

**FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL DAY OR NIGHT 1-800-561-8273 or  
CHEMTREC – DAY OR NIGHT 1 800-424-9300**

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

### 1.1 PRODUCT IDENTIFIER:

**TRADE NAME:** SIGNATURE® MANGANESE 4%

### 1.2 RECOMMENDED USE:

CORRECTION OF MANGANESE DEFICIENCIES

### 1.3 DISTRIBUTED BY:

LOVELAND PRODUCTS CANADA, INC.

PO Box 5234 | 64137 Hwy 543 E • High River, Alberta T1V 1M4

### 1.4 24 Hour Emergency Phone: (Chemtrec): 1-800-424-9300 (Toll Free) - Additional Emergency Phone 1-800-561-8273

Loveland Technical Service: 1-800-328-4678

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

Eye Damage/Irritation  
Acute Toxicity - Dermal  
Acute Toxicity - Oral

Category 2B  
Category 5  
Category 5

H320  
H313  
H302

### 2.2 Label elements



Signal word:

WARNING

Hazard Statement:

H320 – Causes eye irritation.  
H313 – May be harmful in contact with skin.  
H302 – Harmful if swallowed

Precautionary  
Statement:

P261 – Avoid breathing dust / fume / gas / mist / vapors / spray.  
P273 – Avoid release to the environment.

(Prevention):

P280 – Wear protective gloves and eye / face protection.

Precautionary

P337+P313 – If eye irritation persists: get medical attention.

Statement:

P305+P351+P338 – IF IN EYES: Rinse with water for 15 to 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

(Response):

P302+P352 – IF ON SKIN: Wash with plenty of water for 15 to 20 minutes

Precautionary

Statement:

(General):

P101+P102+P103 – If medical advice is needed, have product container or label available. Keep out of reach of children.  
Read label before use

### 2.3 Other hazards

None known

### 3. COMPOSITION, INFORMATION ON INGREDIENTS

#### 3.1 Substances

#### 3.2 Mixtures

Chemical Name:	CAS No.	Concentration [%]
Ammonium Citrate	3012-65-5	15 – 35
Manganese Sulphate	7785-87-7	15 – 35
Leonardite	1415-93-6	5 – 10
Manganese Oxide	1344-43-0	≤ 2.5
Water	7732-18-5	25 – 50

### 4. FIRST AID MEASURES

#### 4.1 Description of First Aid Measures

General Advice: Get medical attention if symptoms occur.

- Eye contact:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.
- Ingestion:** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.
- Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.
- Inhalation:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferable by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice.

#### 4.2 Most Important Symptoms and Effects, Acute and Delayed

Symptoms: Causes eye irritation.

#### 4.3 Immediate Medical Attention and Special Treatment

Treatment: **NOTES TO PHYSICIAN:** There is no specific antidote.

**FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-800-561-8273**

Take container, label or product name and Fertilizers Act Registration Number with you when seeking medical attention.

### 5. FIRE FIGHTING MEASURES

#### 5.1 EXTINGUISHING MEDIA:

Suitable Extinguishing Media: Foam, carbon dioxide (CO<sub>2</sub>), dry powder, water spray. Do not use water jet as this will spread the fire.

#### 5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE:

Specific Hazards During Firefighting: During a fire, oxides of carbon and silicon dioxide can be released.

#### 5.3 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS

Special Protective Equipment for Firefighters: Self-contained breathing apparatus and full protective gear should be worn in fighting large fires involving chemicals. Use water spray to keep fire exposed containers cool. Keep people away. Isolate fire and deny unnecessary entry.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Personal Precautions: Avoid inhalation of vapours and dusts and contact with skin and eyes. Ensure adequate ventilation. Wear suitable protective clothing.

### 6.2 ENVIRONMENTAL PRECAUTIONS

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not contaminate water. Do not allow to enter drains, sewers, or watercourses.

### 6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN-UP

Methods for Clean-Up: Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. After removal flush contaminated area thoroughly with water.  
Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to Remove residual contamination.  
Never return spills to original containers for re-use.

