Dear Customer,

This File Contains Both The ANSI Material Safety Data Sheet and The GHS Safety Data Sheet For The Same Product

Spectrum is currently transitioning all chemical product labeling from the ANSI\(^1\) format to the GHS\(^2\) format (see note below). In order to ensure that you receive complete labeling during the transition, we have included both the ANSI MSDS and the GHS SDS in a single file. The ANSI MSDS is given first, followed by the GHS SDS. Please use whichever matches the container label.

**Why It Matters:**

The complete precautionary labeling for this chemical consists of BOTH the label on the container AND the matching Material Safety Data Sheet (for ANSI labels) or Safety Data Sheet (for GHS labels). Both elements of the labeling [Label + (M)SDS] are written to be read and understood together, so as to provide complete precautionary information. It is intended for you to read and understood BOTH before handling or using the chemical.

**Picking the Right One: 2 Easy Ways To Tell Whether Your Container Has an ANSI Label or a GHS Label**

1) GHS labels: any pictogram displayed in the upper left-hand corner will be inside a red diamond. ANSI labels: pictograms, if present, will be inside individual black boxes.

2) GHS labels: on the bottom of the right-hand panel of the label, locate the Lot Number. Directly to the left will be a string of control characters, followed by a single letter. For GHS labels, the string of characters will end in “GHS.”
Sincerely,

Regulatory Affairs

---

1 American National Standards Institute
2 Globally Harmonized System for Hazard Communication
2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Not classified

Hazard not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Carbonate</td>
<td>598-62-9</td>
<td>100</td>
<td>*</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures

General Advice: Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126)

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops. Consult a physician if necessary.

Eye Contact: Flush eye with water for 15 minutes. Get medical attention if irritation occurs. If symptoms persist, call a physician.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most important symptoms and effects, both acute and delayed

Symptoms Health injuries are not known or expected under normal use.

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: The product is not flammable.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical

Hazardous Combustion Products: No information available.

Specific hazards: No information available.

Special Protective Actions for Firefighters

Specific Methods: No information available.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

Product code: M1100  Product name: MANGANESE CARBONATE, POWDER, REAGENT
6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions:
Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Remove all sources of ignition.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment
Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Technical Measures/Precautions:
Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

Safe Handling Advice:
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not ingest. Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:
Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:
Acids. Oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
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<tbody>
<tr>
<td>Manganese Carbonate - 598-62-9</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
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<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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<tr>
<td>Manganese Carbonate - 598-62-9</td>
<td>None</td>
<td>None</td>
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<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
</tr>
<tr>
<td>Mexico</td>
</tr>
</tbody>
</table>

Product code: M1100
Product name: MANGANESE
CARBONATE, POWDER, REAGENT
Appropriate engineering controls

Engineering measures to reduce exposure: Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Safety glasses. Safety glasses with side-shields.

Skin and body protection: Chemical resistant apron. Gloves. Long sleeved clothing.

Respiratory protection: Effective dust mask. Wear respirator with dust filter.

Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES
## 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical state:</strong></td>
<td>Solid.</td>
</tr>
<tr>
<td><strong>Odor:</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Formula:</strong></td>
<td>MnCO₃</td>
</tr>
<tr>
<td><strong>Flash Point Tested according to:</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Autoignition Temperature (°C/°F):</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Boiling point/range(°C/°F):</strong></td>
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<tr>
<td><strong>Specific gravity:</strong></td>
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<tr>
<td><strong>Evaporation rate:</strong></td>
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<tr>
<td><strong>Odor threshold (ppm):</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Miscibility:</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Solubility:</strong></td>
<td>Almost insoluble in common organic acids, both concentrated or dilute Insoluble in alcohol Insoluble in Ammonia Insoluble in cold water Insoluble in hot water Soluble in dilute inorganic acid</td>
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<tr>
<td><strong>Color:</strong></td>
<td>Pink. Off-white.</td>
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<td><strong>Molecular/Formula weight:</strong></td>
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<td><strong>pH:</strong></td>
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<tr>
<td><strong>Vapor pressure @ 20°C (kPa):</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Vapor density:</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water):</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Partition coefficient (water):</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Viscosity:</strong></td>
<td>No information available</td>
</tr>
</tbody>
</table>

## 10. STABILITY AND REACTIVITY

### Reactivity
- Reactive with acids
- Reactive with oxidizing agents
- Air sensitive

### Chemical stability
- **Stability:** Hygroscopic. Stable at normal conditions.
- **Possibility of Hazardous Reactions:** Hazardous polymerization does not occur
- **Conditions to avoid:** Heat. Ignition sources. Incompatible materials. Exposure to air. Exposure to moisture.
- **Incompatible Materials:** Acids. Oxidizing agents.
- **Hazardous decomposition products:** No information available

### Other Information
- **Corrosivity:** No information available

**Product code:** M1100  
**Product name:** MANGANESE CARBONATE, POWDER, REAGENT
11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation.

