



SAFETY DATA SHEET

1. CHEMICAL IDENTIFICATION AND COMPANY INFORMATION

PRODUCT NAME: Manganese Sulfate, Monohydrate, USP
PRODUCT NUMBER: M637
COMPANY INFO: *PhytoTechnology Laboratories*®
PO Box 12205, Shawnee, KS 66282-2205
Phone: 1-888-749-8682 or 1-913-341-5343; Fax: 1-888-449-8682 or 1-913-341-5442
www.phytotechlab.com
EMERGENCY PHONE NUMBER: 1-800-535-5053 - US Only
1-352-323-3500 - International
RECOMMENDED USE: For Research Use Only
RESTRICTIONS ON USE: Products sold by *PhytoTechnology Laboratories*® are intended for research and laboratory use only. Products are not to be used as human or animal therapeutics, cosmetics, agricultural or pesticidal products, food additives, or as household chemicals.

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification:

H373 – Specific target organ toxicity – repeated exposure (Category 2)

H401 – Acute aquatic toxicity (Category 2)

H411 – Chronic aquatic toxicity (Category 2)

GHS Label elements, including hazard and precautionary statements:



Signal Word: **Warning**

Hazard Statements:

H373 – May cause damage to organs through prolonged or repeated exposure.
H411 – Toxic to aquatic life with long lasting effects.

Precautionary Statements:

P260 – Do not breathe dust.
P273 – Avoid release to the environment.
P280 – Wear proactive clothing/protective gloves/eye protection.
P314 – Get medical advice/attention if you feel unwell.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Manganese(II) sulfate monohydrate
CAS No.: 10034-96-5
Formula: $MnSO_4 \cdot H_2O$
Molecular Weight: 169.02 g/mol
EC No.: 232-089-9

Ingredient	CAS Number	Percent	Hazardous
Manganese Sulfate, Monohydrate	10034-96-5	>98 %	OSHA PEL: 5 mg (Mn)/m ³ ; ACGIH TLV: 0.2 mg (Mn)/m ³

4. FIRST AID MEASURES

General Advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Route of Entry	Symptoms	First Aid Procedures
Ingestion	May cause irritation if swallowed	If swallowed, wash out mouth with water. Never give anything by mouth to an unconscious person. Get medical attention.
Inhalation	May cause irritation to respiratory tract	Safely remove victim to fresh air. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, ensure clear airway and give oxygen. Get medical attention.
Eye Contact	Direct contact may cause irritation. May cause redness, tearing, or blurred vision.	Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.
Skin Contact	Irritating. May cause reddening, itching or inflammation.	Wash area thoroughly with soap and water. Remove and wash contaminated clothing. Get medical attention if irritation persists.

Most Important Symptoms or Effects, Both Acute and Delayed:

See section 2 and/or section 11

Recommendation for Immediate Medical Care and Special Treatment Needed:

No data available

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:	Water spray, carbon dioxide, dry chemical powder, or appropriate foam. Use extinguishing media suitable for surrounding fire.
Special Protective Equipment and Precaution for Firefighters:	In the event of a fire, wear full protective clothing and NIOSH approved self-contained breathing apparatus. Evacuate the area and fight fire from a safe distance.
Hazardous Combustion Products:	May emit toxic fumes under fire conditions.
Toxic Gases Produced:	Sulfur oxides, manganese oxides

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

Use personal protection recommended in Section 8. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation, especially in confined areas. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Method of Containment and Cleanup:	Wear suitable protective clothing. Avoid dust formation. Carefully sweep up and remove. Place material in a dry container and cover. Remove from the area. Flush spill area with water. Do not let products enter drains.

7. HANDLING AND STORAGE

Precaution for Safe Handling:	Avoid contact with skin and eyes. Avoid dust formation and aerosols. Avoid incompatible substances. Do not breathe dust. Wash thoroughly after use.
Conditions for Safe Storage:	Keep in a tightly closed container and store in a cool, dry, and well-ventilated area. Protect from moisture. This product is hygroscopic.
Incompatibilities:	Strong oxidizing agent
Recommended Storage Temperature:	Room Temperature

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA's Occupational Exposure Limits:	5 mg/m ³
ACGIH Threshold Limit Values (TLVs):	0.2 mg/m ³

Engineering Controls: Handle in accordance to general industrial hygiene and safety practice.