## 7. HANDLING AND STORAGE

### 7.1 PRECAUTIONS FOR SAFE HANDLING:

Advice on Safe Handling: Avoid inhalation of dusts, vapours / spray and contact with eyes, skin and clothing. Do not breathe dusts, mist or vapour. Wear personal protective equipment. Do not use in areas without adequate ventilation. Avoid prolonged exposure. Wash thoroughly after handling. Do not empty into drains. Handle and open container with care. Use care in handling/storage. Wash before eating, drinking and/or smoking.

### 7.2 CONDITIONS FOR SAFE STORAGE:

Requirements for Storage Areas and Containers: Store above 40 °F (4.4 °C). Store in original containers only. Keep containers tightly closed when not in use. Store in a cool, dry well-ventilated area, preferably in a locked storage area away from children, feed and food products and seed. Do not contaminate water, food or feed by storage or disposal.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 CONTROL PARAMETERS:

#### OCCUPATIONAL EXPOSURE LIMITS

##### U.S. Workplace Exposure Level (ACGIH) TLVs

Components	Type	Value
Ammonia	TWA	35 mg/m <sup>3</sup>
(ACGIH® TLVs®)	STEL/CEIL (C)	24 mg/m <sup>3</sup>

##### U.S. Workplace Exposure Level (OSHA) PELs

Components	Type	Value
No listings	TWA	

#### Biological limit values

##### ACGIH Biological Exposure Indices

Components	Value	Specimen
No listings		

### 8.2 EXPOSURE CONTROLS:

#### Engineering Measures

Provide adequate general and local exhaust ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors and spray mists. Provide eyewash station and safety shower.

#### Individual Protection Measures:

Eye / Face Protection: Goggles or shielded safety glasses are recommended.

Skin Protection: Chemical resistant clothing is recommended. Routinely wash work clothing and protective equipment to remove contaminants. The use of chemical-resistant gloves is recommended when handling undiluted product. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Respiratory Protection: In case of inadequate ventilation or risk of inhalation of mists or vapours, use suitable respiratory equipment approved by MSHA/NIOSH. Wear respiratory protection during operations where spraying or misting occurs. If respirators are used, a program should be in place to assure compliance with national or provincial standards. Wear air supplied respiratory protection if exposure concentrations are unknown.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**


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**9.1 APPEARANCE :** Liquid.  
**ODOUR:** Odourless.  
**ODOUR THRESHOLD:** No data available.  
**COLOUR:** Black.  
**pH:** 8.9.  
**MELTING POINT / FREEZING POINT:** No data available.  
**BOILING POINT:** 212 °F / 100 °C  
**FLASH POINT:** No data available.  
**FLAMMABILITY (solid, gas):** No data available.  
**UPPER / LOWER FLAMMABILITY OR EXPLOSIVE LIMITS:** No data available.  
**VAPOUR PRESSURE:** 17 mm Hg @ 20 °C.  
**SOLUBILITY:** Soluble.  
**PARTITION CO-EFFICIENT, n-OCTANOL / WATER:** No data available.  
**AUTO-IGNITION TEMPERATURE:** No data available.  
**DECOMPOSITION TEMPERATURE:** No data available.  
**VISCOSITY:** No data available.  
**SPECIFIC GRAVITY (Water = 1):** 1.319 g/ml.  
**DENSITY:** 1.32 kg/L / 11.00 lbs./gal.

Note: These physical data are typical values based on material tested but may vary from sample to sample.  
 Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

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**10. STABILITY AND REACTIVITY**


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**10.1 REACTIVITY**  
 Stable  
**10.2 CHEMICAL STABILITY**  
 Stable under normal temperature conditions  
**10.3 POSSIBILITY OF HAZARDOUS REACTIONS**  
 No reactions known under normal use conditions. Will not polymerize.  
**10.4 CONDITIONS TO AVOID**  
 None known.  
**10.5 INCOMPATIBLE MATERIALS**  
 None known.  
**10.6 HAZARDOUS DECOMPOSITION PRODUCTS**  
 None known.