Acute Toxicity

Component Information

*Manganese Carbonate - 598-62-9*
- LD50/oral/rat = No information available
- LD50/oral/mouse = No information available
- LD50/dermal/rat = No information available
- LD50/dermal/rabbit = No information available
- LC50/inhalation/rat = No information available
- LC50/inhalation/mouse = No information available
- Other LD50 or LC50 information = No information available

Product Information

- LD50/oral/rat = VALUE- Acute Tox Oral = No information available
- LD50/oral/mouse = VALUE- Acute Tox Oral = No information available
- LD50/dermal/rabbit = VALUE-Acute Tox Dermal = No information available
- LD50/dermal/rat = VALUE -Acute Tox Dermal = No information available
- LC50/inhalation/rat = VALUE-Vapor = No information available
- VALUE-Gas = No information available
- VALUE-Dust/Mist = No information available
- LC50/Inhalation/mouse = VALUE-Vapor = No information available
- VALUE - Gas = No information available
- VALUE - Dust/Mist = No information available

Symptoms

- Skin Contact: May cause skin irritation.
- Eye Contact: May cause eye irritation.
- Inhalation: May cause respiratory tract irritation.
- Ingestion: Health injuries are not known or expected under normal use.
- Aspiration hazard: No information available

Product code: M1100

Product name: MANGANESE CARBONATE, POWDER, REAGENT
Delayed and immediate effects as well as chronic effects from short and long-term exposure
TOXICITY INFORMATION FOR MANGANESE and MANGANESE COMPOUNDS:
A. EFFECTS OF ACUTE EXPOSURE:
Manganese has low toxicity in acute exposure. Acute manganese poisoning is rare. The main route of occupational exposure is inhalation. There is low (10 percent) gastrointestinal absorption of manganese. Manganese is mainly toxic to the central nervous system, producing psychiatric symptoms, dystonia, rigidity, decreased manual dexterity and gait disturbances. It is mildly irritating to the eyes, skin and mucous membranes. "Metal fume fever" can result from inhalation of manganese fumes. This flu-like condition includes fever, chills, upset stomach, vomiting, weakness, headache, body aches, muscle pains, dry mouth and throat, coughing, tightness of the chest, dyspnea and rales. Symptoms usually arise several hours after exposure, and subside in a day.

A high incidence of pneumonia has been reported after exposure to manganese dust or fumes. "Manganese pneumonia" has been reported in mine workers. The clinical signs of this pneumonia are acute alveolar inflammation, marked dyspnea, shallow respiration and subsequent facial cyanosis. Exposure can cause pneumonitis and an increased susceptibility to infection. Inhalation of manganese aerosols produced alternating movements, torpor, nervousness, tremor, yawning, and cyanosis in monkeys, followed by permanent neurological effects.

B. EFFECTS OF CHRONIC EXPOSURE
The target organs for chronic manganese exposure are the CENTRAL NERVOUS SYSTEM and LUNGS; chronic liver failure may also occur. The lowest exposure of manganese that will produce neurologic and pulmonary effects is not known. There are wide differences in susceptibility to manganese poisoning; the effects may or may NOT be reversible after removal from exposure. Reversibility of effects may be related to liver function.

