

Material Safety Data Sheet.

1. IDENTIFICATION

Product Identifier: Manganese (II) sulfate hydrate

Other Means of Identification:

Synonymes: * Manganese (II) sulfate monohydrate
* Manganese sulfate monohydrate
* Manganese(2+) sulfate monohydrate
* Manganous sulfate monohydrate
* Sulfuric acid, manganese(2+) salt (1:1)

Chemical Formula: $MnSO_4 \cdot H_2O$ or H_2MnO_5S or $O_4-S.Mn.H_2-O$

CAS Number: 10034-96-5

Recommended Use: Nutritional supplement/Food additive/Industrial raw material

Restrictions on Use: Not known.

Initial Supplier Identifier: Gurvey & Berry Co. Inc.
310 Judson Street, Unit #15
Toronto, ON, Canada, M8Z 5T6
Tel: (416) 259-5700 Fax: (416) 259-5417
E-mail: msds@gurveyberry.com

Emergency Telephone number: Canutec +1 (613)-966-6666

2. HAZARD IDENTIFICATION

GHS Classification in accordance with Hazardous Products Regulations (HPR) OR/2015-17)

Hazard class	Hazard category	Hazard statement
Serious eye damage	Category 1	H318
Specific target organ toxicity – repeated exposure (nervous system, brain, lungs, liver)	Category 1	H372
Acute oral toxicity	Category 5	H312
Suspected of causing genetic defects	Category 2	H341
Long-term (chronic) aquatic hazard	Category 2	H411



Pictograms:

Signal word: **Danger**

Hazard statements

Causes serious eye damage.

Causes damage to organs through prolonged or repeated exposure (brain, nervous system, lungs, liver)

May be harmful if swallowed.

Suspected of causing genetic defects.

Toxic to aquatic life with long lasting effects.

Precautionary statements – prevention.

P201	Obtain special instructions before use, including but not limited to reading the label and this SDS.
P202	Do not handle until all safety precautions have been read and understood.
P281	Use personal protective equipment as required.
P280	Wear protective gloves/clothing and eye/face protection.
P271	Use only outdoors or in a well-ventilated area.
P260	Do not breathe dust.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink, or smoke when using this product.

Precautionary statements – response

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.
P308-313	If exposed to dust, or concerned, or feel unwell: Get medical advice/attention.

Precautionary statements – storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary statements – disposal

P391	Collect spillage.
P501	Dispose of contents/container at a licensed waste disposal plant.
P273	Avoid release to the environment.

Hazards not otherwise classified (HNOC) or not covered by GHS.

May cause harmful Reproductive Effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration	Common name / Synonyms
Manganese sulfate monohydrate	10034-96-5	100%	See section 1

Notes:

4. FIRST-AID MEASURES

First aid measures by route of exposure:

General:

Move out of dangerous area.
Remove any contaminated clothing.
Consult a physician and show this safety data sheet.

After Eye Contact:

Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.

After Inhalation:

Move person to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Obtain medical aid.

After Ingestion:

Do not induce vomiting without medical advice.
Rinse mouth with water.
Obtain medical aid.

After Skin Contact:

Remove contaminated clothing and shoes.
Brush off loose particles from skin.
Flush skin with soap and water at least 15 min.
Seek medical attention if irritation develops.

Most Important Symptoms and Effects, Acute and Delayed:

Symptoms/effects after eye contact: Can cause serious eye damage.

Symptoms/effects after inhalation of dust:

Dry/sore throat. Coughing. Headache. Irritation of the respiratory tract.
Irritation of the nasal mucous membranes.
If exposed to dust, or concerned, or feel unwell: Get medical advice/attention.

Symptoms/effects after ingestion:

Irritation of the gastric/intestinal mucosa. May cause laxative effect.
Diarrhea.

Symptoms/effects after skin contact: May irritate the skin.

Medical Conditions Aggravated

By Exposure:

The clinical effects of high-level inhalation exposure to manganese do not become apparent until exposure has occurred for several years, but some individuals may begin to show signs after as few as 1–3 months of exposure (Rodier 1955)

Chronic occupational exposure to lower levels of manganese.

