# SAFETY DATA SHEET

**Revision date:** 10-Aug-2022

**Revision Number** 4

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product identifier**

**Product Name** MANGANESE SULPHATE MONOHYDRATE

**Product Code(s)** 000000039158

**Other means of identification**

**UN number** 3077

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

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

**Recommended use** Pharmaceutical and food applications.

**Uses advised against** No information available.

**Details of the supplier of the safety data sheet**

**Supplier**
Ixom Operations Pty Ltd (Bronson & Jacobs division) - incorporated in Australia
Street Address: 166 Totara Street
Mt Maunganui South
New Zealand

Telephone Number: +64 9 309 2528
Facsimile: +64 9 0508 366 364

**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 |
| **Serious eye damage/eye irritation** | Category 1 |
| **Specific target organ toxicity (repeated exposure)** | Category 1 |
| **Chronic aquatic toxicity** | Category 2 |

**Label elements**

**Hazard statements**
H302 - Harmful if swallowed
H318 - Causes serious eye damage
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 fume, gas, mist, vapours, spray
Do not eat, drink or smoke when using this product
Wash hands thoroughly after handling
Wear eye protection/ face protection
Avoid release to the environment
**Precautionary Statements - Response**
Get medical advice/attention if you feel unwell
IF IN EYES: 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
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**
No information available.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance**

| Chemical name | CAS No. | Weight-% |
|---|---|---|
| Manganese sulphate, monohydrate | 10034-96-5 | >98 |

## 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<br>Poisons Information Center, Australia: 13 11 26 |
| **Inhalation** | Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, (trained personnel should) give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately. |
| **Eye contact** | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention. |
| **Skin contact** | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if symptoms occur. |
| **Ingestion** | Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get medical attention immediately if symptoms occur. |

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

| | |
|---|---|
| **Symptoms** | Irritation/Corrosion. May cause redness and tearing of the eyes. |

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

| | |
|---|---|
| **Note to physicians** | Can cause corneal burns. Treat symptomatically. |

## 5. FIRE FIGHTING MEASURES

**Suitable Extinguishing Media**

| | |
|---|---|
| **Suitable Extinguishing Media** | Not combustible, however, if material is involved in a fire use:. Water spray. Foam. Dry chemical. Carbon dioxide (CO2). |
| **Unsuitable extinguishing media** | No information available. |

**Specific hazards arising from the chemical**

| | |
|---|---|
| **Specific hazards arising from the chemical** | Non-combustible material. Decomposes on heating emitting toxic fumes including those of oxides of sulfur and oxides of manganese. Environmentally hazardous. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. |
| **Hazardous combustion products** | Oxides of sulfur. Oxides of manganese. |

**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** | Avoid contact with skin and eyes. Avoid breathing dust or spray mist. Ensure adequate |

ventilation. Avoid generation of dust. Do not touch or walk through spilled material. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Wash thoroughly after handling. Use personal protective equipment as required.

**For emergency responders** Clear area of all unprotected personnel. Use personal protection recommended in Section 8.

**Environmental precautions**

**Environmental precautions** Do not allow to enter into soil/subsoil. Prevent product from entering drains. See Section 12 for additional Ecological Information.

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

**Methods for containment** Stop leak if you can do it without risk. Remove ignition sources. Provide adequate ventilation. Isolate spill or leak area immediately. Keep out of drains, sewers, ditches and waterways. Soak up condensate with inert absorbent material and collect in ventilated waste container for disposal.

**Methods for cleaning up** Slippery when spilt. Avoid accidents, clean up immediately. Cover with damp absorbent(inert material, sand or soil). Vacuum or sweep material and place in a disposal container. Avoid generation of dust. Use personal protective equipment as required. Pick up and transfer to properly labelled containers.

**Precautions to prevent secondary hazards**

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

**Advice on safe handling** Avoid contact with skin, eyes, and clothing. Avoid breathing dust or spray mist. Avoid generation of dust. Take off contaminated clothing and wash before reuse. Wash thoroughly after handling. Use personal protection equipment. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice.

**General hygiene considerations** Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection.

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

**Storage Conditions** Keep containers tightly closed in a cool, well-ventilated place. Protect from sunlight. Store away from foodstuffs. Store away from incompatible materials (refer to SDS). Keep container closed when not in use.

**Incompatible materials** Incompatible with strong oxidising agents , strong acids , aluminium , magnesium .

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

**Exposure Limits** No value assigned for this specific material by the New Zealand Workplace Health & Safety

Authority. However, Workplace Exposure Standard(s) for constituent(s):

Manganese dust & compounds, as Mn: WES-TWA 0.2 mg/m$^3$, Respirable dust WES-TWA 0.02 mg/m$^3$, (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**

Ensure adequate ventilation, especially in confined areas. 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** Wear suitable protective clothing. Overalls. Boots.