Chronic manganese poisoning (MANGANISM) may follow substantial heavy exposure to manganese for 6 months to 3 years. Severe manganism has been reported mainly in miners, persons processing manganese ore, and WELDERS [WELDING]. Gross clinical manganese poisoning occurs mainly after very heavy exposures. Manganese toxicity occurs in three stages, with behavioral changes initially, followed by motor changes, and finally dystonia and gait changes. Early signs of manganese poisoning include mood swings ('manganese madness'), nervousness, irritability, restlessness, fatigue, headache, apathy, languor, loss of appetite, insomnia and then somnolence, uncontrollable laughter followed by crying, hallucinations, delusions, compulsions, aggressiveness, weakness in the legs, memory loss, decreased libido, impotence, salivation and hearing loss. Motor signs include and expressionless, mask-like appearance of the face, speech impairment with a low-volume monotone, decreased manual dexterity, clumsy movements and a spastic or slow gait with a tendency to fall while walking. Finally, parkinsonian changes develop, with cogwheel rigidity, gait changes ('cock walk') and a low-frequency, low-amplitude tremor. Although severe manganese poisoning may not be fatal, it produces permanent crippling effects that clinically resemble parkinsonism. Progressive parkinsonism may occur many years after cessation of manganese exposure (Huan et al, 1993). Although manganism and parkinsonism have similar clinical manifestations, they differ in that manganism features a 'cock walk', difficulty in walking backwards, a tendency to fall backward when displaced, and a fine nonresting tremor.

Chronic inhalation of manganese dust can affect the lungs, causing manganese pneumonitis, bronchitis and nasal irritation, increased susceptibility to pneumonia, asthma, and a condition similar to 'metal fume fever'. Anemia has been reported following chronic manganese exposure, perhaps due to interference with iron metabolism.

Chronic exposure to manganese in the drinking water at levels of less than 0.050 mg/L to 2.16 mg/L was not associated with adverse neurological effects, including parkinsonism and fine motor coordination. Subtle neurological and motor effects correlating with blood manganese levels were
seen in persons with environmental exposure to manganese, and may reflect a continuum of severity. Early signs of environmental manganism may include slower responses and motor functions, memory and intellectual deficits, mood changes, and tremor.

**Sensitization:** No information available

**Mutagenic Effects:** No information available

**Carcinogenic effects:** Not considered carcinogenic

<table>
<thead>
<tr>
<th>Components</th>
<th>ACGIH - Carcinogens</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Carbonate</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Reproductive toxicity** No data is available

**Reproductive Effects:** May cause adverse reproductive effects based on animal data.

**Developmental Effects:** No information available

**Teratogenic Effects:** May cause birth defects (teratogenic effects) based on animal test data

**Specific Target Organ Toxicity**

<table>
<thead>
<tr>
<th>STOT - single exposure</th>
<th>No information available</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOT - repeated exposure</td>
<td>No information available</td>
</tr>
<tr>
<td>Target Organs:</td>
<td>No information available</td>
</tr>
</tbody>
</table>

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** No data available.

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available

**Mobility:** No information available

**13. DISPOSAL CONSIDERATIONS**

**Disposal Methods**

**Waste from residues / unused products:** Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:** Empty containers should be taken for local recycling, recovery or waste disposal

Product code: M1100  Product name: MANGANESE CARBONATE, POWDER, REAGENT
**14. TRANSPORT INFORMATION**

### DOT
- **UN-No:** Not Regulated
- **Proper Shipping Name:** No information available
- **Hazard Class:** No information available
- **Subsidiary Risk:** No information available
- **Packing Group:** None
- **ERG No:** No information available
- **Marine Pollutant:** No data available
- **DOT RQ (lbs):** No information available

### TDG (Canada)
- **UN-No:** Not Regulated
- **Proper Shipping Name:** No information available
- **Hazard Class:** No information available
- **Subsidiary Risk:** No information available
- **Packing Group:** No information available
- **Description:** No information available

### ADR
- **UN-No:** Not Regulated
- **Proper Shipping Name:** No information available
- **Hazard Class:** No information available
- **Packing Group:** No information available
- **Subsidiary Risk:** No information available
- **Classification Code:** No information available
- **Description:** No information available
- **CEFIC Tremcard No:** No information available

### IMO / IMDG
- **UN-No:** Not Regulated
- **Proper Shipping Name:** No information available
- **Hazard Class:** No information available
- **Subsidiary Risk:** No information available
- **Packing Group:** No information available
- **Description:** No information available
- **IMDG Page:** No information available
- **Marine Pollutant:** No information available
- **MFAQ:** No information available
- **Maximum Quantity:** No information available

### RID
- **UN-No:** Not Regulated
- **Proper Shipping Name:** No information available
- **Hazard Class:** No information available
- **Subsidiary Risk:** No information available
- **Packing Group:** No information available
- **Classification Code:** No information available
- **Description:** No information available

