

# SAFETY DATA SHEET



Revision date: 20-Dec-2022

Revision Number 6

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

### Product identifier

**Product Name** MANGANESE SULPHATE MONOHYDRATE

**Product Code(s)** 000031024901

### Other means of identification

**UN number** 3077

**CAS No.** 10034-96-5

**Synonyms** Manganese sulfate monohydrate; Sulfuric acid, manganese (2+) salt (1:1), monohydrate; Manganese mesosulfate (MnSO<sub>4</sub>.H<sub>2</sub>O); Manganous sulfate, monohydrate; Manganese (II) sulphate, monohydrate.

### Recommended use of the chemical and restrictions on use

**Recommended use** Catalyst, fertiliser, fungicide, mineral flotation, pigment, stock feed nutrient.

**Uses advised against** No information available.

### Details of the supplier of the safety data sheet

#### Supplier

Ixom Operations Pty Ltd (Incorporated in Australia)  
NZBN: 9429041465226 Address: 166 Totara Street  
Mt Maunganui South  
New Zealand

Telephone Number: +64 9 368 2700

Facsimile: +64 9 368 2710

### For further information, please contact

**Contact Point** Product Safety Department

### Emergency telephone number

**Emergency Telephone** 0 800 734 607 (ALL HOURS)

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

## 2. HAZARDS IDENTIFICATION

Classified as a Dangerous Good according to NZS 5433 Transport of Dangerous Goods on Land; DANGEROUS GOODS.

Classified as hazardous according to criteria in the Hazardous Substances (Hazard Classification) Notice 2020.

### GHS Classification

#### **SIGNAL WORD**

Danger

Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2020  
Approval Number: HSR002503

Acute toxicity - Oral	Category 4
Specific target organ toxicity (repeated exposure)	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

#### Label elements



#### **Hazard statements**

H302 - Harmful if swallowed  
H372 - Causes damage to organs through prolonged or repeated exposure  
H411 - Toxic to aquatic life with long lasting effects

#### **Precautionary Statements - Prevention**

Do not breathe dusts or mists  
Wash hands thoroughly after handling  
Do not eat, drink or smoke when using this product  
Wear eye/face protection  
Avoid release to the environment

#### **Precautionary Statements - Response**

Get medical advice/attention if you feel unwell  
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
Rinse mouth  
Collect spillage

#### **Precautionary Statements - Storage**

No storage statements

#### **Precautionary Statements - Disposal**

Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

#### Other hazards which do not result in classification

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Substance

Chemical name	CAS No.	Weight-%
Manganese sulphate, monohydrate	10034-96-5	96-100

### 4. FIRST AID MEASURES

#### Description of first aid measures

#### **General advice**

For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.

#### **Emergency telephone number**

Poisons Information Center, New Zealand: 0800 764 766

Poisons Information Center, Australia: 13 11 26

<b>Inhalation</b>	Remove to fresh air. If breathing is difficult, (trained personnel should) give oxygen. Call a physician if symptoms occur.
<b>Eye contact</b>	In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Seek immediate medical attention/advice.
<b>Skin contact</b>	Wash with soap and water. Call a physician if symptoms occur.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Call a physician.

#### **Most important symptoms and effects, both acute and delayed**

**Symptoms** No information available.

#### **Indication of any immediate medical attention and special treatment needed**

**Note to physicians** Treat symptomatically.

### **5. FIRE FIGHTING MEASURES**

#### **Suitable Extinguishing Media**

**Suitable Extinguishing Media** Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam.

**Unsuitable extinguishing media** No information available.

#### **Specific hazards arising from the chemical**

**Specific hazards arising from the chemical** Environmentally hazardous. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Non-combustible.

#### **Special protective actions for fire-fighters**

**Special protective equipment for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

**Hazchem code** 2Z

### **6. ACCIDENTAL RELEASE MEASURES**

#### **Personal precautions, protective equipment and emergency procedures**

**Personal precautions** Do not breathe dust. Avoid contact with skin and eyes. Ensure adequate ventilation. Evacuate personnel to safe areas. Do not touch or walk through spilled material. Do not eat, drink or smoke when using this product. Use personal protective equipment as required. Wash thoroughly after handling.