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**11 TOXICOLOGICAL INFORMATION**


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**11.3 LIKELY ROUTES OF EXPOSURE**  
 Eye contact, skin contact.  
**LC<sub>50</sub> (rat):** No data available.  
**LD<sub>50</sub> Oral (rat):** 35 mg/m<sup>3</sup> (Ammonia); 2,150 mg/kg (Manganese Sulphate).  
**LD<sub>50</sub> Dermal (rabbit):** No data available.  
**Acute Toxicity Estimates:** No data available.  
**Eye Irritation (rabbit):** No data available.  
**Skin Irritation (rabbit):** No data available.  
**Inhalation:** No data available.  
**Ingestion:** No data available.  
**Specific Target Organ Toxicity:** No data available.  
**Aspiration:** No data available.  
**Skin Sensitization (guinea pig):** Not a sensitizer  
**Carcinogenicity:** None listed.  
**Germ Cell Mutagenicity:** No data available.  
**Interactive Effects:** None known.



## SAFETY DATA SHEET

SDS NUMBER: 2012066B-16b-LPI

SDS REVISIONS: SEC. 1

**SIGNATURE® MANAGANESE 4%**

DATE OF ISSUE: 10/25/16

SUPERSEDES: 06/08/16

### 12 ECOLOGICAL INFORMATION

#### 12.3 ECOTOXICITY

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. This product is not intended for use in aquatic settings.

##### Ecotoxicological Data

		Species	Test Results
Manganese Oxide (CAS: 1344-43-0)			
<b>Aquatic</b>			
Crustacea	EC <sub>50</sub>	Daphnia magna	>4 mg/L - 48 hours

Drift or runoff may adversely affect non-target plants.

Do not apply directly to water.

Do not contaminate water when disposing of equipment wash water.

Do not apply when weather conditions favor drift from target area.

#### 12.2 PERSISTENCE AND DEGRADABILITY

Biodegradability: Not rapidly biodegradable.

#### 12.3 BIOACCUMULATIVE POTENTIAL

Bioaccumulation: No data available.

#### 12.4 MOBILITY IN SOIL

No data available.

#### 12.5 OTHER ADVERSE EFFECTS

Assessment: No data available.

### 13 DISPOSAL CONSIDERATIONS

#### 13.1 WASTE TREATMENT METHODS

Do not reuse containers for any purpose. Make the empty container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Do not contaminate water, food, or feed by storage or disposal. For disposal, the container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse the product container for any other purpose.

### 14 TRANSPORT INFORMATION

#### 14.3 LAND TRANSPORT

TDG Shipping Description: NOT REGULATED.



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### 15 REGULATORY INFORMATION

#### 15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS

##### NFPA & HMIS Hazard Ratings:

##### NFPA

1 Health	0 Least
0 Flammability	1 Slight
0 Instability	2 Moderate
	3 High
	4 Severe

##### HMIS

1 Health
0 Flammability
0 Reactivity
B PPE

##### SARA Hazard Notification/Reporting

##### SARA Title III Hazard Category:

Immediate	<u>Y</u>
Delayed	<u>N</u>

Fire	<u>N</u>
Reactive	<u>N</u>

Sudden Release of Pressure	<u>N</u>
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**Reportable Quantity (RQ) under U.S. CERCLA:** Ammonium Citrate (CAS: 3012-65-5) 5,000 lbs.

**SARA, Title III, Section 313:** Manganese compounds

**RCRA Waste Code:** Not applicable.

**CA Proposition 65:** Not applicable.

**WHMIS [Canada]:** Not controlled under WHMIS.

### 16 OTHER INFORMATION

**SDS STATUS:** Section 1 revised.

**PREPARED BY:** Registrations and Regulatory Affairs

**REVIEWED BY:** Environmental Health and Safety

**FERTILIZERS ACT REG. NO.:** 2012066B

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