**Product code:** M1100  
**Product name:** MANGANESE CARBONATE, POWDER, REAGENT
14. TRANSPORT INFORMATION

ICAO
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Description: No information available

IATA
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Description: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>KOREA KECL</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
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<tbody>
<tr>
<td>Manganese Carbonate</td>
<td>Present</td>
<td>Present KE-23008</td>
<td>Present</td>
<td>Present (1)-156</td>
<td>Present</td>
<td>Present</td>
<td>Present 209-942-9</td>
</tr>
</tbody>
</table>

U.S. Regulations


Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
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</thead>
<tbody>
<tr>
<td>Manganese Carbonate</td>
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<td>Not Listed</td>
<td>Not Listed</td>
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</tr>
</tbody>
</table>

CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Carbonate</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
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</table>

U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Carbonate</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

Canada
WHMIS hazard class:
D2B  Toxic materials

Manganese Carbonate
D2B

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

<table>
<thead>
<tr>
<th>Components</th>
<th>WHMIS Ingredient Disclosure List -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Carbonate</td>
<td>0.1 %</td>
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Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
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</thead>
<tbody>
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<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
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</thead>
<tbody>
<tr>
<td>Manganese Carbonate</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

EU Classification

R-phrase(s)
R-phrase(s)

S -phrase(s)
S22 - Do not breathe dust.
S24/25 - Avoid contact with skin and eyes.

<table>
<thead>
<tr>
<th>Components</th>
<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Carbonate</td>
<td></td>
<td>No information</td>
<td></td>
</tr>
</tbody>
</table>

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
None.

16. OTHER INFORMATION
Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet
# Material Safety Data Sheet

## Section 1. Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>Common Name/Trade Name</th>
<th>Manganese carbonate</th>
<th>Catalog Number(s)</th>
<th>XX221, M1100, M1101</th>
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</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>SPECTRUM LABORATORY PRODUCTS INC.</td>
<td>CAS#</td>
<td>598-62-9</td>
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<tr>
<td></td>
<td>14422 S. SAN PEDRO STREET</td>
<td>RTECS</td>
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<tr>
<td></td>
<td>GARDENA, CA 90248</td>
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<td>TSCA 8(b) inventory: MnCO₃</td>
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<tr>
<td>Commercial Name(s)</td>
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<td>CI#</td>
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<td>Synonym</td>
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<td>Supplier</td>
<td>SPECTRUM LABORATORY PRODUCTS INC.</td>
</tr>
<tr>
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<td>14422 S. SAN PEDRO STREET</td>
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<tr>
<td></td>
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<td></td>
<td>GARDENA, CA 90248</td>
</tr>
</tbody>
</table>

**IN CASE OF EMERGENCY**
CHEMTREC (24hr) 800-424-9300

CALL (310) 516-8000

## Section 2. Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Manganese carbonate</td>
<td>598-62-9</td>
<td>1</td>
<td>3</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Toxicological Data on Ingredients**

Manganese carbonate
LD50: Not available.
LC50: Not available.

## Section 3. Hazards Identification

**Potential Acute Health Effects**
Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

**Potential Chronic Health Effects**

- **CARCINOGENIC EFFECTS**: Not available.
- **MUTAGENIC EFFECTS**: Not available.
- **TERATOGENIC EFFECTS**: Not available.
- **DEVELOPMENTAL TOXICITY**: Not available.

The substance may be toxic to lungs, central nervous system (CNS).
Repeated or prolonged exposure to the substance can produce target organs damage.

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**Continued on Next Page**
### Section 4. First Aid Measures

| Eye Contact | Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs. |
| Skin Contact | Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. |
| Serious Skin Contact | Not available. |
| Inhalation | If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. |
| Serious Inhalation | Not available. |
| Ingestion | Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband. |
| Serious Ingestion | Not available. |

### Section 5. Fire and Explosion Data

| Flammability of the Product | Non-flammable. |
| Auto-Ignition Temperature | Not applicable. |
| Flash Points | Not applicable. |
| Flammable Limits | Not applicable. |
| Products of Combustion | Not available. |
| Fire Hazards in Presence of Various Substances | Not applicable. |
| Fire Fighting Media and Instructions | Not applicable. |
| Special Remarks on Fire Hazards | Not available. |
| Special Remarks on Explosion Hazards | Not available. |

### Section 6. Accidental Release Measures

| Small Spill | Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements. |
| Large Spill | Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities. |

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Continued on Next Page
Section 7. Handling and Storage

Precautions

Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids.

