



Manganese sulphate monohydrate

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 07/03/2017

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Supersedes: 07/03/2017

Version: 1.1

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Trade name	: Manganese sulphate monohydrate
CAS-No.	: 10034-96-5
Formula	: MnSO4.H2O

1.2. Recommended use and restrictions on use

Use of the substance/mixture	: Manufacturing of manganese sulphate Manufacture of fungicides Use of substance in the manufacture of other manganese based compounds and as intermediate Leather tanning Printing Packing Cleaning Laboratory reagent Surface treatment Fertilizer Nutritional Additives
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1.3. Supplier

Groupe Horticole Ledoux Inc.
785 rue Paul Lussier, Ste-Helene de Bagot
J0H1M0 Canada
T 1-888-791-2223

1.4. Emergency telephone number

Emergency number	: For emergencies only. Call CANUTEC (24h) 1-613-996-6666
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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Specific target organ toxicity — Repeated exposure, Category 2 May cause damage to organs through prolonged or repeated exposure.
Hazardous to the aquatic environment — Chronic Hazard, Category 2 Toxic to aquatic life with long lasting effects.

2.2. GHS Label elements, including precautionary statements

GHS US labelling

Hazard pictograms (GHS US)



Signal word (GHS US)

: Warning

Hazard statements (GHS US)

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

Precautionary statements (GHS US)

: Do not breathe dust.
Avoid release to the environment.
Get medical advice/attention if you feel unwell.
Collect spillage.
Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

No additional information available

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2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : Manganese sulphate monohydrate
CAS-No. : 10034-96-5

Name	Product identifier	%	GHS US classification
Manganese sulphate	(CAS-No.) 10034-96-5	> 95	STOT RE 2, H373 Aquatic Chronic 2, H411

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : IF exposed or concerned: Get medical advice/attention. Never give anything by mouth to an unconscious person.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Remove person to fresh air and keep comfortable for breathing. Get immediate medical advice and attention.
First-aid measures after skin contact : Wash with plenty of water/.... Take off contaminated clothing and wash it before reuse. Wash skin with plenty of water.
First-aid measures after eye contact : Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Consult an eye specialist. Rinse eyes with water as a precaution.
First-aid measures after ingestion : Do not induce vomiting. If swallowed, seek medical advice immediately and show this container or label. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact : Burns.
Symptoms/effects after eye contact : Redness.

4.3. Immediate medical attention and special treatment, if necessary

In case of doubt or persistent symptoms, consult always a physician.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Water spray. Dry powder. Foam.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Explosion hazard : Product is not explosive.

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire : Fire fighting measures.
Protection during firefighting : In case of fire: Wear a self contained breathing apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : See protection measures in section 7 and 8. Prevent unauthorised access.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area. Evacuate area. Do not breathe dust.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Use personal protective equipment as required. Wear breathing apparatus if exposed to vapours/dusts/aerosols. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Evacuate unnecessary personnel.

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6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.
Methods for cleaning up : Mechanically recover the product. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. Clear contaminated areas thoroughly.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

Keep recovered product for subsequent disposal. See protection measures in section 7 and 8. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Prevent unauthorised access. Do not allow to dry. Do not breathe dust.
Hygiene measures : IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Store in a well-ventilated place. Keep container tightly closed.
Storage conditions : Keep only in original container. Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Manganese sulphate monohydrate (10034-96-5)		
ACGIH	Local name	Manganese, elemental and inorganic compounds, as Mn
ACGIH	ACGIH TWA (mg/m ³)	0.1 mg/m ³ (I - Inhalable particulate matter) 0.02 mg/m ³ (R - Respirable particulate matter)
ACGIH	Remark (ACGIH)	TLV® Basis: CNS impair. Notations: A4 (Not classifiable as a Human Carcinogen)
OSHA	OSHA PEL (Ceiling) (mg/m ³)	5 mg/m ³ compounds (as Mn) 5 mg/m ³ fume (as Mn)
Manganese sulphate (10034-96-5)		
ACGIH	Local name	Manganese, elemental and inorganic compounds, as Mn
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OSHA	OSHA PEL (Ceiling) (mg/m ³)	5 mg/m ³ compounds (as Mn) 5 mg/m ³ fume (as Mn)

8.2. Appropriate engineering controls

Appropriate engineering controls : Technical measures and the application of suitable work processes have priority over personal protection equipment. Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Safety glasses. Protective clothing. Dust formation: dust mask.

Hand protection:

Wear suitable gloves

Eye protection:

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Chemical goggles or face shield. Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder.
Colour	: light pink
Odour	: odourless
Odour threshold	: No data available
pH	: 6.5 (450g/L) at 20°C
Melting point	: 450 °C
Freezing point	: Not applicable
Boiling point	: No data available
Flash point	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: Not applicable
Solubility	: No data available
Log Pow	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: 850 °C
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive limits	: Not applicable
Explosive properties	: Not applicable.
Oxidising properties	: Not applicable.

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Under fire conditions, hazardous fumes will be present.

10.4. Conditions to avoid

Do not allow to dry.

