

Safety Data Sheet (SDS)

Product Name: Manganese Sulfate Monohydrate ($\text{MnSO}_4 \cdot \text{H}_2\text{O}$) Fertilizer **Version:** 1.0

Date of Issue: April 09, 2026

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

- **Product Name:** Manganese Sulfate Monohydrate
- **Chemical Formula:** $\text{MnSO}_4 \cdot \text{H}_2\text{O}$
- **CAS No.:** 10034-96-5
- **EC No.:** 232-089-9

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

- **Identified Uses:** Fertilizer, micronutrient for agriculture (corn, soybean), soil amendment, foliar spray.
- **Uses Advised Against:** No specific uses advised against are identified.

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

1.4 Emergency Telephone Number

- **Emergency Phone:** +8618273793022 (Available during business hours)
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SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture

According to GHS (Globally Harmonized System):

- **Specific Target Organ Toxicity - Repeated Exposure (Category 2):** H373 (May cause damage to organs through prolonged or repeated exposure - Brain)
- **Serious Eye Damage (Category 1):** H318 (Causes serious eye damage)
- **Chronic Aquatic Toxicity (Category 2):** H411 (Toxic to aquatic life with long-lasting effects)

2.2 Label Elements

- **Pictograms:**
 - GHS05 (Corrosion)
 - GHS08 (Health Hazard)
 - GHS09 (Environment)
- **Signal Word:** Danger
- **Hazard Statements:**
 - H318: Causes serious eye damage.
 - H373: May cause damage to organs (Brain) through prolonged or repeated exposure.
 - H411: Toxic to aquatic life with long-lasting effects.
- **Precautionary Statements:**
 - P260: Do not breathe dust/fume/gas/mist/vapors/spray.
 - P273: Avoid release to the environment.

- P280: Wear 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.
- P310: Immediately call a POISON CENTER or doctor/physician.
- P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other Hazards

None known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	CAS No.	EC No.	Concentration (w/w)
Manganese Sulfate Monohydrate	10034-96-5	232-089-9	≥ 98%
<i>Manganese (Mn) Content</i>	-	-	31–32%

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

- **Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist.
- **Skin Contact:** Wash with soap and plenty of water. Seek medical attention if irritation develops.
- **Eye Contact:** Immediately flush with plenty of water for at least 15 minutes, lifting upper and lower eyelids. Remove contact lenses. Seek immediate medical

attention.

- **Ingestion:** Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

- Causes serious eye damage. Prolonged exposure to dust may cause manganese poisoning (manganism), affecting the central nervous system.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

- Treat symptomatically.
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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 or Mixture

- Not combustible. Decomposes on heating, emitting toxic fumes of sulfur oxides (SO_x) and manganese oxides.

5.3 Advice for Firefighters

- Wear self-contained breathing apparatus and full protective clothing. Prevent fire-extinguishing water from entering drains or watercourses.
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SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

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

6.2 Environmental Precautions

- Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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.
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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.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

- Store in a cool, dry, and well-ventilated place. Keep container tightly closed. Hygroscopic (absorbs moisture). Store away from strong oxidizing agents.
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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

- **Occupational Exposure Limits:**
 - ACGIH TLV: 0.02 mg/m³ (respirable fraction), 0.1 mg/m³ (inhalable fraction) as Mn.

8.2 Exposure Controls

- **Engineering Controls:** Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Use local exhaust ventilation.
 - **Personal Protective Equipment:**
 - **Eye/Face Protection:** Wear tightly fitting safety goggles or face shield.
 - **Skin Protection:** Wear protective gloves and clothing.
 - **Respiratory Protection:** Use a N95 (US) or P1 (EN 143) dust mask if dust is generated.
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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

- **Appearance:** Light pink powder or granules.
- **Odor:** Odorless.
- **pH:** 5.0–7.0 (5% aqueous solution).
- **Melting Point:** 700 °C (loses water at 400–500 °C).
- **Boiling Point:** 850 °C (decomposes).
- **Flash Point:** Not applicable.
- **Water Solubility:** ≥ 99% (Highly soluble).
- **Bulk Density:** 0.9–1.3 g/cm³.

- **Molecular Weight:** 169.02 g/mol.
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SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

- Stable under recommended storage conditions.

10.2 Chemical Stability

- Stable under normal conditions. Hygroscopic.

10.3 Possibility of Hazardous Reactions

- No dangerous reactions known under normal use.

10.4 Conditions to Avoid

- Moisture, high temperatures.

10.5 Incompatible Materials

- Strong oxidizing agents, strong acids.

10.6 Hazardous Decomposition Products

- Sulfur oxides (SO_x), Manganese oxides.
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SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

- **Acute Toxicity:** LD50 Oral (Rat): 2,150 mg/kg.
- **Skin Corrosion/Irritation:** May cause mild irritation.

- **Serious Eye Damage/Irritation:** Causes serious eye damage.
 - **Respiratory or Skin Sensitization:** Not classified.
 - **Germ Cell Mutagenicity:** Not classified.
 - **Carcinogenicity:** Not identified as a probable, possible or confirmed human carcinogen by IARC.
 - **Reproductive Toxicity:** Not classified.
 - **STOT-Single Exposure:** Not classified.
 - **STOT-Repeated Exposure:** May cause damage to the central nervous system (brain) through prolonged or repeated inhalation of dust.
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SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

- Toxic to aquatic life with long-lasting effects.

12.2 Persistence and Degradability

- The product contains inorganic substances which are not biodegradable.

12.3 Bioaccumulative Potential

- Manganese is an essential trace element and does not significantly bioaccumulate in the food chain.

12.4 Mobility in Soil

- Soluble in water; may be mobile in soil.
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SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

- **Product:** Offer surplus and non-recyclable solutions to a licensed disposal company.
 - **Contaminated Packaging:** Dispose of as unused product.
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SECTION 14: TRANSPORT INFORMATION

14.1 UN Number

- **ADR/RID/IMDG/IATA:** UN 3077

14.2 UN Proper Shipping Name

- **ADR/RID/IMDG/IATA:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese sulfate monohydrate)

14.3 Transport Hazard Class(es)

- **ADR/RID/IMDG/IATA:** 9

14.4 Packing Group

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

14.5 Environmental Hazards

- **Marine Pollutant:** Yes
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SECTION 15: REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations Specific for the Substance

- Listed in TSCA, EINECS/ELINCS, DSL/NDSL, IECSC.
 - Comply with local agricultural and environmental regulations.
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SECTION 16: OTHER INFORMATION

- **Abbreviations:**
 - CAS: Chemical Abstracts Service
 - GHS: Globally Harmonized System
 - STOT: Specific Target Organ Toxicity
- **Note:** This SDS is prepared based on GHS standards and available technical data.