Storage

Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection

Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits

TWA: 5 (mg(Mn)/m$^3$) from OSHA (PEL) [United States]
TWA: 0.2 (mg(Mn)/m$^3$) from ACGIH (TLV) [United States]
TWA: 1 STEL: 3 (mg(Mn)/m$^3$) from NIOSH [United States]

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance

Solid. (Powdered solid.)

Odor

Not available.

Molecular Weight

114.95 g/mole

Taste

Not available.

pH (1% soln/water)

Not applicable.

Color

Pink to almost white

Boiling Point

Not available.

Decomposition temperature: >200°C (392°F)

Critical Temperature

Not available.

Specific Gravity

Density: 3.7 (Water = 1)

Vapor Pressure

Not applicable.

Vapor Density

Not available.

Volatility

Not available.

Odor Threshold

Not available.

Water/Oil Dist. Coeff.

Not available.

Ionicity (in Water)

Not available.

Dispersion Properties

Not available.

Solubility

Insoluble in cold water, hot water.
Soluble in dilute inorganic acid.
Insoluble in alcohol, ammonia.
Almost insoluble in common organic acids, both concentrated or dilute.
**Section 10. Stability and Reactivity Data**

<table>
<thead>
<tr>
<th>Stability</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instability</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Incompatible materials, moisture</td>
</tr>
<tr>
<td>Incompatibility with various substances</td>
<td>Reactive with oxidizing agents, acids.</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Non-corrosive in presence of glass.</td>
</tr>
</tbody>
</table>

**Special Remarks on Reactivity**
Air sensitive. Will darken (yellow or brown) when exposed to air. Hygroscopic; keep container tightly closed.

**Special Remarks on Corrosivity**
Not available.

**Polymerization**
Will not occur.

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**Section 11. Toxicological Information**

<table>
<thead>
<tr>
<th>Routes of Entry</th>
<th>Inhalation. Ingestion.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to Animals</td>
<td>LD50: Not available. LC50: Not available.</td>
</tr>
</tbody>
</table>

**Chronic Effects on Humans**
May cause damage to the following organs: lungs, central nervous system (CNS).

**Other Toxic Effects on Humans**
Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals**
Not available.

**Special Remarks on Chronic Effects on Humans**
Manganese or Manganese compounds may cause adverse reproductive effects and birth defects (teratogenic) based on animal test data. Human reproductive toxicity related to manganese deficiency or excess has not been established
Human: passes the placental barrier, detected in maternal milk.

**Special Remarks on other Toxic Effects on Humans**
Acute Potential Health Effects:
Skin: May cause skin irritation. It is not absorbed through the skin
Eyes: May cause eye irritation.
Inhalation: May cause respiratory tract irritation.
Ingestion: Oral toxicity is low.
No other toxicity information found for Manganese carbonate itself.

**TOXICITY INFORMATION FOR MANGANESE and MANGANESE COMPOUNDS:**

A. **EFFECTS OF ACUTE EXPOSURE:**
Manganese has low toxicity in acute exposure. Acute manganese poisoning is rare. The main route of occupational exposure is inhalation. There is low (10 percent) gastrointestinal absorption of manganese.
Manganese is mainly toxic to the central nervous system, producing psychiatric symptoms, dystonia, rigidity, decreased manual dexterity and gait disturbances.. It is mildly irritating to the eyes, skin and mucous membranes.
"Metal fume fever" can result from inhalation of manganese fumes. This flu-like condition includes fever, chills, upset stomach, vomiting, weakness, headache, body aches, muscle pains, dry mouth and throat, coughing, tightness of the chest, dyspnea and rales. Symptoms usually arise several hours after exposure, and subside in a day.
A high incidence of pneumonia has been reported after exposure to manganese dust or fumes. "Manganese pneumonia" has been reported in mine workers. The clinical signs of this pneumonia are acute alveolar inflammation, marked dyspnea, shallow respiration and subsequent facial cyanosis. Exposure can cause pneumonitis and an increased susceptibility to infection. Inhalation of manganese aerosols produced alternating movements, torpor, nervousness, tremor, yawning, and cyanosis in monkeys, followed by permanent neurological effects.