**For emergency responders** Use personal protection recommended in Section 8.

#### **Environmental precautions**

**Environmental precautions** See Section 12 for additional Ecological Information.

**Methods and material for containment and cleaning up**

<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for cleaning up</b>	Use appropriate personal protective equipment (PPE). Carefully shovel or sweep up spilled material and place in suitable container. Avoid generating dust. Prevent product from entering drains.

**Precautions to prevent secondary hazards**

<b>Prevention of secondary hazards</b>	Clean contaminated objects and areas thoroughly observing environmental regulations.
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**7. HANDLING AND STORAGE****Precautions for safe handling**

<b>Advice on safe handling</b>	Do not breathe dust. Avoid contact with skin, eyes, and clothing. Avoid generation of dust. Do not eat, drink or smoke when using this product. Use personal protection equipment. Wash thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice.
<b>General hygiene considerations</b>	Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes, and clothing. Wear suitable gloves and eye/face protection. Wash hands before breaks and immediately after handling the product. Regular cleaning of equipment, work area and clothing is recommended.

**Conditions for safe storage, including any incompatibilities**

<b>Storage Conditions</b>	Store in a cool, dry, well ventilated place. Protect from moisture. Keep container closed when not in use.
<b>Incompatible materials</b>	Acids. Metals. Strong oxidizing agents.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control parameters**

<b>Exposure Limits</b>	No value assigned for this specific material by the New Zealand Workplace Health & Safety Authority. However, Workplace Exposure Standard(s) for constituent(s):
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Manganese dust & compounds, as Mn: WES-TWA 0.2 mg/m<sup>3</sup>, Respirable dust WES-TWA 0.02 mg/m<sup>3</sup>, (oto)  
Manganese Fume, as Mn: WES-TWA 0.2 mg/m<sup>3</sup>, Respirable WES-TWA 0.02 mg/m<sup>3</sup>, (oto)

As published by the New Zealand Workplace Health & Safety Authority.

WES - TWA (Workplace Exposure Standard - Time Weighted Average) - The eight-hour, time-weighted average exposure standard is designed to protect the worker from the effects of long-term exposure.

(oto) - Toxic to the ear

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

**Appropriate engineering controls****Engineering controls**

Eyewash stations. Apply technical measures to comply with the occupational exposure limits.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

**Individual protection measures, such as personal protective equipment**

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, SAFETY SHOES, CHEMICAL GOGGLES, GLOVES, DUST MASK.

**Eye/face protection**

Tight sealing safety goggles.

**Hand protection**

Impervious gloves.

**Skin and body protection**

Boots. Wear suitable protective clothing. Overalls.

**Respiratory protection**

If determined by a risk assessment an inhalation risk exists, wear a dust mask/respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

**Environmental exposure controls**

No information available.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Information on basic physical and chemical properties**

<b>Physical state</b>	Solid
<b>Appearance</b>	Crystals, Powder or Granules
<b>Color</b>	Light pink to White
<b>Odor</b>	Odourless
<b>Odor threshold</b>	No information available.

<b><u>Property</u></b>	<b><u>Values</u></b>	<b><u>Remarks • Method</u></b>
<b>pH</b>	No data available	None known
<b>Melting point / freezing point</b>	700°C	
<b>Boiling point / boiling range</b>	850°C	
<b>Flash point</b>	Not applicable	None known
<b>Evaporation rate</b>	No data available	None known
<b>Flammability (solid, gas)</b>	No data available	None known
<b>Flammability Limit in Air</b>		None known
<b>Upper flammability or explosive limits</b>	Not applicable	
<b>Lower flammability or explosive</b>	Not applicable	

<b>limits</b>		
Vapor pressure	No data available	
Vapor density	No data available	
Relative density	2.95 (water=1)	
Water solubility	Soluble in water	
Solubility(ies)	Insoluble in alcohol.	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

**Other information**

Molecular formula MnSO4.H2O

**10. STABILITY AND REACTIVITY****Reactivity**

Reactivity Hygroscopic.

