Safety Data Sheet (SDS)

Product Name: Pyrolusite Powder (Natural Manganese Dioxide) **Version:** 3.0 | **Revision Date:** March 02, 2026

Section 1: Identification

1.1 Product Identifier

The product is identified as **Pyrolusite Powder**, a naturally occurring mineral form of **Manganese Dioxide (MnO_2)**. It is registered under **CAS Number 1313-13-9** and **EC Number 215-202-6**.

1.2 Recommended Use and Restrictions on Use

This material is primarily utilized as a professional coloring agent within the construction and industrial sectors, specifically for clay bricks, ceramic bodies, and glass decolorization. It also serves as a functional additive in refractory materials. Use is restricted to industrial and professional applications; it is not intended for consumer, food, or pharmaceutical use.

1.3 Supplier Details

The supplier of this product is **BTLnewmaterial**, located at Room 706, No. 154, Wuyi East Road, Niezhou Residential Committee, Caizichi Sub-district Office, Leiyang City, Hengyang City, Hunan Province, China. For technical inquiries, contact the company via email at **lixifirm@outlook.com** or by phone/WhatsApp at **+8618273793022**. Detailed product information is available at manganesesupply.com.

1.4 Emergency Telephone Number

In the event of a chemical emergency, spill, leak, fire, or exposure, contact the $^{24}/_{7}$ support line at **+8618273793022**.

Section 2: Hazard(s) Identification

2.1 GHS Classification

Based on the Global Harmonized System (GHS) criteria, this substance is classified under the following categories:

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

2.2 GHS Label Elements

The product carries the **Warning** signal word and requires the **Exclamation Mark (GHS07)** and **Health Hazard (GHS08)** pictograms.

Hazard Statements	Precautionary Statements (Prevention)
H302 + H332: Harmful if swallowed or if inhaled.	**P260:** Do not breathe dust or fume.
H373: May cause damage to the brain and central nervous system through prolonged or repeated exposure via inhalation.	**P264:** Wash skin thoroughly after handling.
	P270: Do not eat, drink, or smoke when using this product.
	P271: Use only outdoors or in a well-ventilated area.

2.3 Response and Disposal

In case of ingestion, the mouth should be rinsed, and a poison center or physician contacted if the individual feels unwell. If inhaled, the person must be moved to fresh

air and kept comfortable for breathing. If symptoms persist or if the individual feels unwell, medical attention is required. Disposal of the contents and container must be conducted at an approved waste disposal plant in accordance with local regulations.

Section 3: Composition/Information on Ingredients

The product consists of naturally occurring pyrolusite with the following typical chemical composition:

Component	CAS No.	EC No.	Concentration (wt%)	GHS Classification
Manganese Dioxide (MnO_2)	1313-13-9	215-202-6	≥85%	Acute Tox. 4; STOT RE 2
Silicon Dioxide (SiO_2)	7631-86-9	231-545-4	≤5.0%	Not Classified
Iron(III) Oxide (Fe_2O_3)	1309-37-1	215-168-2	≤3.0%	Not Classified

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Section 4: First-Aid Measures

4.1 Description of Necessary Measures

For **inhalation**, the affected person should be moved to fresh air immediately. If breathing is difficult, oxygen may be administered by trained personnel. If breathing has stopped, artificial respiration should be initiated, and emergency medical services contacted. For **skin contact**, wash the affected area thoroughly with soap and water and remove any contaminated clothing. Consult a physician if irritation develops. For **eye contact**, rinse cautiously with water for at least 15 minutes, ensuring the eyelids are held open. Remove contact lenses if present and easy to do. For **ingestion**, rinse the mouth with water but do not induce vomiting unless directed by medical personnel.

4.2 Most Important Symptoms and Effects

The most significant risk associated with chronic exposure is “manganism,” a neurological condition characterized by tremors and Parkinson-like symptoms resulting from the accumulation of manganese in the brain. Acute exposure may cause mild mechanical irritation to the eyes and respiratory tract.

Section 5: Fire-Fighting Measures

Manganese dioxide is non-combustible; however, it acts as a strong oxidizer at high temperatures and may intensify the burning of combustible materials. Suitable extinguishing media include water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. Firefighters should wear a self-contained breathing apparatus (SCBA) and full protective clothing to prevent contact with thermal decomposition products.