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10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under fire conditions, hazardous fumes will be present.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Skin corrosion/irritation	: Not classified pH: 6.5 (450g/L) at 20°C
Serious eye damage/irritation	: Not classified pH: 6.5 (450g/L) at 20°C
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: May cause damage to organs through prolonged or repeated exposure.

Manganese sulphate (10034-96-5)

STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
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Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Symptoms/effects after skin contact	: Burns.
Symptoms/effects after eye contact	: Redness.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.

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LC50 fish 1	14.5 mg/l
EC50 Daphnia 1	9.8 mg/l
EC50 Daphnia 2	5.7 mg/l
NOEC (chronic)	0.6 mg/l

Manganese sulphate (10034-96-5)

LC50 fish 1	14.5 mg/l
EC50 Daphnia 1	9.8 mg/l
EC50 Daphnia 2	5.7 mg/l
NOEC (chronic)	0.6 mg/l

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Disposal methods

- Waste treatment methods : an approved waste disposal plant. Dispose of contents/container in accordance with licensed collector's sorting instructions.
- Sewage disposal recommendations : Avoid release to the environment.
- Ecology - waste materials : Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

- Transport document description : UN3077 Environmentally hazardous substances, solid, n.o.s. (Manganese sulphate monohydrate), 9, III
- UN-No.(DOT) : UN3077
- Proper Shipping Name (DOT) : Environmentally hazardous substances, solid, n.o.s.
Manganese sulphate monohydrate
- Class (DOT) : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140
- Packing group (DOT) : III - Minor Danger
- Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



- Dangerous for the environment : Yes
- Marine pollutant : Yes



- DOT Packaging Non Bulk (49 CFR 173.xxx) : 213
- DOT Packaging Bulk (49 CFR 173.xxx) : 240
- DOT Symbols : G - Identifies PSN requiring a technical name

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- DOT Special Provisions (49 CFR 172.102) : 8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid or solid, n.o.s.", as appropriate. In addition, for solid materials, special provision B54 applies.
- 146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination.
- 335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as "Environmentally hazardous substances, solid, n.o.s.," UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leakproof when used as bulk packaging.
- 384 - For transportation by motor vehicle, substances meeting the conditions for high viscosity flammable liquids as prescribed in §173.121(b)(1)(i), (b)(1)(ii), and (b)(1)(iv) of this subchapter, may be reassigned to Packing Group III under the following conditions:
- A112 - Notwithstanding the quantity limits shown in Column (9A) and (9B) for this entry, the following IBCs are authorized for transportation aboard passenger and cargo-only aircraft. Each IBC may not exceed a maximum net quantity of 1,000 kg:
- a. Metal: 11A, 11B, 11N, 21A, 21B and 21N
 - b. Rigid plastics: 11H1, 11H2, 21H1 and 21H2
 - c. Composite with plastic inner receptacle: 11HZ1, 11HZ2, 21HZ1 and 21HZ2
 - d. Fiberboard: 11G
 - e. Wooden: 11C, 11D and 11F (with inner liners)
 - f. Flexible: 13H2, 13H3, 13H4, 13H5, 13L2, 13L3, 13L4, 13M1 and 13M2 (flexible IBCs must be sift-proof and water resistant or must be fitted with a sift-proof and water resistant liner).
- B54 - Open-top, sift-proof rail cars are also authorized.
- B120 - The use of flexible bulk containers conforming to the requirements in subpart R and subpart S of part 178 of this subchapter is permitted.
- IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
- IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.
- N20 - A 5M1 multi-wall paper bag is authorized if transported in a closed transport vehicle.
- N91 - The use of a non specification sift-proof, non-bulk, metal can with or without lid, or a non specification sift-proof, non-bulk fiber drum, with or without lid is authorized when transporting coal tar pitch compounds by motor vehicle or rail freight. The fiber drum must be fabricated with a three ply wall, as a minimum. The coal tar pitch compound must be in a solid mass during transportation.
- T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2)
- TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.
- DOT Packaging Exceptions (49 CFR 173.xxx) : 155
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : No limit
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : No limit
- DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
- Emergency Response Guide (ERG) Number : 171
- Other information : No supplementary information available.

Transportation of Dangerous Goods

Not applicable

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Transport by sea

Transport document description (IMDG) : UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese sulphate monohydrate), 9, III, MARINE POLLUTANT

UN-No. (IMDG) : 3077

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

Class (IMDG) : 9 - Miscellaneous dangerous substances and articles

Packing group (IMDG) : III - substances presenting low danger

Limited quantities (IMDG) : 5 kg

Marine pollutant : Yes



Air transport

Transport document description (IATA) : UN 3077 Environmentally hazardous substance, solid, n.o.s. (Manganese sulphate monohydrate), 9, III

UN-No. (IATA) : 3077

Proper Shipping Name (IATA) : Environmentally hazardous substance, solid, n.o.s.

Class (IATA) : 9 - Miscellaneous Dangerous Goods

Packing group (IATA) : III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

SECTION 16: Other information

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Revision date : 04/11/2018

Other information : REACH Disclaimer:
This information is based on current knowledge. Consistency of data in the SDS with CSR is considered, as far as the information is available at the time of compilation (cfr Revision date and Version number).

Full text of H-statements:

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

Indication of changes:

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Emergency telephone number update.

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.