**Chemical stability**

Stability Stable under normal conditions.

**Explosion data**

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

**Possibility of hazardous reactions**

Hazardous polymerization Hazardous polymerization does not occur.

Possibility of hazardous reactions May react violently with hydrogen peroxide.

**Conditions to avoid**

Conditions to avoid Heat. Dust formation. Moisture.

**Incompatible materials**

Incompatible materials Acids. Metals. Strong oxidizing agents.

**Hazardous decomposition products**

Hazardous decomposition products Oxides of manganese. Oxides of sulfur.

**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Information on likely routes of exposure**

**Product Information** No adverse health effects expected if the chemical is handled in accordance with this Safety Data Sheet and the chemical label. Symptoms or effects that may arise if the chemical is mishandled and overexposure occurs are:

<b>Inhalation</b>	May cause irritation.
<b>Eye contact</b>	May cause irritation.
<b>Skin contact</b>	May cause irritation.
<b>Ingestion</b>	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. A side effect of oral manganese administration is an increase in losses of calcium in the faeces and a subsequent lowering of calcium blood levels. Harmful if swallowed.
<b>Symptoms</b>	No information available.

**Acute toxicity****Numerical measures of toxicity****On basis of test data**

**Oral LD50** 1297 mg/kg (mice) (anhydrous)

*See section 16 for terms and abbreviations*

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

<b>Skin corrosion/irritation</b>	No information available.
<b>Serious eye damage/eye irritation</b>	No information available.
<b>Respiratory or skin sensitization</b>	No information available.
<b>Germ cell mutagenicity</b>	No information available.
<b>Carcinogenicity</b>	Not listed as carcinogenic according to IARC. (IARC - International Agency for Research on Cancer).
<b>Reproductive toxicity</b>	Experiments have shown reproductive toxicity effects on laboratory animals.
<b>STOT - single exposure</b>	No information available.
<b>STOT - repeated exposure</b>	Causes damage to organs through prolonged or repeated exposure.
<b>Aspiration hazard</b>	No information available.
<b>Chronic effects:</b>	Chronic exposure has been associated with two major effects; bronchitis/pneumonitis following inhalation of manganese dusts and "manganism", a neuropsychiatric disorder that may also arise from inhalation exposures. Chronic exposure to low levels may result in the accumulation of toxic concentrations in critical organs. The brain in particular appears to sustain cellular damage to the ganglion. Symptoms appear before any pathology is evident and may include a mask-like facial expression, spastic gait, tremors, slurred speech, sometimes dystonia (disordered muscle tone), fatigue, anorexia, asthenia (loss of strength and energy), apathy and the inability to concentrate. Insomnia may be an early finding. Rat studies indicate the gradual accumulation of brain manganese to produce lesions mimicking those found in Parkinsonism.

**12. ECOLOGICAL INFORMATION****Ecotoxicity**

**Ecotoxicity** Keep out of waterways. Toxic to aquatic life with long lasting effects.

**Terrestrial ecotoxicity** Hazardous to terrestrial vertebrates.

Chemical name	Algae/aquatic plants	Fish	Crustacea
Manganese sulphate, monohydrate	-	96hr LC50 (fathead minnow): 30.6 mg/L (anhydrous)	48hr EC50 (Daphnia magna): 8.3 mg/L (anhydrous)

#### Persistence and degradability

**Persistence and degradability** No information available.

#### Bioaccumulative potential

**Bioaccumulation** No information available.

#### Mobility

**Mobility in soil** No information available.

#### Other adverse effects

**Other adverse effects** No information available.

### 13. DISPOSAL CONSIDERATIONS

#### Waste treatment methods

**Waste from residues/unused products** Dispose of product in packaging/container in a way that is consistent with the Hazardous Substances (Disposal) Notice 2017 and the Act, and Hazardous Substances (Amendments and Revocations) Notice 2020. Treat the chemical using a method that changes the characteristics or composition of the chemical so that the chemical is no longer a hazardous chemical; or export the chemical from New Zealand as waste. Class 9 chemical, if the chemical, or if it contains a component that is bioaccumulative and not rapidly degradable, then any component that is bioaccumulative and not rapidly degradable must be removed. The product may only be discharged into the environment if an environmental exposure limit has been set for the chemical (or a component of the chemical); and the discharge does not, after reasonable mixing, result in the concentration of the substance in an environmental medium exceeding the environmental exposure limit.

