

Safety Data Sheet: Chemical Grade MnO₂ for Polysulfide Sealant Curing

Revision Date: 2026-03-11 Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- **Product Name:** Chemical Grade Manganese Dioxide (MnO₂)
- **Synonyms:** Manganese(IV) oxide, Pyrolusite (mineral form)
- **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:** Oxidative curing agent for polysulfide sealants, industrial catalyst, pigment, battery material.
- **Uses advised against:** No specific uses advised against beyond general industrial hygiene practices.

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
- **Website:** manganesesupply.com

- **Phone/WhatsApp:** +8618273793022

1.4 Emergency telephone number

- **Emergency Phone:** +8618273793022 (Available 24 hours)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

- **Acute toxicity (Oral):** Category 4 (H302)
- **Acute toxicity (Inhalation):** Category 4 (H332)
- **Specific target organ toxicity - repeated exposure (Inhalation):** Category 2 (Brain) (H373)

2.2 GHS label elements

- **Hazard pictograms:** GHS08 (Health Hazard), GHS07 (Exclamation Mark)

 GHS08 Health Hazard Pictogram

 GHS07 Exclamation Mark Pictogram

- **Signal word:** Warning
- **Hazard statements:**
 - H302 + H332: Harmful if swallowed or if inhaled.
 - H373: May cause damage to organs (Brain) through prolonged or repeated exposure if inhaled.
- **Precautionary statements:**
 - **Prevention:**
 - P260: Do not breathe dust.

- 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.
- **Response:**
 - P301 + P312 + P330: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
 - P304 + P340 + P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
 - P314: Get medical advice/ attention if you feel unwell.
- **Disposal:**
 - P501: Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

- None known.

SECTION 3: Composition/information on ingredients

3.1 Substances

- **Chemical Name:** Manganese Dioxide
- **Common Name:** Manganese(IV) oxide
- **CAS No.:** 1313-13-9
- **EC No.:** 215-202-6
- **Concentration:** 85-95% (as MnO₂)

SECTION 4: First aid measures

4.1 Description of first aid measures

- **General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance.
- **If inhaled:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
- **In case of skin contact:** Wash off with soap and plenty of water. Consult a physician.
- **In case of eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
- **If swallowed:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

- The most important known symptoms and effects are described in the labelling (Section 2.2) and/or in Section 11.

4.3 Indication of any immediate medical attention and special treatment needed

- No data available.

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:** No data available.

5.2 Special hazards arising from the substance or mixture

- Manganese oxides, oxygen (when heated to decomposition).

5.3 Advice for firefighters

- Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

- Do not let product enter drains.

6.3 Methods and material for containment and cleaning up

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

6.4 Reference to other sections

- For disposal see section 13.

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 at places where dust is formed. For precautions

see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

- Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Store away from strong oxidizing agents, strong acids, and combustible materials.

7.3 Specific end use(s)

- Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

- **Components with workplace control parameters:**
 - **Manganese, elemental and inorganic compounds (as Mn):**
 - **OSHA PEL:** Ceiling 5 mg/m³
 - **ACGIH TLV:** TWA 0.02 mg/m³ (respirable fraction), TWA 0.1 mg/m³ (inhalable fraction)
 - **NIOSH REL:** TWA 1 mg/m³ (elemental), STEL 3 mg/m³ (elemental)

8.2 Exposure controls

- **Appropriate engineering controls:** Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- **Personal protective equipment:**
 - **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. Full contact material: Nitrile rubber, minimum layer thickness 0.11 mm, break through time 480 min. Splash contact material: Nitrile rubber, minimum layer thickness 0.11 mm, break through time 480 min.

- **Body Protection:** Complete suit protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
- **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).

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- **Appearance:** Black to dark brown powder
- **Odor:** Odorless
- **Odor Threshold:** No data available
- **pH:** No data available
- **Melting point/freezing point:** No data available
- **Initial boiling point and boiling range:** No data available
- **Flash point:** Not applicable
- **Evaporation rate:** No data available
- **Flammability (solid, gas):** Non-flammable, but may act as an oxidizer
- **Upper/lower flammability or explosive limits:** Not applicable
- **Vapor pressure:** No data available
- **Vapor density:** No data available
- **Relative density:** No data available

- **Bulk Density:** 0.6–0.9 g/cm³
- **Water solubility:** Insoluble
- **Partition coefficient: n-octanol/water:** No data available
- **Auto-ignition temperature:** No data available
- **Decomposition temperature:** > 553 °C (decomposes to Mn₂O₃ and O₂)
- **Viscosity:** Not applicable (solid)
- **Explosive properties:** Not explosive
- **Oxidizing properties:** May be oxidizing
- **Particle Size (D50):** 5–12 µm
- **Specific Surface Area:** 40–80 m²/g
- **Crystal Phase:** Predominantly γ-MnO₂

9.2 Other information

- No additional information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

- Oxidizing agent. Reacts with reducing agents.