Personal Protective Equipment (PPE):

Eye/Face Protection: Chemical safety glasses or goggles. Have eye-washing facilities readily available where eye contact can occur.

Skin Protection: Protective gloves

Body Protection: Lab coat

Respiratory Protection: Wear appropriate respirator

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Pale Pink Powder

pH: No data available

Solubility: Soluble in Water

Melting Range: 700 °C (1,292 °F)

Vapor Density: No data available

Vapor Pressure: No data available

Specific Gravity: 2.95

Odor: Odorless

Odor Threshold: No data available

Viscosity: No data available

Relative Density: 2.95 g/cm³

Evaporation Rate: No data available

Initial Boiling Point and Boiling Range: No data available

Flammability (solid, gas): No data available

Partition coefficient: No data available
n-octanol/water):

Auto-ignition Temperature: No data available

Decomposition Temperature: No data available

Flash Point (Closed Cup): No data available

Flammable Limits: Upper (%) – No data available Lower (%) – No data available

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical Stability: Stable under normal conditions of use – This material is slightly hygroscopic

Possibility of Hazard Reactions: Will not occur

Conditions to Avoid: Moisture

Incompatibles Materials: Strong oxidizing agents, powdered metals, hydrogen peroxide

Hazardous Decomposition Products: Sulfur oxides, manganese oxides

11. TOXICOLOGICAL INFORMATION

Toxicity: LD₅₀ (Oral-Rat)(mg/Kg): No data available

LD₅₀ (Oral-Mouse)(mg/Kg): No data available

LD₅₀ (Dermal-Rabbit)(mg/Kg): No data available

Carcinogenicity: NTP: No

IARC: No

Z List: No

OSHA Reg: No

Reproductive Toxicity: No data available

Symptoms Associated with Overexposure: Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds. Prolonged or repeated inhalation may cause: Pneumonia

Specific Target Organ Toxicity: Single Exposure: No data available
Repeated Exposure: May cause damage to organs through prolonged or repeated exposure.

Target Organs: Stomach

Medical Conditions Aggravated By Exposure: None identified

Routes of Entry: Inhalation, ingestion, skin and eye contact

NIOSH/RTECS NO: OP0893500

The toxicological properties of this product have not been thoroughly investigated

12. ECOLOGICAL INFORMATION

Ecotoxicity: No data available

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

Other Adverse Effects: No data available

13. DISPOSAL CONSIDERATION

Disposal Procedure: Dispose in accordance with all applicable federal, state, and local environmental regulations.

EPA Hazardous Waste Number: No data available

14. TRANSPORT INFORMATION

Domestic (D.O.T.): Proper Shipping Name: CHEMICALS, N.O.S. (NON-REGULATED)

Hazard Class: N/A

UN/NA: N/A

Labels: N/A

International:

IMDG: Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese Sulfate Monohydrate)

Hazard Class: 9

UN: 3077

Packing group: III

EMS-No.: F-A, S-F

Marine pollutant: Yes

IATA: Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese Sulfate Monohydrate)

Hazard Class: 9

UN: 3077

Packing group: III

15. REGULATORY INFORMATION

TSCA: No

SARA TITLE III:

Section 302 (EHS) Ingredients: No

Section 313 Ingredients: Yes – Manganese compound of concentration >1.0 %

Section 304 (EHS/CERCLA) Ingredients: No

Section 311/312 Hazard: Chronic Health Hazard

Massachusetts Right to Know Components: No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right to Know Components: CAS No.: 10034-96-5 Manganese Sulfate Monohydrate □

New Jersey Right to Know Components: CAS No.: 10034-96-5 Manganese Sulfate Monohydrate □

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating:	Health Hazard	Chronic Health Hazard	Flammability	Physical Hazard
	0	*	0	0
NFPA Rating:	Health Hazard	Fire Hazard	Reactivity Hazard	Special Hazard
	0	0	0	

*Chronic Hazard: Chronic (long-term) health effects may result from repeated overexposure.

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