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:** M87-100, M87-500, M87500LC, NC9473561  
**Synonyms:** Manganous dichloride, tetrahydrate; manganese chloride, 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

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>13446-34-9</td>
<td>Manganese (II) chloride, tetrahydrate</td>
<td>100.0</td>
<td>unlisted</td>
</tr>
</tbody>
</table>

**Hazard Symbols:** None listed.  
**Risk Phrases:** None listed.

Section 3 - Hazards Identification

**EMERGENCY OVERVIEW**

Appearance: red solid. **Caution!** May cause eye and skin irritation. May cause respiratory and digestive tract irritation. May cause central nervous system effects. Inhalation of fumes may cause metal-fume fever. Can cause adverse reproductive effects.  
**Target Organs:** Central nervous system.

**Potential Health Effects**

**Eye:** Causes eye irritation.  
**Skin:** May cause skin irritation.  
**Ingestion:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea.  
**Inhalation:** May cause respiratory tract irritation.  
**Chronic:** No information found. Chronic inhalation or ingestion of silver salts may cause argyria characterized by a permanent blue-gray discoloration of the eyes, skin, mucous membranes, and internal organs.
Section 4 - First Aid Measures

**Eyes:** 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. Remove contaminated clothing and shoes.

**Ingestion:** 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.

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

**Notes to Physician:** Treat symptomatically and supportively.

**Antidote:** The use of Calcium disodium EDTA as a chelating agent should be determined by qualified medical personnel.

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. Material will not burn.

**Extinguishing Media:** For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.

**Flash Point:** Non-flammable.

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 1; 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. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

**Handling:** Wash hands before eating. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

**Storage:** Store in a tightly closed container. Store in a cool, dry area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use adequate general or local exhaust ventilation to keep airborne concentrations
below the permissible exposure limits.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese (II) chloride, tetrahydrate</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

**OSHA Vacated PELs:** Manganese (II) chloride, tetrahydrate: 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 and clothing to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to minimize contact with skin.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

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**Section 9 - Physical and Chemical Properties**

**Physical State:** Solid

**Appearance:** red

**Odor:** none reported

**pH:** 5.5

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Evaporation Rate:** Not applicable.

**Viscosity:** Not applicable.

**Boiling Point:** 2174 deg F

**Freezing/Melting Point:** 1202 deg F

**Decomposition Temperature:** > 100 deg C

**Solubility:** 72%

**Specific Gravity/Density:** 2.977 @ 25C

**Molecular Formula:** MnCl2

**Molecular Weight:** 125.844

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**Section 10 - Stability and Reactivity**

**Chemical Stability:** Stable.

**Conditions to Avoid:** Incompatible materials.

**Incompatibilities with Other Materials:** Strong oxidizing agents.

**Hazardous Decomposition Products:** Hydrogen chloride, oxides of manganese.

**Hazardous Polymerization:** Has not been reported.

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**Section 11 - Toxicological Information**

**RTECS#:**
CAS# 13446-34-9: OO96500000
LD50/LC50:
CAS# 13446-34-9:
Oral, rat: LD50 = 1484 mg/kg;
Carcinogenicity:
CAS# 13446-34-9: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology: No data available.
Teratogenicity: No data available.
Reproductive Effects: Men exposed to manganese dusts showed a decrease in fertility.
Neurotoxicity: No data available.
Mutagenicity: Laboratory experiments have shown mutagenic effects.
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

<table>
<thead>
<tr>
<th>US DOT</th>
<th>IATA</th>
<th>RID/ADR</th>
<th>IMO</th>
<th>Canada TDG</th>
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<tbody>
<tr>
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<td>No information available.</td>
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<tr>
<td>Hazard Class:</td>
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<td>UN Number:</td>
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<tr>
<td>Packing Group:</td>
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Section 15 - Regulatory Information

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)).

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), 100 0%, (CAS# 13446-34-9) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

**Clean Air Act:**
This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.

**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.
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:**
Not available.

**Risk Phrases:**

**Safety Phrases:**

**WGK (Water Danger/Protection)**
CAS# 13446-34-9: No information available.

**Canada - DSL/NDSL**
None of the chemicals in this product are listed on the DSL or NDSL list. **Canada - WHMIS**
This product has a WHMIS classification of D2B.

**Canadian Ingredient Disclosure List**
CAS# 13446-34-9 (listed as Manganese) is listed on the Canadian Ingredient Disclosure List.

**Exposure Limits**
CAS# 13446-34-9: OEL-AUSTRALIA:TWA 5 mg(Mn)/m3 JANUARY 1993 OEL-BE
LGIUM: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)
Section 16 - Additional Information

**MSDS Creation Date:** 12/12/1997  
**Revision #2 Date:** 3/18/2003

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.