The first signs of the disorder are usually subjective, often involving generalized feelings of weakness, heaviness or stiffness of the legs, anorexia, muscle pain, nervousness, irritability, and headache, apathy, along with loss of libido and impotence.

Chronic exposure to manganese at very high levels results in permanent neurological damage, as is seen in former manganese miners and smelters. “Manganism” is a progressive condition that usually involves the central nervous system. Symptoms include a stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking.

Chronic prolonged or repeated inhalation may cause pneumonia.

Other dangerous properties cannot be excluded.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

In case of fire use water mist, dry chemical, chemical foam.

Unsuitable Extinguishing Media:

Do not use water jet.

Special Hazards Arising from the Product:

Sulfur oxides, Manganese oxides.

Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Special Protective Equipment and Precautions for Fire-Fighters:

As in any fire, wear a self-contained breathing apparatus and full protective gear.

During a fire, irritating and highly toxic gases may be generated by thermal decomposition/combustion.

Further information. Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:

Communicate hazard.

Evacuate unprotected personnel to safe areas.

Wear personal protective equipment. (see section 8).

Remove all sources of ignition.

Ensure adequate ventilation. Avoid breathing dust.

Prevent further leak or spill if safe to do so.

Wash hands thoroughly with soap and water after handling this material.

Methods and materials for containment and cleaning up

Small spill

Wear Personal protective equipment (see section 8).

Prevent further spillage if safe to do so.

Avoid generation of dusts. Avoid breathing dust.

Sweep up and shovel. Use dust suppressant agent.

Use designated, labeled, closed waste containers for disposal.

Collect spillage.

Avoid release to the environment.

Dispose of containers in accordance with local, regional, and federal authority requirement.

Large spill.

Wear Personal protective equipment (see section 8).

Prevent further spillage if safe to do so.

Avoid generation of dusts.

Shovel. Use designated, labeled, closed waste containers for disposal.

Collect wastewater and dispose with a licensed disposal company.

Dispose of containers in accordance with local, regional, and federal authority requirement.

Environmental precautions

Collect spillage.

Avoid release to the environment.

Collect wastewater and dispose with a licensed disposal company.

Dispose of containers in accordance with local, regional, and federal authority requirement.

Reference to other sections

See section 1 for emergency contact.

See section 8 for information on appropriate personal protective equipment.

See section 13 for disposal.

7. HANDLING AND STORAGE

Precautions for Safe Handling:

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Always wear personal protective equipment (see section 8)

Avoid contact with eyes, skin, and clothing.

Avoid ingestion and inhalation.

Avoid formation of dust.

Use with adequate ventilation.

For precautionary statements see also section 2.2

Wash hands thoroughly after handling.

Do not eat in the area.

Conditions for Safe Storage: Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Hygroscopic.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Manganese Sulfate Monohydrate	10034-96-5	TWA	0.2 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWAEV	0.2 mg/m ³	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	0.02 mg/m ³	Canada. British Columbia OEL
	Adverse reproductive effect			
		TWA	0.2 mg/m ³	Canada. British Columbia OEL
	Adverse reproductive effect			
		TWA	0.1 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		TWA	0.02 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)

Appropriate Engineering Controls: Local and general exhaust ventilation is required.
Eyewash station and safety shower required.

Personal Protection Measures (e.g. personal protective equipment):

Eye/face protection Safety glasses with side-shields for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN (EU).

Skin and body protection Full body protective clothing, boots, gloves. Handle with gloves compatible with this material. Gloves must be inspected prior to use.

Respiratory protection Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-

face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	pink crystals or powder
Form:	solid (crystals or powder)
Color:	pink
Molecular Weight:	169.02 g/mol
Odour:	N/A
Odour Threshold:	N/A
pH:	3.0 - 3.5 at 50 g/l at 20 °C (68 °F)
Melting Point:	N/A
Initial boiling point/boiling range:	N/A
Flash Point:	N/A
Evaporation Rate:	N/A
Flammability (solid; gas):	Not flammable
Upper flammability or explosive limits	N/A
Lower flammability or explosive limits	N/A
Vapor Pressure (mmHg):	N/A
Vapor Density (air=1):	N/A
Relative Density:	N/A
Solubility in Water:	762 g/l at 20 °C (68 °F) soluble
Solubility in Other Agents:	N/A
Partition coefficient (n-octanol/water)	N/A
Autoignition	N/A
Decomposition	N/A
Viscosity	N/A
Explosive properties	N/A
Oxidizing properties	N/A
Other information:	Bulk density ca.1,000 - 1,200 kg/m ³

