

Material Safety Data Sheet

Manganese(II) chloride tetrahydrate

ACC# 13600

Section 1 - Chemical Product and Company Identification

MSDS Name: Manganese(II) chloride tetrahydrate

Catalog Numbers: AC205890000, AC205895000, S80070, S800701, M87-100, M87-500, M87500LC

Synonyms: Manganous chloride tetrahydrate; Manganese dichloride tetrahydrate.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
13446-34-9	Manganese(II) chloride tetrahydrate	>98	unlisted

Hazard Symbols: XN

Risk Phrases: 22

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: reddish solid. Hygroscopic (absorbs moisture from the air). **Warning!** Harmful if swallowed. May cause central nervous system effects. May cause lung damage. May cause eye, skin, and respiratory tract irritation.

Target Organs: Central nervous system, lungs, reproductive system.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation.

Ingestion: Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause central nervous system effects and/or neurological effects. In high doses, manganese may increase anemia by interfering with iron absorption.

Inhalation: May cause respiratory tract irritation. The lowest exposure concentration of manganese at which early effects on the CNS and the lungs may occur is still unknown. However, once neurological signs are present, they tend to continue and worsen after exposure ends.

Chronic: Chronic inhalation or ingestion may result in manganism characterized by neurological symptoms such as headache, apathy, and weakness of the legs, followed by psychosis and neurological symptoms similar to those of Parkinson's disease. May impair fertility. Other chronic

effects from inhaling high amounts of manganese include an increased incidence of cough and bronchitis and susceptibility to infectious lung disease.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively. Persons with impaired respiratory function or anemia may be at increased risk to the hazards associated with this substance.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Substance is noncombustible.

Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire.

Flash Point: Non-flammable.

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid breathing dust.

Storage: Keep container closed when not in use. Store protected from moisture.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Manganese(II) chloride tetrahydrate	none listed	none listed	none listed
Manganese(II) chloride anhydrous	none listed	none listed	none listed

OSHA Vacated PELs: Manganese(II) chloride tetrahydrate: No OSHA Vacated PELs are listed for this chemical. Manganese(II) chloride anhydrous: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance: reddish

Odor: none reported

pH: 5.5 (0.2M aq soln)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Evaporation Rate: Not applicable.

Viscosity: Not applicable.

Boiling Point: Not available.

Freezing/Melting Point: 58 deg C

Decomposition Temperature: Not available.

Solubility: Freely Soluble.

Specific Gravity/Density: 2.01 g/cm³

Molecular Formula: MnCl₂·4H₂O

Molecular Weight: 197.91

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Deliquescent (tending to absorb atmospheric water vapor and become liquid).

Conditions to Avoid: Dust generation, excess heat, exposure to moist air or water.

Incompatibilities with Other Materials: Zinc, potassium, sodium.

Hazardous Decomposition Products: Hydrogen chloride, irritating and toxic fumes and gases, oxides of manganese.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 13446-34-9: 009650000

CAS# 7773-01-5: 009625000

LD50/LC50:

CAS# 13446-34-9:

Oral, rat: LD50 = 1484 mg/kg;

CAS# 7773-01-5:

Oral, mouse: LD50 = 1031 mg/kg;

Oral, mouse: LD50 = 450 mg/kg;

Oral, rat: LD50 = 250 mg/kg;

Carcinogenicity:

CAS# 13446-34-9: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. CAS# 7773-01-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: The U.S. EPA stated that epidemiological studies of inorganic manganese compounds in humans indicate effects on the respiratory system at levels below 1 mg/m³.

Teratogenicity: No data available.

Reproductive Effects: Men exposed to manganese dusts showed a decrease in fertility.

Neurotoxicity: Manganese is neurotoxic.

Mutagenicity: No data available.

Other Studies: No data available.

