# Safety Data Sheet: Industrial $MnO_2$ for Marine Grade Protective Paints

## 1. Identification

**Product Name:** Industrial Manganese Dioxide ($MnO_2$) for Marine Grade Protective Paints **Product Use:** Anti-corrosive pigment for marine protective coatings, anti-fouling paints, oil-based and epoxy paints, industrial primer formulations.

**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 **Email:** lixifirm@outlook.com **Phone/WhatsApp:** +8618273793022 **Website:** manganesesupply.com

**Emergency Phone Number:** +8618273793022 (General)

## 2. Hazard(s) Identification

**GHS Classification:** Not classified as hazardous under GHS criteria based on available information. However, fine dust may cause mechanical irritation to eyes and respiratory tract.

**Label Elements: Pictograms:** None **Signal Word:** None **Hazard Statements:** None **Precautionary Statements:**

- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 + P313: If eye irritation persists: Get medical advice/attention.

## 3. Composition/Information on Ingredients

| Chemical Name | CAS No. | EC No. | Concentration (wt%) |
|---|---|---|---|
| Manganese Dioxide | 1313-13-9 | 215-202-6 | ≥99.2 |

## 4. First-Aid Measures

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. **Skin Contact:** Wash off with soap and plenty of water. Get medical attention if irritation develops and persists. **Eye Contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Remove contact lenses, if present and easy to do. Continue rinsing. **Ingestion:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**Most important symptoms and effects, both acute and delayed:** May cause mechanical irritation to eyes and respiratory tract. Prolonged or repeated exposure to manganese dust may affect the central nervous system.

**Indication of any immediate medical attention and special treatment needed:** Treat symptomatically.

## 5. Fire-Fighting Measures

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or foam. Manganese dioxide is not combustible. **Specific hazards arising from the chemical:** Not considered to be a fire hazard. May decompose at high temperatures to produce manganese oxides. **Special protective equipment and precautions for fire-fighters:** Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

## 6. Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure

adequate ventilation. Evacuate personnel to safe areas. **Environmental precautions:** Do not let product enter drains. Avoid discharge into the environment. **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.

## 7. Handling and Storage

**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. For precautions see section 2.2. **Conditions for safe storage, including any incompatibilities:** Store in a cool, dry place. Keep container tightly closed in a dry and well-ventilated place. Protect from moisture and strong reducing agents.

## 8. Exposure Controls/Personal Protection

**Control parameters: Occupational Exposure Limits:**

- **Manganese (as Mn), inhalable fraction:** 0.02 mg/m$^3$ (TWA, ACGIH)
- **Manganese (as Mn), respirable fraction:** 0.1 mg/m$^3$ (TWA, ACGIH)

**Engineering Controls:** Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Use adequate ventilation to keep airborne concentrations low.

**Personal Protective Equipment (PPE): Eye/face protection:** Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). **Skin protection:** Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. **Body Protection:** Choose body protection according to the amount and concentration of the dangerous substance at the work place. **Respiratory protection:** For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type

ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

## 9. Physical and Chemical Properties

**Appearance:** Black powder **Odor:** Odorless **Odor Threshold:** Not applicable **pH:** 7-8 (10% slurry in water) [Source: General knowledge for MnO2] **Melting Point/Freezing Point:** Decomposes > 535 °C [Source: General knowledge for MnO2] **Initial Boiling Point and Boiling Range:** Not applicable (decomposes) **Flash Point:** Not applicable **Evaporation Rate:** Not applicable **Flammability (solid, gas):** Non-flammable **Upper/Lower Flammability or Explosive Limits:** Not applicable **Vapor Pressure:** Not applicable **Vapor Density:** Not applicable **Relative Density:** 1.8-2.2 $g/cm^3$ (Bulk Density from product page). True density is ~5.0 $g/cm^3$ [Source: General knowledge for MnO2] **Water Solubility:** Insoluble [Source: General knowledge for MnO2] **Partition Coefficient n-octanol/water (log value):** Not applicable **Auto-ignition Temperature:** Not applicable **Decomposition Temperature:** > 535 °C **Viscosity:** Not applicable (solid) **Particle Size:** 2–8 µm (from product page) **Surface Area:** 5–12 $m^2/g$ (from product page) **Moisture:** ≤0.5% (from product page) **Crystal Phase:** Pyrolusite (β-$MnO_2$) (from product page)

## 10. Stability and Reactivity

**Reactivity:** Stable under recommended storage conditions. **Chemical Stability:** Stable under normal conditions. **Possibility of Hazardous Reactions:** Reacts with strong reducing agents. May react violently with certain organic compounds or strong acids. **Conditions to Avoid:** High temperatures, moisture, incompatible materials. **Incompatible Materials:** Strong reducing agents, strong acids, easily oxidizable materials. **Hazardous Decomposition Products:** Manganese oxides (at high temperatures).

## 11. Toxicological Information

**Acute Toxicity:**

- **Oral LD50 (rat):** > 2000 mg/kg (Manganese dioxide is generally considered to have low acute toxicity via oral route) [Source: General knowledge for MnO2]

- **Inhalation LC50 (rat):** No data available, but fine dust may cause respiratory irritation.
- **Dermal LD50 (rabbit):** No data available.

**Skin Corrosion/Irritation:** May cause mild mechanical irritation. **Serious Eye Damage/Eye Irritation:** May cause mild mechanical irritation. **Respiratory or Skin Sensitization:** Not expected to be a sensitizer. **Germ Cell Mutagenicity:** No data available. **Carcinogenicity:** Not classified as a human carcinogen by IARC, NTP, or OSHA. **Reproductive Toxicity:** No data available. **STOT-Single Exposure:** May cause respiratory irritation if inhaled as fine dust. **STOT-Repeated Exposure:** Prolonged or repeated exposure to manganese dust may affect the central nervous system (manganism). **Aspiration Hazard:** Not an aspiration hazard.

## 12. Ecological Information

**Toxicity:**

- **Fish:** Low toxicity to fish based on general manganese compounds. [Source: General knowledge for MnO2]
- **Daphnia and other aquatic invertebrates:** Low toxicity. [Source: General knowledge for MnO2]
- **Algae:** No specific data available for $MnO_2$.

**Persistence and Degradability:** Manganese dioxide is an inorganic compound and is not expected to be biodegradable. It can undergo redox transformations in the environment. **Bioaccumulative Potential:** Manganese is an essential trace element, but excessive levels can be toxic. Bioaccumulation potential is generally low for inorganic manganese compounds. **Mobility in Soil:** Low mobility in soil due as it is largely insoluble. **Other Adverse Effects:** No other adverse environmental effects are expected.

## 13. Disposal Considerations

**Waste treatment methods: Product:** Offer surplus and non-recyclable solutions to a licensed disposal company. Dispose of in accordance with local regulations. **Contaminated packaging:** Dispose of as unused product.

## 14. Transport Information

**DOT (US):** Not regulated as a hazardous material. **IMDG:** Not regulated as a hazardous material. **IATA:** Not regulated as a hazardous material.

## 15. Regulatory Information

**US Federal Regulations:**

- **TSCA:** All components are listed on the TSCA inventory or are exempt.
- **CERCLA:** Not applicable.
- **SARA 302:** Not applicable.
- **SARA 313:** Manganese compounds are subject to reporting requirements.

**EU Regulations:**

- **REACH:** All components are registered or exempt from registration.
- **CLP:** Not classified as hazardous.

## 16. Other Information

**Date of Preparation:** 2026-03-13 **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.