10. STABILITY AND REACTIVITY

Reactivity hazard:	Not expected.
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	Will not polymerize.
Conditions to avoid:	Avoid moisture.
Incompatible materials:	No data available
Hazardous decomposition products:	see section 5
Other decomposition products	No data available
In the event of fire:	see section 5

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Eye contact:	Yes
Inhalation:	Yes
Ingestion:	Yes
Skin contact:	Yes

RTECS number OP0893500

Acute Toxicity: LD50 Oral - Rat - male and female - 2,150 mg/kg
Remarks: (anhydrous substance) (ECHA)

Skin corrosion/irritation: N/A

Serious Eye Damage/irritation: Eyes - Rabbit
Result: Irreversible effects on the eye (OECD Test Guideline 405)
Remarks: (anhydrous substance)

Respiratory and/or Skin

Sensitization: N/A

Aspiration Toxicity: N/A

STOT (Specific Target Organ Toxicity)

Single Exposure: N/A

STOT (Specific Target Organ Toxicity)

Repeated Exposure:

RTECS number OP0893500

TCLo - Lowest published toxic concentration

TCLo – Inhalation Rodent - rat 0.1 mg/m³/90D (intermittent) Brain and Coverings - changes in brain weight

TCLo – Inhalation Rodent - rat 0.478 mg/m³/13W (intermittent) Sense Organs and Special Senses (Olfaction) - effect, not otherwise specified Biochemical - Metabolism (Intermediary) - effect on inflammation or mediation of inflammation

TCLo – Inhalation Rodent - rat 0.01 mg/m³/13W (intermittent) Brain and Coverings - other degenerative changes

Carcinogenicity:

IARC Not listed

ACGIH® Not listed

OSHA Not listed

Reproductive Toxicity: May cause reproductive effects.

Germ Cell Mutagenicity:

Sperm Morphology Oral Rodent - mouse 513 mg/kg/5D (continuous)

Cytogenetic analysis Rodent - hamster Ovary 180 mg/L

Interactive Effects N/A

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Toxicity to algae:

Static test NOEC - *Desmodesmus subspicatus* (green algae) - 1 mg/l- 72 h (OECD Test Guideline 201)

Static test ErC50 - *Desmodesmus subspicatus* (green algae) - 61 mg/l - 72 h (OECD Test Guideline 201)

Persistence and degradability:

No data available

Bioaccumulative potential:

No data available

Mobility in soil:

No data available

Other adverse effects:

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life with long lasting effects.

Discharge into the environment must be avoided.

13. DISPOSAL CONSIDERATIONS

Wastes of Residues:

Package product wastes.

Close and label the waste receptacles and any unclean empty containers.

Dispose of according to local, provincial, and federal regulations.

Dispose of contents/container with a licensed waste disposal company.

Avoid release to the environment.

Contaminated Packaging:

Do not reuse containers. Dispose of as unused product.

14. TRANSPORT INFORMATION

Not dangerous goods for transport. Keep separated from foodstuffs.

15. REGULATORY INFORMATION

CANADA DSL/NDSL:

7785-87-7 Sulfuric acid, manganese (2+) salt (1:1) is listed on the DSL.

16. OTHER INFORMATION

This information is based upon knowledge currently available.

More detailed information on the physical and chemical properties can be requested from the supplier. To the best of our knowledge, the information contained herein is accurate and complete. However, this should not be construed to imply any warranty or guarantee. Gurvey & Berry Co. Inc. shall not be held liable for any damage resulting from handling or from contact with the above chemical.

Created On: December 5, 2005

Last Revised: 22 March 2021

Printed On: 20 May 2021

This document will only be updated as needed.

N/A = not available.

N/D = not determined.