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	Not regulated				No information available.
Hazard Class:					
UN Number:					

Packing Group:	
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Section 15 - Regulatory Information
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US FEDERAL**TSCA**

CAS# 13446-34-9 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)).

CAS# 7773-01-5 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA**CERCLA Hazardous Substances and corresponding RQs**

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 13446-34-9: chronic.

Section 313

This material contains Manganese(II) chloride tetrahydrate (listed as Manganese compounds, n.o.s.), 98%, (CAS# 13446-34-9) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373. This chemical is not at a high enough concentration to be reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 13446-34-9 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 7773-01-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

XN

Risk Phrases:

R 22 Harmful if swallowed.

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 13446-34-9: No information available.

CAS# 7773-01-5: 1

Canada - DSL/NDSL

CAS# 7773-01-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2A.

Canadian Ingredient Disclosure List

CAS# 13446-34-9 (listed as Manganese compounds, n.o.s.) is listed on the Canadian Ingredient Disclosure List.

CAS# 7773-01-5 is listed on the Canadian Ingredient Disclosure List.

Exposure Limits

CAS# 13446-34-9: OEL-AUSTRALIA:TWA 5 mg(Mn)/m3 JANUARY 1993 OEL-BELGIUM:TWA 5 mg(Mn)/m3 JANUARY 1993 OEL-CZECHOSLOVAKIA:TWA 2 mg(Mn)/m3;STEL 6 mg(Mn)/m3 JANUARY 1993 OEL-DENMARK:TWA 2.5 mg(Mn)/m3 JANUARY 1993 OEL-FINLAND:TWA 2.5 mg(Mn)/m3 JANUARY 1993 OEL-HUNGARY:TWA 0.3 mg(Mn)/m3;STEL 0.6 mg(Mn)/m3 JANUARY 1993 OEL-JAPAN:TWA 0.3 mg(Mn)/m3 JANUARY 1993 OEL-THE NETHERLANDS:TWA 1 mg(Mn)/m3 JANUARY 1993 OEL-POLAND:TWA 0.3 mg(Mn)/m3 JANUARY 1993 OEL-SWEDEN:TWA 1 mg(Mn)/m3;STEL 2.5 mg(Mn)/m3 (resp. dust) OEL-SWEDEN:TWA 2.5 mg(Mn)/m3;STEL 5 mg(Mn)/m3 (total dust) OEL-UNITED KINGDOM:TWA 5 mg(Mn)/m3 JANUARY 1993 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

CAS# 7773-01-5: OEL-AUSTRALIA:TWA 5 mg(Mn)/m3 JANUARY 1993 OEL-BELGIUM:TWA 5 mg(Mn)/m3 JANUARY 1993 OEL-CZECHOSLOVAKIA:TWA 2 mg(Mn)/m3;STEL 6 mg(Mn)/m3 JANUARY 1993 OEL-DENMARK:TWA 2.5 mg(Mn)/m3 JANUARY 1993 OEL-FINLAND:TWA 2.5 mg(Mn)/m3 JANUARY 1993 OEL-HUNGARY:TWA 0.3 mg(Mn)/m3;STEL 0.6 mg(Mn)/m3 JANUARY 1993 OEL-JAPAN:TWA 0.3 mg(Mn)/m3 JANUARY 1993 OEL-THE NETHERLANDS:TWA 1 mg(Mn)/m3 JANUARY 1993 OEL-POLAND:TWA 0.3 mg(Mn)/m3 JANUARY 1993 OEL-SWEDEN:TWA 1 mg(Mn)/m3;STEL 2.5 mg(Mn)/m3 (resp. dust) OEL-SWEDEN:TWA 2.5 mg(Mn)/m3;STEL 5 mg(Mn)/m3 (total dust) OEL-UNITED KINGDOM:TWA 5 mg(Mn)/m3 JANUARY 1993 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

Section 16 - Additional Information
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MSDS Creation Date: 12/12/1997**Revision #4 Date:** 9/03/2004

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.