**Contaminated packaging** For packages that have been in direct contact with hazardous chemicals, the person must ensure that the package is rendered incapable of containing any chemical. It must be disposed of in a manner that is consistent with the requirements for disposal of the chemical that it contained, taking into account the material the package is manufactured from. Packages may only be reused or recycled if the package has been treated to remove any residual contents of the hazardous chemical (class 1, 2, 3, 4, or 5); or the contents of the residue in the package are below the threshold for the chemical to be classified as hazardous (class 6, 8, or 9 chemical).

### 14. TRANSPORT INFORMATION

**ROAD AND RAIL TRANSPORT** Classified as a Dangerous Good according to NZS 5433 Transport of Dangerous Goods on Land; DANGEROUS GOODS.

**UN number** 3077  
**Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANGANESE



	SULPHATE MONOHYDRATE)
<b>Hazard class</b>	9
<b>Packing group</b>	III
<b>Hazchem code</b>	2Z
<b><u>IATA</u></b>	Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.
<b>UN number</b>	3077
<b>UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANGANESE SULPHATE MONOHYDRATE)
<b>Transport hazard class(es)</b>	9
<b>Packing group</b>	III
<b><u>IMDG</u></b>	Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.
<b>UN number</b>	3077
<b>UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANGANESE SULPHATE MONOHYDRATE)
<b>Transport hazard class(es)</b>	9
<b>Packing group</b>	III
<b>IMDG EMS Fire</b>	F-A
<b>IMDG EMS Spill</b>	S-F
<b>Marine pollutant</b>	Yes

## 15. REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### New Zealand

**National regulations** See section 8 for national exposure control parameters

#### International Inventories

<b>NZIoC</b>	This material is listed on the New Zealand Inventory of Chemicals.
<b>TSCA</b>	Contact supplier for inventory compliance status.
<b>DSL/NDL</b>	Contact supplier for inventory compliance status.
<b>EINECS/ELINCS</b>	Contact supplier for inventory compliance status.
<b>ENCS</b>	Contact supplier for inventory compliance status.
<b>IECSC</b>	Contact supplier for inventory compliance status.
<b>KECL</b>	Contact supplier for inventory compliance status.
<b>PICCS</b>	Contact supplier for inventory compliance status.
<b>AIIC</b>	This material is listed on the Australian Inventory of Industrial Chemicals.

#### Legend:

**NZIoC** - New Zealand Inventory of Chemicals

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AIIC** - Australian Inventory of Industrial Chemicals

**International Regulations**

**The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable

**The Stockholm Convention on Persistent Organic Pollutants** Not applicable

**The Rotterdam Convention** Not applicable

**16. OTHER INFORMATION**

Supplier Material Safety Data Sheet 06/ 2022

**Prepared By** This Safety Data Sheet has been prepared by Ixom Operations Pty Ltd (Toxicology and SDS Services).

**Issuing Date:** 20-Dec-2022

**Reason(s) For Issue:** 5 Yearly Revised Primary SDS

**Revision Note:**

The symbol (\*) in the margin of this SDS indicates that this line has been revised.

**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 EPA (Environmental Protection Agency)  
 Acute Exposure Guideline Level(s) (AEGl(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 Japan GHS Classification  
 Australian Industrial Chemicals Introduction Scheme (AICIS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)  
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
 Organization for Economic Co-operation and Development Screening Information Data Set  
 RTECS (Registry of Toxic Effects of Chemical Substances)  
 World Health Organization

**Disclaimer**

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.

**End of Safety Data Sheet**