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- No data available.

10.4 Conditions to avoid

- Heat, dust formation, incompatible materials.

10.5 Incompatible materials

- Strong reducing agents, strong acids, combustible materials.

10.6 Hazardous decomposition products

- Other decomposition products - No data available. In the event of fire: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- **Acute toxicity:**
 - **Oral:** LD50 Oral - Rat - 3,478 mg/kg (Manganese dioxide)
 - **Inhalation:** LC50 Inhalation - Rat - 4 h - > 1.5 mg/l (Manganese dioxide)
- **Skin corrosion/irritation:** No data available.
- **Serious eye damage/eye irritation:** No data available.
- **Respiratory or skin sensitization:** No data available.
- **Germ cell mutagenicity:** No data available.
- **Carcinogenicity:**
 - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- **Reproductive toxicity:** No data available.
- **Specific target organ toxicity - single exposure:** No data available.
- **Specific target organ toxicity - repeated exposure:** Inhalation - May cause damage to organs (Brain) through prolonged or repeated exposure.
- **Aspiration hazard:** No data available.
- **Additional Information:** Repeated exposure to manganese dust or fumes may cause manganism, a neurological disorder.

SECTION 12: Ecological information

12.1 Toxicity

- **Toxicity to fish:** No data available.
- **Toxicity to daphnia and other aquatic invertebrates:** No data available.

12.2 Persistence and degradability

- The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

- No data available.

12.4 Mobility in soil

- No data available.

12.5 Results of PBT and vPvB assessment

- PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects

- No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- **Product:** Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of

this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

- **Contaminated packaging:** Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

- **ADR/RID:** 3137
- **IMDG:** 3137
- **IATA:** 3137

14.2 UN proper shipping name

- **ADR/RID:** OXIDIZING SOLID, N.O.S. (Manganese dioxide)
- **IMDG:** OXIDIZING SOLID, N.O.S. (Manganese dioxide)
- **IATA:** OXIDIZING SOLID, N.O.S. (Manganese dioxide)

14.3 Transport hazard class(es)

- **ADR/RID:** 5.1
- **IMDG:** 5.1
- **IATA:** 5.1

14.4 Packing group

- **ADR/RID:** III
- **IMDG:** III
- **IATA:** III

14.5 Environmental hazards

- **ADR/RID:** No
- **IMDG Marine pollutant:** No

- **IATA:** No

14.6 Special precautions for user

- No data available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- **OSHA Hazard Communication Standard:** This material is considered hazardous in accordance with OSHA HazCom 2012 (29 CFR 1910.1200).
- **TSCA (Toxic Substances Control Act):** All components are listed on the TSCA inventory or are exempt from listing.
- **CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):** Not applicable.
- **SARA 302 (Superfund Amendments and Reauthorization Act Title III, Section 302 Extremely Hazardous Substances):** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
- **SARA 313 (Superfund Amendments and Reauthorization Act Title III, Section 313 Toxic Chemical Release Inventory):** The following components are subject to reporting levels established by SARA Title III, Section 313:
 - Manganese compounds (CAS No. 1313-13-9)
- **California Proposition 65:** This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

15.2 Chemical safety assessment

- For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

16.1 Further information

- The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. BTLnewmaterial and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

16.2 Full text of H-Statements referred to under sections 2 and 3.

- H302: Harmful if swallowed.
- H332: Harmful if inhaled.
- H373: May cause damage to organs (Brain) through prolonged or repeated exposure if inhaled.

16.3 References

- [Sigma-Aldrich SDS for Manganese\(IV\) oxide](#)
- [PubChem CID 14801 \(Manganese Dioxide\)](#)
- [ICSC 0175 - MANGANESE DIOXIDE](#)