

Australian statement of hazardous nature : Classified as hazardous according to criteria of Safe Work Australia

## Section 1 - Identification

**Product Name** Manganese(II) chloride tetrahydrate

**CAS No** 13446-34-9

**Product Code** 44442

**Address** ThermoFisher Scientific Australia Pty Ltd  
 5 Caribbean Drive, Scoresby  
 VICTORIA 3179, Australia

**Emergency Tel.** **CHEMTREC®**  
**03 9757 4559 or +613 9757 4559**

**Telephone / Fax Numbers** Tel: 1300 735 292  
 Fax: 1800 067 639

**E-mail address** ANZinfo@thermofisher.com

**Recommended Use** Laboratory chemicals.

**Uses advised against** This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.  
 This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern.

## Section 2 - Hazard(s) Identification

### Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

**Physical hazards**  
 No hazards identified

### **Health hazards**

Acute Oral Toxicity	Category 3
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity - (repeated exposure)	Category 2

### **Environmental hazards**

Chronic aquatic toxicity	Category 2
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### **Label Elements**



Skull and Crossbones



Health Hazard



Corrosion



Environment

**Signal Word****Danger****Hazard Statements**

H301 - Toxic if swallowed

H318 - Causes serious eye damage

H373 - May cause damage to organs through prolonged or repeated exposure

H411 - Toxic to aquatic life with long lasting effects

**Precautionary Statements**

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P280 - Wear protective gloves/protective clothing/eye protection/face protection

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

P330 - Rinse mouth

P405 - Store locked up

P501 - Dispose of contents/ container to an approved waste disposal plant

**Other information**

Toxic to terrestrial vertebrates

## Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Manganous chloride tetrahydrate	13446-34-9	<=100
Manganese(II) chloride	7773-01-5	-

## Section 4 - First Aid Measures

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

**Ingestion**

Do NOT induce vomiting. Call a physician or poison control center immediately.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Eye Contact**

In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**General Advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
<b>First Aid Facilities</b>	Eyewash, safety shower and washroom.
<b>Most important symptoms and effects</b>	Causes eye burns. Causes severe eye damage.
<b>Notes to Physician</b>	Treat symptomatically.

## Section 5 - Fire Fighting Measures

### Suitable Extinguishing Media

Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.

### Extinguishing media which must not be used for safety reasons

No information available.

### Hazardous Decomposition Products

Heavy metal oxides, Hydrogen chloride gas.

### Specific Hazards Arising from the Chemical

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Keep product and empty container away from heat and sources of ignition.

### Special protective equipment and precautions for fire fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## Section 6 - Accidental Release Measures

### Emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

### Environmental Precautions

Do not flush into surface water or sanitary sewer system. Should not be released into the environment. Do not allow material to contaminate ground water system.

### Methods for Containment and Clean Up

#### Clean-up methods - small spillage

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

#### Clean-up methods - large spillage

Typically only supplied in small quantities as packaged goods.

If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## Section 7 - Handling and Storage

### Precautions for Safe Handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only

under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

#### Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Store under an inert atmosphere. Protect from moisture.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

## Section 8 - Exposure Controls and Personal Protection

#### Exposure limits

**AUS** - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)]

Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]

updated in August, 2005. Safe Work Australia **ACGIH** - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace. **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **DE** - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Manganous chloride tetrahydrate	TWA: 1 mg/m <sup>3</sup>		TWA: 0.02 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup>	STEL: 0.6 mg/m <sup>3</sup> 15 min STEL: 0.15 mg/m <sup>3</sup> 15 min TWA: 0.2 mg/m <sup>3</sup> 8 hr TWA: 0.05 mg/m <sup>3</sup> 8 hr	TWA: 0.2 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 8 TWA: 0.02 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 8 TWA: 0.2 mg/m <sup>3</sup> (8 Stunden). MAK TWA: 0.02 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 1.6 mg/m <sup>3</sup> Höhepunkt: 0.16 mg/m <sup>3</sup>
Manganese(II) chloride	TWA: 1 mg/m <sup>3</sup>		TWA: 0.02 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup>	STEL: 0.6 mg/m <sup>3</sup> 15 min STEL: 0.15 mg/m <sup>3</sup> 15 min TWA: 0.2 mg/m <sup>3</sup> 8 hr TWA: 0.05 mg/m <sup>3</sup> 8 hr	TWA: 0.2 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 8 TWA: 0.02 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 8 TWA: 0.2 mg/m <sup>3</sup> (8 Stunden). MAK TWA: 0.02 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 1.6 mg/m <sup>3</sup> Höhepunkt: 0.16 mg/m <sup>3</sup>

#### Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### Exposure Controls

##### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

#### Personal protective equipment

##### Eye Protection

Goggles (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

##### Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Natural rubber	See manufacturers recommendations	-	AS/NZS 2161	(minimum requirement)
Nitrile rubber				
Neoprene				
PVC				

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.  
(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection** Long sleeved clothing

**Respiratory Protection** Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of respiratory protective devices

**Recommended Filter type:** Particulates filter conforming to EN 143 (or AUS/NZ equivalent)

**Recommended half mask:-** Particle filtering: EN149:2001 (or AUS/NZ equivalent)

When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls** Prevent product from entering drains. Do not allow material to contaminate ground water system.

## Section 9 - Physical and Chemical Properties

### Information on basic physical and chemical properties

<b>Appearance</b>	Light red	
<b>Physical State</b>	Solid Powder	
<b>Odor</b>	Odorless	
<b>Odor Threshold</b>	No data available	
<b>pH</b>	4-6	5% aq.solution
<b>Melting Point/Range</b>	58 °C / 136.4 °F	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	No information available	
<b>Flash Point</b>	No information available	<b>Method -</b> No information available
<b>Evaporation Rate</b>	Not applicable	Solid
<b>Flammability (solid,gas)</b>	No information available	
<b>Explosion Limits</b>	No data available	
<b>Vapor Pressure</b>	No data available	
<b>Vapor Density</b>	Not applicable	Solid
<b>Specific Gravity / Density</b>	No data available	
<b>Bulk Density</b>	No data available	
<b>Water Solubility</b>	1980 g/L (20°C)	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Component</b>	<b>log Pow</b>	
Manganese(II) chloride	0.85	
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	No data available	
<b>Viscosity</b>	Not applicable	Solid
<b>Explosive Properties</b>	No information available	
<b>Oxidizing Properties</b>	No information available	

### Other information

Molecular Formula Cl<sub>2</sub> Mn . 4 H<sub>2</sub> O  
Molecular Weight 197.91

## Section 10 - Stability and Reactivity

**Reactivity** None known, based on information available

**Stability** Stable under normal conditions. Hygroscopic.

**Conditions to Avoid** Avoid dust formation, Incompatible products, Excess heat, Exposure to moisture, Exposure to moist air or water.

**Incompatible Materials** Strong acids, Metals.

**Hazardous Decomposition Products** Heavy metal oxides. Hydrogen chloride gas.

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

## Section 11 - Toxicological Information

### Information on Toxicological Effects

#### Product Information

(a) acute toxicity;

Oral Category 3  
Dermal No data available  
Inhalation No data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Manganous chloride tetrahydrate	LD50 = 1484 mg/kg ( Rat )		
Manganese(II) chloride	LD50 = 236 mg/kg ( Rat ) LD50 = 1330 mg/kg ( Mouse )		LC50 > 4.45 mg/L ( Rat ) 4 h

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory No data available  
Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; Category 2

## Target Organs

Brain.

## (j) aspiration hazard;

Not applicable  
SolidSymptoms / effects, both acute and delayed  
No information available

## Section 12 - Ecological Information

## Ecotoxicity effects

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Manganous chloride tetrahydrate			ErC50 = 61 mg/l	
Manganese(II) chloride	LC50 = 49.9 mg Mn/L	LC50 = 9.8 mg Mn/L (48hr)		

## Persistence and Degradability

Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary

## Persistence

May persist, based on information available.

## Degradability

Not relevant for inorganic substances.

## Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

## Bioaccumulative Potential

May have some potential to bioaccumulate

Component	log Pow	Bioconcentration factor (BCF)
Manganese(II) chloride	0.85	No data available

## Mobility

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility Highly mobile in soils

## Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

## Persistent Organic Pollutant

This product does not contain any known or suspected substance

## Ozone Depletion Potential

This product does not contain any known or suspected substance

## Section 13 - Disposal Considerations

## Waste from Residues/Unused Products

Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.

## Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

## Other Information

Chemical wastes should be disposed through a licensed commercial waste collection service. Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

## Section 14 - Transport Information

## IMDG/IMO

## UN-No

UN3288

## Proper Shipping Name

TOXIC SOLID, INORGANIC, N.O.S.

## Technical Shipping Name

Manganese (II) chloride tetrahydrate

## Hazard Class

6.1

## Packing Group

III

**ADG**

UN-No UN3288  
Proper Shipping Name TOXIC SOLID, INORGANIC, N.O.S.  
Technical Shipping Name Manganese (II) chloride tetrahydrate  
Hazard Class 6.1  
Packing Group III

**IATA**

UN-No UN3288  
Proper Shipping Name TOXIC SOLID, INORGANIC, N.O.S.  
Technical Shipping Name Manganese (II) chloride tetrahydrate  
Hazard Class 6.1  
Packing Group III

Environmental hazards Dangerous for the environment  
Product is a marine pollutant according to the criteria set by IMDG/IMO

Special Precautions No special precautions required

Additional information None known

## Section 15 - Regulatory Information

**Safety, health and environmental regulations/legislation specific for the substance or mixture****National Regulations Australia**

See section 8 for national exposure control parameters.

**Standard for the Uniform Scheduling of Medicines and Poisons**

No poison schedule number allocated.

**Australian Industrial Chemicals Introduction Scheme (AICIS)**

Component	Australian Industrial Chemicals Introduction Scheme (AICIS)	Additional information
Manganous chloride tetrahydrate - 13446-34-9	Present	-
Manganese(II) chloride - 7773-01-5	Present	-

**Australian - Illicit Drug Precursors/Reagents Substance List**

This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

**Chemicals of Security Concern**

This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

National pollutant inventory Not applicable

**Prohibition or notification/licensing requirements**

Shown below are details of specific prohibition/notifications or licencing requirements when they apply.



This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction.

### International Inventories

Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	ISHL	IECSC	KECL
Manganous chloride tetrahydrate	X	X	-	-	-	-	-	X	-		X	-
Manganese(II) chloride	X	X	231-869-6	-	X	X	-	X	X	X	X	KE-23012

**Legend:** X - Listed. '-' - Not Listed. **KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

### International Regulations

**Ozone Depletion Potential** This product does not contain any known or suspected substance

**Persistent Organic Pollutant** This product does not contain any known or suspected substance

**Rotterdam Convention (PIC)** Not applicable

**Basel convention on the control of transboundary movements of hazardous wastes and their disposal**  
Not applicable.

Component	CAS No	OECD HPV	Restriction of Hazardous Substances (RoHS)	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Manganous chloride tetrahydrate	13446-34-9	Not applicable	Not applicable	Not applicable	Not applicable
Manganese(II) chloride	7773-01-5	Not applicable	Not applicable	Not applicable	Not applicable

**Authorisation/Restrictions according to EU REACH** Not applicable

## Section 16 - Other Information

### Legend

**AICS** - Australian Inventory of Chemical Substances  
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**IECSC** - Chinese Inventory of Existing Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**TWA** - Time Weighted Average  
**IARC** - International Agency for Research on Cancer  
**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association  
**MARPOL** - International Convention for the Prevention of Pollution from Ships  
**NZS 5433:2012** - Transport of Dangerous Goods on Land

**NZIoC** - New Zealand Inventory of Chemicals  
**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances  
**ENCS** - Japanese Existing and New Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**CAS** - Chemical Abstracts Service  
**ACGIH** - American Conference of Governmental Industrial Hygienists  
**PNEC** - Predicted No Effect Concentration (PNEC)  
**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code  
**OECD** - Organisation for Economic Co-operation and Development

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**WEL** - Workplace Exposure Limit

**DNEL** - Derived No Effect Level

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**VOC** - (Volatile Organic Compound)

**LC50** - Lethal Concentration 50%

**ATE** - Acute Toxicity Estimate

**RPE** - Respiratory Protective Equipment

**NOEC** - No Observed Effect Concentration

**BCF** - Bioconcentration factor

**PBT** - Persistent, Bioaccumulative, Toxic

#### Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

#### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Chemical incident response training.

#### Revision Date

28-Nov-2022

#### Revision Summary

SDS sections updated.

**This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).**

#### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

## End of Safety Data Sheet