO_2 is an oxidizer, in many jurisdictions, industrial grades are not classified as Class 5.1 unless they meet specific criteria. Check local regulations.

SECTION 15: Regulatory Information

- **TSCA:** Listed on the United States TSCA Inventory.
- **SARA 313:** Manganese compounds are subject to reporting requirements.

SECTION 16: Other Information

- **Disclaimer:** The information provided in this SDS is correct to the best of our knowledge at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, and disposal.
- **Contact:** BTLnewmaterial (lixifirm@outlook.com)