Section 6: Accidental Release Measures

Personnel should wear appropriate protective equipment to avoid contact and inhalation of dust. Adequate ventilation must be ensured, and dust formation should be minimized. Environmental precautions should be taken to prevent the material from entering drains, sewers, or watercourses. For cleanup, the material should be picked up or vacuumed using a HEPA-filtered system and placed into suitable, closed containers for disposal.

Section 7: Handling and Storage

Safe handling requires avoiding contact with skin and eyes and minimizing the generation of airborne dust. Appropriate local exhaust ventilation should be provided in areas where dust is generated. The material should be stored in a cool, dry, and well-ventilated area, kept in tightly closed original containers. It must be stored away from strong acids, reducing agents, and organic or combustible materials to prevent hazardous reactions.

Section 8: Exposure Controls/Personal Protection

8.1 Control Parameters

The Occupational Safety and Health Administration (OSHA) sets a Permissible Exposure Limit (PEL) of **5 mg/m³ (Ceiling)** for manganese compounds. The American Conference of Governmental Industrial Hygienists (ACGIH) recommends a Threshold Limit Value (TLV) of **0.02 mg/m³ for the respirable fraction** and **0.1 mg/m³ for the inhalable fraction**.

8.2 Exposure Controls

Engineering controls, such as process enclosures or local exhaust ventilation, are preferred to maintain airborne levels below exposure limits. Personal protective equipment (PPE) should include NIOSH-approved N95 or P100 respirators for dust control, nitrile rubber gloves for hand protection, and safety glasses with side-shields or chemical goggles for eye protection. A full protective suit is recommended for extensive handling.

Section 9: Physical and Chemical Properties

Physical Property	Description/Value
Physical State	Solid (Fine Powder)
Color	Dark brown to black
Odor	Odorless
pH (10% slurry)	6.0 – 8.0
Melting Point	535 °C (Decomposes to Mn_2O_3 and O_2)
Bulk Density	1.5 – 2.0 g/cm³
Solubility in Water	Insoluble
Oxidizing Properties	Strong oxidizer at elevated temperatures

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Section 10: Stability and Reactivity

The product is chemically stable under normal ambient temperatures and pressures. However, it may react violently with aluminum (thermite reaction), magnesium, and other light metals when heated. It is incompatible with strong acids, strong reducing agents, and organic or combustible substances. Hazardous decomposition products, such as manganese oxides and oxygen, may be released during thermal decomposition.

Section 11: Toxicological Information

Acute oral toxicity in rats shows an **LD50 greater than 3,480 mg/kg**, while acute inhalation toxicity shows an **LC50 greater than 1,500 mg/m^3** over a 4-hour period. The material is not classified as a skin or eye irritant, though mechanical irritation may occur. Chronic exposure to airborne manganese dust is a known neurotoxin. The substance is not listed as a carcinogen by IARC, NTP, or OSHA.

Section 12: Ecological Information

Ecological assessments indicate a low potential for bioaccumulation and low mobility in soil due to the material's insolubility in water. The **LC50 for Fathead minnow is greater than 100 mg/L** over 96 hours, suggesting low acute toxicity to fish. As an inorganic mineral, it is not subject to biodegradation.

Section 13: Disposal Considerations

Waste generation should be avoided or minimized. The disposal of this product, its solutions, and any by-products must comply with local, regional, and national environmental regulations. It is recommended to utilize a licensed professional waste disposal service for the removal of surplus and non-recyclable products.

Section 14: Transport Information

For domestic transport (DOT), the product is generally not regulated as a hazardous material unless it meets the criteria for an oxidizer. For international sea (IMDG) and air (IATA) transport, it is not regulated. However, shippers should verify purity and specific test results to ensure compliance with UN 1479 (Oxidizing Solid, N.O.S.) classifications if applicable.

Section 15: Regulatory Information

All components of this product are listed on the **Toxic Substances Control Act (TSCA)** Inventory. Under **SARA Title III, Section 313**, manganese compounds are subject to reporting requirements. This product does not contain any chemicals currently known to the State of California to cause cancer or reproductive harm under **Proposition 65**.

Section 16: Other Information

Disclaimer: The information provided in this Safety Data Sheet is based on our current knowledge and is intended to describe the product for the purposes of health, safety, and environmental requirements only. It should not be construed as a guarantee of any specific property of the product. BTLnewmaterial assumes no responsibility for injury or damage resulting from the use of this information.

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