

# SAFETY DATA SHEET (SDS)

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

**Revision Date:** April 09, 2026

**Version:** 1.0

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## SECTION 1: IDENTIFICATION

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### 1.1 GHS Product Identifier

Manganese Sulfate Monohydrate ( $\text{MnSO}_4 \cdot \text{H}_2\text{O}$ )

### 1.2 Other Means of Identification

Manganese (II) Sulfate Monohydrate; Sulfuric acid, manganese (2+) salt (1:1), monohydrate.

### 1.3 Recommended Use and Restrictions on Use

Recommended Use: Hydroponic nutrient solutions, fertilizer, micronutrient source for agriculture, industrial chemical.

Restrictions on Use: Use only as directed.

### 1.4 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](http://manganesesupply.com)
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## SECTION 2: HAZARDS IDENTIFICATION

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### 2.1 GHS Classification

- Specific Target Organ Toxicity - Repeated Exposure (Category 2), H373 (Inhalation, Brain)
- Serious Eye Damage/Eye Irritation (Category 1), H318
- Hazardous to the Aquatic Environment, Chronic Hazard (Category 2), H411

## 2.2 GHS Label Elements

- **Signal Word:** Danger
- **Hazard Pictograms:**



 Environmental Hazard

- **Hazard Statements:**
  - H318: Causes serious eye damage.
  - H373: May cause damage to organs (Brain) through prolonged or repeated exposure if inhaled.
  - H411: Toxic to aquatic life with long-lasting effects.
- **Precautionary Statements:**
  - P260: Do not breathe dust/fume/gas/mist/vapours/spray.
  - P273: Avoid release to the environment.
  - P280: Wear protective gloves/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.

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## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	EC No.	Concentration (%)
Manganese Sulfate Monohydrate	10034-96-5	232-089-9	≥ 98%

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## SECTION 4: FIRST AID MEASURES

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### 4.1 Description of First Aid Measures

- **Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. Seek medical attention if symptoms persist.
- **Skin Contact:** Wash with soap and plenty of water. Consult a physician if irritation develops.
- **Eye Contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
- **Ingestion:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most Important Symptoms/Effects, Acute and Delayed

Causes serious eye damage. Prolonged inhalation may lead to manganese poisoning (manganism), affecting the central nervous system.

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## SECTION 5: FIRE-FIGHTING MEASURES

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### 5.1 Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

### 5.2 Specific Hazards Arising from the Chemical

Sulphur oxides, Manganese oxides. Non-combustible.

### 5.3 Special Protective Actions for Firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

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### 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 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.

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# SECTION 7: HANDLING AND STORAGE

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## 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 place. Keep container tightly closed in a dry and well-ventilated place. Hygroscopic.

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# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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## 8.1 Control Parameters

Occupational Exposure Limits (OSHA PEL): 5 mg/m<sup>3</sup> (Ceiling) for Manganese compounds (as Mn).

ACGIH TLV: 0.02 mg/m<sup>3</sup> (respirable fraction); 0.1 mg/m<sup>3</sup> (inhalable fraction).

## 8.2 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 8.3 Individual Protection Measures

- **Eye/Face Protection:** Tightly fitting safety goggles. 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.

- **Body Protection:** Complete suit protecting against chemicals.
  - **Respiratory Protection:** For nuisance exposures, use type P95 (US) or type P1 (EU EN 143) particle respirator.
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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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- **Appearance:** Light pink powder or granular
  - **Odour:** Odourless
  - **pH:** 3.0 – 3.5 (5% aqueous solution)
  - **Melting Point:** 700 °C (loses water at 400-500 °C)
  - **Initial Boiling Point:** Not applicable
  - **Flash Point:** Not applicable
  - **Evaporation Rate:** Not applicable
  - **Flammability:** Non-flammable
  - **Vapour Pressure:** Not applicable
  - **Vapour Density:** Not applicable
  - **Relative Density (Bulk Density):** 0.9 – 1.2 g/cm<sup>3</sup>
  - **Solubility:** ≥ 99% in water
  - **Auto-ignition Temperature:** Not applicable
  - **Decomposition Temperature:** > 850 °C
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## SECTION 10: STABILITY AND REACTIVITY

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**10.1 Reactivity:** Stable under recommended storage conditions.

**10.2 Chemical Stability:** Stable under recommended storage conditions.

**10.3 Possibility of Hazardous Reactions:** No data available.

**10.4 Conditions to Avoid:** Exposure to moisture.

**10.5 Incompatible Materials:** Strong oxidizing agents, powdered metals.

**10.6 Hazardous Decomposition Products:** Sulphur oxides, Manganese oxides.

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## SECTION 11: TOXICOLOGICAL INFORMATION

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### 11.1 Information on Toxicological Effects

- **Acute Toxicity:** LD50 Oral - Rat - 2,150 mg/kg.
  - **Skin Corrosion/Irritation:** No data available.
  - **Serious Eye Damage/Irritation:** Causes serious eye damage.
  - **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.
  - **STOT-Single Exposure:** No data available.
  - **STOT-Repeated Exposure:** May cause damage to organs through prolonged or repeated exposure (Inhalation, Brain).
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## SECTION 12: ECOLOGICAL INFORMATION

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**12.1 Toxicity:** Toxic to aquatic life with long-lasting effects.

**12.2 Persistence and Degradability:** Not applicable for inorganic substances.

**12.3 Bioaccumulative Potential:** No data available.

**12.4 Mobility in Soil:** Soluble in water; may move into groundwater.

**12.5 Other Adverse Effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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## SECTION 13: DISPOSAL CONSIDERATIONS

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### 13.1 Disposal Methods

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.

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## SECTION 14: TRANSPORT INFORMATION

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### 14.1 UN Number

ADR/RID: 3077 | IMDG: 3077 | IATA: 3077

### 14.2 UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese sulphate monohydrate)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese sulphate monohydrate)

IATA: Environmentally hazardous substance, solid, n.o.s. (Manganese sulphate monohydrate)

### 14.3 Transport Hazard Class(es)

ADR/RID: 9 | IMDG: 9 | IATA: 9

### 14.4 Packing Group

ADR/RID: III | IMDG: III | IATA: III

### 14.5 Environmental Hazards

ADR/RID: Yes | IMDG Marine Pollutant: Yes | IATA: Yes

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## SECTION 15: REGULATORY INFORMATION

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### 15.1 Safety, Health and Environmental Regulations

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006. Subject to local regulations on hazardous chemicals.

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## **SECTION 16: OTHER INFORMATION**

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### **16.1 Preparation Information**

Prepared by: BTLnewmaterial

### **16.2 Disclaimer**

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.