B. **EFFECTS OF CHRONIC EXPOSURE**
The target organs for chronic manganese exposure are the CENTRAL NERVOUS SYSTEM and LUNGS; chronic liver failure may also occur. The lowest exposure of manganese that will produce neurologic and pulmonary effects is not known. There are wide differences in susceptibility to manganese poisoning; the effects...
Manganese carbonate may or may NOT be reversible after removal from exposure. Reversibility of effects may be related to liver function. Chronic manganese poisoning (MANGANISM) may follow substantial heavy exposure to manganese for 6 months to 3 years. Severe manganism has been reported mainly in miners, persons processing manganese ore, and WELDERS [WELDING]. Gross clinical manganese poisoning occurs mainly after very heavy exposures. Manganese toxicity occurs in three stages, with behavioral changes initially, followed by motor changes, and finally dystonia and gait changes. Early signs of manganese poisoning include mood swings ('manganese madness'), nervousness, irritability, restlessness, fatigue, headache, apathy, languor, loss of appetite, insomnia and then somnolence, uncontrollable laughter followed by crying, hallucinations, delusions, compulsions, aggressiveness, weakness in the legs, memory loss, decreased libido, impotence, salivation and hearing loss. Motor signs include and expressionless, mask-like appearance of the face, speech impairment with a low-volume monotone, decreased manual dexterity, clumsy movements and a spastic or slow gait with a tendency to fall while walking. Finally, parkinsonian changes develop, with cogwheel rigidity, gait changes ('cock walk') and a low-frequency, low-amplitude tremor. Although severe manganese poisoning may not be fatal, it produces permanent crippling effects that clinically resemble parkinsonism. Progressive parkinsonism may occur many years after cessation of manganese exposure (Huan et al, 1993). Although manganism and parkinsonism have similar clinical manifestations, they differ in that manganism features a 'cock walk', difficulty in walking backwards, a tendency to fall backward when displaced, and a fine nonresting tremor.

Chronic inhalation of manganese dust can affect the lungs, causing manganese pneumonitis, bronchitis and nasal irritation, increased susceptibility to pneumonia, asthma, and a condition similar to 'metal fume fever'. Anemia has been reported following chronic manganese exposure, perhaps due to interference with iron metabolism. Chronic exposure to manganese in the drinking water at levels of less than 0.050 mg/L to 2.16 mg/L was not associated with adverse neurological effects, including parkinsonism and fine motor coordination. Subtle neurological and motor effects correlating with blood manganese levels were seen in persons with environmental exposure to manganese, and may reflect a continuum of severity. Early signs of environmental manganism may include slower responses and motor functions, memory and intellectual deficits, mood changes, and tremor.

### Section 12. Ecological Information

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD5 and COD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Products of Biodegradation</td>
<td>Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.</td>
</tr>
<tr>
<td>Toxicity of the Products of Biodegradation</td>
<td>The product itself and its products of degradation are not toxic.</td>
</tr>
<tr>
<td>Special Remarks on the Products of Biodegradation</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

### Section 13. Disposal Considerations

| Waste Disposal | Waste must be disposed of in accordance with federal, state and local environmental control regulations. |

### Section 14. Transport Information

<table>
<thead>
<tr>
<th>DOT Classification</th>
<th>Not a DOT controlled material (United States).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Special Provisions for Transport</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations

- TSCA 8(b) inventory: Manganese carbonate
- SARA 313 toxic chemical notification and release reporting: Manganese and Manganese compounds

California Proposition 65 Warnings

- EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Regulations

- Other Classifications
  - WHMIS (Canada) CLASS D-2B: Material causing other toxic effects (TOXIC).
  - DSCL (EEC) This product is not classified according to the EU regulations.

Other Classifications

- Health Hazard
- Fire Hazard
- Reactivity
- Personal Protection

HMIS (U.S.A.)

- Health Hazard
- Fire Hazard
- Reactivity
- Personal Protection

WHMIS (Canada) (Pictograms)

DSCL (Europe) (Pictograms)

TDG (Canada) (Pictograms)

ADR (Europe) (Pictograms)

Protective Equipment

- Gloves.
- Lab coat.
- Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Continued on Next Page
Safety glasses.

Section 16. Other Information

| MSDS Code | M3340          |
| References | Not available. |
| Other Special Considerations | Not available. |

Verified by Sonia Owen.  
Printed 9/12/2006.

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.