**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**

| | |
|---|---|
| **Physical state** | Powder or Crystals |
| **Appearance** | No information available. |
| **Color** | White |
| **Odor** | Odourless |
| **Odor threshold** | No information available. |

| **Property** | **Values** | **Remarks • Method** |
|---|---|---|
| **pH** | 3.0 - 3.5 @ 50 g/L, 20°C | None known |
| **pH (as aqueous solution)** | | None known |
| **Melting point / freezing point** | 700 °C(anhydrous) | None known |
| **Boiling point / boiling range** | 850 °C | None known |
| **Flash point** | Not Applicable | None known |
| **Evaporation rate** | No data available | None known |
| **Flammability (solid, gas)** | No data available | None known |
| **Flammability Limit in Air** | | None known |
| **Upper flammability or explosive limits** | Not Applicable | |
| **Lower flammability or explosive limits** | Not Applicable | |
| **Vapor pressure** | No data available | None known |
| **Vapor density** | No data available | None known |
| **Relative density** | 2.95@ 20°C | None known |
| **Water solubility** | 762 g/L @ 20 °C | None known |
| **Solubility(ies)** | Soluble in water | None known |
| **Partition coefficient** | No data available | None known |
| **Autoignition temperature** | No data available | None known |
| **Decomposition temperature** | No data available | None known |
| **Kinematic viscosity** | No data available | None known |
| **Dynamic viscosity** | No data available | None known |

**Other information**

## 10. STABILITY AND REACTIVITY

**Reactivity**

**Reactivity** No information available.

**Chemical stability**

**Stability** Stable under normal conditions.

**Explosion data**

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** No.

**Possibility of hazardous reactions**

**Hazardous polymerization** Hazardous polymerization does not occur.

**Possibility of hazardous reactions** Hygroscopic - absorbs moisture from surrounding air.

**Conditions to avoid**

**Conditions to avoid** Heat, flames and sparks. Avoid exposure to moisture. Avoid dust generation. Contact with foodstuffs.

**Incompatible materials**

**Incompatible materials** Incompatible with strong oxidising agents , strong acids , aluminium , magnesium .

**Hazardous decomposition products**

**Hazardous decomposition products** Oxides of sulfur. Oxides of manganese.

## 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:

**Inhalation** May cause irritation. Breathing in dust may result in respiratory irritation.

**Eye contact** Causes serious eye damage. Corrosive to the eyes and may cause severe damage including blindness.

**Skin contact** May cause irritation.

**Ingestion** Harmful if swallowed. 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.

**Symptoms** Irritation/Corrosion. May cause redness and tearing of the eyes.

**Acute toxicity**

**Numerical measures of toxicity**

**Oral LD50** 875 mg/kg (Rat)(Calculated based on component data CAS7785-87-7)

*See section 16 for terms and abbreviations*

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

**Skin corrosion/irritation** No information available.

**Serious eye damage/eye irritation** Causes serious eye damage.

**Respiratory or skin sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** No information available.

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard** No information available.

**Chronic effects:** Available evidence from animal studies indicate that repeated or prolonged exposure to this material could result in effects on the lungs, and central nervous system, Systemic poisoning may result from inhalation or chronic ingestion of manganese containing substances. Chronic exposure has been asociated with two major effects: bronchitis/pneumonitis, following inhalation of manganese dusts, and "manganism", a neuropsychiatric disorder that may 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 mask-like facial expression, spastic gait, tremors, slurred speech, disordered muscle tone, fatigue, anorexia, asthenia, 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** Toxic to aquatic life with long lasting effects. Avoid contaminating waterways.

**Terrestrial ecotoxicity** There is no data for this product.

| 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) |
| **Hazard class** | 9 |
| **Packing group** | III |
| **Environmental hazard** | Yes |
| **Special Provisions** | 274, 331, 335,375, AU01 |
| **Hazchem code** | 2Z |

**IATA** Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

| | |
|---|---|
| **UN number** | 3077 |
| **UN proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANGANESE SULPHATE MONOHYDRATE) |
| **Transport hazard class(es)** | 9 |
| **Packing group** | III |

**IMDG** Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

| | |
|---|---|
| **UN number** | 3077 |
| **UN proper shipping name** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANGANESE SULPHATE MONOHYDRATE) |
| **Transport hazard class(es)** | 9 |
| **Packing group** | III |
| **IMDG EMS Fire** | F-A |
| **IMDG EMS Spill** | S-F |
| **Marine pollutant** | 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**

| | |
|---|---|
| **NZIoC** | This material is listed on the New Zealand Inventory of Chemicals. |
| **TSCA** | Contact supplier for inventory compliance status. |
| **DSL/NDSL** | Contact supplier for inventory compliance status. |
| **EINECS/ELINCS** | Contact supplier for inventory compliance status. |
| **ENCS** | Contact supplier for inventory compliance status. |
| **IECSC** | Contact supplier for inventory compliance status. |
| **KECL** | Contact supplier for inventory compliance status. |
| **PICCS** | Contact supplier for inventory compliance status. |
| **AIIC** | 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/NDSL** - 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

| | |
|---|---|
| **Prepared By** | This Safety Data Sheet has been prepared by Ixom Operations Pty Ltd (Toxicology and SDS Services). |
| **Issuing Date:** | 10-Aug-2022 |
| **Reason(s) For Issue:** | 5 Yearly Revised Primary SDS<br>Change in Hazardous Chemical Classification<br>Change in Engineering Control Measures |

**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 Bronson & Jacobs 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.**

**Bronson and Jacobs incorporating the businesses of Woods and Woods and Keith Harris and Australian Botanical Products.**

**End of Safety Data Sheet**