MANGANESE CHLORIDE
MATERIAL SAFETY DATA SHEET

INTEGRA Chemical Company
1216 6th Ave N
Kent WA 98032
Phone: 253-479-7000
24 Hour Emergency Response: CHEMTREC 800-424-9300 (Outside USA 703-527-3887)

MSDS Number: M343
Revision Date: 16-Apr-08
Revision No.: 004

Product Identification

Product Name: MANGANESE CHLORIDE
Synonyms: Manganous chloride; Manganese dichloride
Chemical Formula: MnCl₂ 4H₂O
Formula Weight: 197.91
Chemical Family:
Integra Product Numbers: M343.10

Hazard Overview

HMIS Rating: 1-0-1-E NFPA Rating: NE
Warning Label:

Warning.
May be harmful if swallowed or inhaled. Avoid contact with skin, eyes or clothing. Avoid breathing dust. Wash thoroughly after handling.

Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese chloride</td>
<td>07773-01-5</td>
<td>100</td>
</tr>
</tbody>
</table>

Physical Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Relative to Water/Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point</td>
<td>198 °C</td>
<td></td>
</tr>
<tr>
<td>Melting Point</td>
<td>58 °C</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>2.01</td>
<td>Water=1</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Vapor Density</td>
<td>NA</td>
<td>Air = 1</td>
</tr>
<tr>
<td>Solubility</td>
<td>151g/100ml water @8°C</td>
<td></td>
</tr>
</tbody>
</table>

Appearance and Odor:
Pink, deliquescent crystals.

Fire and Explosion Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point</td>
<td>NA</td>
<td>Test Method:</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Flammable Limits (% by volume in air)</td>
<td>Upper: NA</td>
<td>Lower: NA</td>
</tr>
<tr>
<td>Fire Extinguishing Media:</td>
<td>Material is not flammable. Use extinguishing media suitable to surrounding materials.</td>
<td></td>
</tr>
</tbody>
</table>

Special Firefighting Procedures:
Use water to cool nearby containers and structures. Wear full protective equipment, including suitable respiratory protection.

Unusual Fire and Explosion Hazards:
None identified

Health Hazard Information

Effects of Overexposure
Skin Contact:
Contact may cause skin irritation.
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Health Hazard Information

Eye Contact:  
May irritate or burn the eyes.

Ingestion:  
Harmful if swallowed. Ingestion may cause nausea, vomiting and gastrointestinal irritation. Although they are poorly absorbed, inorganic manganese salts may cause hypoglycemia and decreased calcium blood levels.

Inhalation:  
Inhalation may irritate the nose, throat and upper respiratory tract. May cause metal fume fever (flu-like illness) characterized by chills, fever, aching muscles, dryness of the mouth and throat, headache.

Chronic Effects of Overexposure:  
Central nervous system impairment. Early symptoms include sluggishness, sleepiness, weakness. Advanced symptoms closely resemble Parkinson's disease.

TWA  
OSHA PEL  
STEL

Manganese chloride (as Mn) 5 mg/m3 NE NE

ACGIH TLV  
TWA  
STEL  
Ceiling

Manganese chloride (as Mn) 0.2 mg/m3 NE NE

Exposure Limits:

Toxicity Data:

Manganese chloride LD50 (oral, mouse) 250 mg/kg
LD50 (oral, rat) 1484 mg/kg

Medical Conditions Generally Aggravated by Exposure:

Respiratory diseases and central nervous system disorders.

Target Organs:

None Identified

Reproductive Effects:

Exposure to manganese metal may damage the reproductive system.

Carcinogenicity:

None Identified

<table>
<thead>
<tr>
<th>Component</th>
<th>NTP Listing</th>
<th>IARC Listing</th>
<th>OSHA Regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese chloride</td>
<td>No listing</td>
<td>No listing</td>
<td></td>
</tr>
</tbody>
</table>

Emergency First Aid Procedures

Skin Contact:

Wash with soap and water. Seek medical attention if irritation develops.

Eye Contact:

Flush eyes with water. If irritation persists, seek medical attention.

Inhalation:

Remove to fresh air.

Ingestion:

Give victim large amounts of water and induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention.

Additional First aid and Treatment Notes:
Emergency First Aid Procedures

No information available

Reactivity Data

Stability: Stable
Hazardous Polymerization: Will Not Occur
Incompatibles:
   Strong reducing agents, hydrogen peroxide, potassium, sodium, zinc.
Decomposition Products:
   Oxides of magnesium. Chlorine.
Conditions to Avoid:
   Excessive heat.

Spill and Disposal Procedures

Spill and Leak Procedures:
   Prevent spread of spill. Sweep or scoop into disposal container. Flush residues with water. Wear suitable protective equipment.
Disposal Procedures:
   Dispose in accordance with all Local, State and Federal regulations.

Protective Equipment

Ventilation:
   Use general or local exhaust ventilation to meet TLV and PEL requirements.
Respiratory Protection:
   None required where adequate ventilation conditions exist. If airborne concentration exceeds PEL or TLV a dust/mist respirator is recommended.
Skin and Eye Protective Equipment:
   Safety goggles, protective clothing and gloves. Maintain an eyewash station and safety shower nearby.

Storage and Handling Precautions

Storage Area: GENERAL
   Store in a cool, dry, well-ventilated area. Store away from incompatible materials. Protect containers from physical damage.

Transportation Information

☐ Regulated Material domestic ground transportation
   (reference: CFR Title 49, Transportation)
   Proper Shipping Name:
   UN or NA Identification number: Hazard Class and Label:
   Packing Group: Subsidiary Risk and Label:

☐ Regulated Material via Air Transportation
   (reference: ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air)
**Transportation Information**

<table>
<thead>
<tr>
<th>Proper Shipping Name:</th>
<th>Hazard Class and Label:</th>
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<tbody>
<tr>
<td>UN Identification Number:</td>
<td>Subsidiary Risk and Label:</td>
</tr>
<tr>
<td>Packing Group:</td>
<td>Packing Instruction</td>
</tr>
<tr>
<td>Max net qty per package</td>
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</tr>
<tr>
<td>Passenger Aircraft:</td>
<td></td>
</tr>
<tr>
<td>Cargo Aircraft:</td>
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</table>

**Regulatory Information**

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA Inventory</th>
<th>CERCLA RQ</th>
<th>SARA EHS TPQ</th>
<th>SARA 313 Toxic Release de minimus</th>
<th>SARA Hazard Categories:</th>
<th>Clean Air Act Categories:</th>
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<tbody>
<tr>
<td>Manganese chloride</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td>Acute</td>
<td>SOCMII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chronic</td>
<td>HAP</td>
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<tr>
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<td>Flammability</td>
<td>Volatile HAP</td>
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<td></td>
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<td>Pressure</td>
<td>Organic HAP</td>
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<td></td>
<td></td>
<td></td>
<td>Reactivity</td>
<td>Ozone Depleting</td>
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**MSDS Revision History:**

002 - Changed header phone number
003 - Format revisions; updated header phone number
004 - Updated Header Information

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***** END OF MSDS *****