

SAFETY DATA SHEET

1. Identification

Product identifier: MANGANESE SULFATE

Other means of identification

Product No.: 2550, 6192

Recommended use and restriction on use

Recommended use: Not determined.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

	Avantor Performance Materials, LLC. 3477 Corporate Parkway Center Valley, PA 18034
Telephone:	
	Customer Service: 855-282-6867
Fax:	610-573-2610
Contact Person:	Environmental Health & Safety
E-mail:	info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Health Hazards

Specific Target Organ Toxicity - Repeated Exposure	Category 2 ¹
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Target Organs

1.brain

Unknown toxicity - Health

Acute toxicity, oral	100 %
Acute toxicity, dermal	100 %
Acute toxicity, inhalation, vapor	100 %
Acute toxicity, inhalation, dust or mist	100 %

Environmental Hazards

Chronic hazards to the aquatic environment	Category 2
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Unknown toxicity - Environment

Acute hazards to the aquatic environment	100 %
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Chronic hazards to the aquatic environment 100 %

Label Elements

Hazard Symbol:



Signal Word: Warning

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

Precautionary Statements

Prevention: Avoid release to the environment. Do not breathe dust/fume/gas/mist/vapors/spray.

Response: Get medical advice/attention if you feel unwell. Collect spillage.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	Content in percent (%)*
MANGANESE SULFATE MONOHYDRATE		10034-96-5	98 - 100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Rinse mouth. Call a POISON CENTER/doctor if you feel unwell.

Inhalation: Move to fresh air. Get medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. Get medical attention if symptoms occur. Wash contaminated clothing before reuse.

Eye contact: Flush thoroughly with water. If irritation occurs, get medical assistance.

Most important symptoms/effects, acute and delayed

Symptoms: May cause skin and eye irritation.

Hazards: None known.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: No unusual fire or explosion hazards noted.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unauthorized personnel away. Use personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment.

Methods and material for containment and cleaning up: Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination.

Notification Procedures: Prevent entry into waterways, sewer, basements or confined areas. Stop leak if you can do so without risk. Inform authorities if large amounts are involved.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling:	Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Avoid inhalation of dust. Wash thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
Conditions for safe storage, including any incompatibilities:	Keep containers tightly closed. Store in cool, dry place. Store in a well-ventilated place.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
MANGANESE SULFATE MONOHYDRATE - as Mn	TWA	0,2 mg/m ³	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
MANGANESE SULFATE MONOHYDRATE - as Mn	TWA	0,2 mg/m ³	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
MANGANESE SULFATE MONOHYDRATE - Respirable fraction. - as Mn	TWA	0,02 mg/m ³	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2013)
MANGANESE SULFATE MONOHYDRATE - Inhalable fraction. - as Mn	TWA	0,1 mg/m ³	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2013)
MANGANESE SULFATE MONOHYDRATE - as Mn	TWA	0,2 mg/m ³	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
MANGANESE SULFATE MONOHYDRATE - as Mn	8 HR ACL	0,2 mg/m ³	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	0,6 mg/m ³	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
MANGANESE SULFATE MONOHYDRATE - Dust. - as Mn	TWA	5 mg/m ³	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
MANGANESE SULFATE MONOHYDRATE - Inhalable fraction. - as Mn	TWA	0,1 mg/m ³	US. ACGIH Threshold Limit Values (02 2013)
MANGANESE SULFATE MONOHYDRATE - Respirable fraction. - as Mn	TWA	0,02 mg/m ³	US. ACGIH Threshold Limit Values (02 2013)

Appropriate Engineering Controls	No data available.
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Individual protection measures, such as personal protective equipment

General information:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.
Eye/face protection:	Use tight fitting goggles if dust is generated.
Skin Protection	
Hand Protection:	Wear protective gloves.

Other:	Wear suitable protective clothing.
Respiratory Protection:	In case of inadequate ventilation use suitable respirator. During dust-raising work: Dust and mist respirator.
Hygiene measures:	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

Physical state:	Solid
Form:	Powder.
Color:	light pink
Odor:	Odorless
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	700 °C
Initial boiling point and boiling range:	850 °C (Decomposes)
Flash Point:	Not applicable
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Density:	2,95 g/ml (20 °C)
Relative density:	2,95 (20 °C)
Solubility(ies)	
Solubility in water:	Soluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Contact with incompatible materials.
Incompatible Materials:	Strong oxidizing agents. Powdered metals.

Hazardous Decomposition Products: Thermal decomposition may produce oxides of sulfur.

11. Toxicological information

Information on likely routes of exposure

Inhalation: May cause irritation to the respiratory system.

Skin Contact: May cause irritation.

Eye contact: Dust in the eyes will cause irritation.

Ingestion: Irritating. May cause nausea, stomach pain and vomiting.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral Product: No data available.

Dermal Product: No data available.

Inhalation Product: No data available.

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: May cause skin irritation.

Serious Eye Damage/Eye Irritation

Product: May irritate eyes.

Respiratory or Skin Sensitization

Product: Not a skin sensitizer.

Carcinogenicity

Product: This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

ACGIH Carcinogen List:

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity

Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure

Product: None known.

Specific Target Organ Toxicity - Repeated Exposure

Product: Brain. - May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard

Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and Degradability

Biodegradation
Product: There are no data on the degradability of this product.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Mobility in soil: No data available.

Other adverse effects: Toxic to aquatic life with long lasting effects.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

TDG

Not regulated.

IMDG

Not regulated.

IATA

Not regulated.

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not applicable

15. Regulatory information

Canada Federal Regulations

List of Toxic Substances (CEPA, Schedule 1)

Export Control List (CEPA 1999, Schedule 3)

National Pollutant Release Inventory (NPRI)

Greenhouse Gases

Controlled Drugs and Substances Act

Precursor Control Regulations

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EU EINECS List:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
New Zealand Inventory of Chemicals:	Not in compliance with the inventory.
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16. Other information, including date of preparation or last revision

Revision Date: 21.05.2018

Version #: 2.1

Further Information: No data available.

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