

MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT AND COMPANY INFORMATION

Trade Name (as labeled): Manganese Citrate 5%

Manufactured By: Moore Agricultural Products Company, Inc.
11521 Excelsior Avenue
Hanford, California 93230

Business Phone: (559) 583-8115

Emergency Phone: INFOTRAC – (800) 535-5053

Date of Preparation: July, 2005
Updated October, 2007

SECTION 2. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Name	CAS #	Exposure Limits In Air	
		ACGIH TVL (ppm)	OSHA PEL (ppm)
Manganese citrate is a liquid micronutrient fertilizer, this product is a mixture with no specific CAS number. Manganese citrate is derived from ammonia, manganese sulfate and citric acid			
NE = Not Established		NA = Not Available	

SECTION 3. EMERGENCY/HAZARDS OVERVIEW

Emergency Overview: Clear with liquid with slight ammonia odor. Mist may be irritating to the respiratory tract. Responders should be prepared with suitable gas masks or appropriate self-contained breathing apparatus (SCBA). Not D.O.T. regulated.

Symptoms Of Over Exposure:

Eyes: May cause inflammation, redness, and possible damage with prolonged exposure.

Skin: Prolonged or repeated exposure may cause skin ulcerations and /or burns.

Inhalation: It may cause headaches, nausea, or weakness in case of prolonged exposure. Oxygen can be administered if breathing becomes difficult.

Ingestion: May result in nausea, vomiting, diarrhea, digestive disorders, or chemical burns.

Hazardous Material Information Rating System:

(0 = least; 1 = slight; 2 = moderate; 3 = high; 4 = extreme)

Health (blue) 1
Flammability (red) 0
Reactivity (yellow) 0

SECTION 4. FIRST-AID MEASURES

<u>If Inhaled:</u>	Remove to fresh air. If breathing becomes difficult, contact a medical physician. Give artificial respiration if victim is not breathing and obtain immediate medical attention.
<u>If Ingested:</u>	Call physician or Poison Control Center immediately for most current information. Dilute with large amounts of water. Do not induce vomiting unless directed to do so by a medical professional. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow. If vomiting occurs, keep head lower than hips to prevent introduction of fluid into the lungs.
<u>In Case Of Skin Contact:</u>	Wash thoroughly with soap and water. Remove contaminated clothing and wash before reuse. Seek medical attention if skin becomes irritated.
<u>In Case Of Eye Contact:</u>	Flush immediately with water for at least 15 minutes, lifting the upper and lower eyelids occasionally. Call a physician if eye irritation persists.
Victims of chemical exposure and all rescuers must be taken for medical attention. Take a copy of label and MSDS to physician or health professional with victim.	

SECTION 5. FIRE-FIGHTING MEASURES

Flash Point:	Not flammable.
Test Method:	Not flammable.
LEL Flammable Limits:	Not flammable.
UEL Flammable Limits:	Not flammable.
Autoignition Temperature:	Not flammable.
Extinguishing Media:	Water spray, Foam, Carbon Dioxide, Dry-Chemical.
Unusual Fire and Explosion Hazards:	Avoid high temperatures that may cause thermal decomposition or explosion, especially in confined or poorly ventilated spaces.
Special Firefighting Procedures:	Wear positive pressure, self-contained breathing apparatus (SCBA) and goggles. Avoid exposure to smoke or fumes. Contain any liquid runoff.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill And Leak Response: For small or incidental spills, the minimum personal protective equipment should be rubber gloves, rubber apron, and chemical goggles. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Gas masks with ammonia canister or SCBA gear may be required. For large spills, contain by diking with soil or other non-combustible absorbent material. Dilution with water will reduce the release of ammonia vapors. Keep material out of sewers, storm drains, and surface waters. Comply with all applicable government regulations on spill reporting, handling, and waste disposal.

SECTION 7. STORAGE AND HANDLING

Storage Practices: Store in a cool (above 32°F), dry, well-ventilated area. This product should be stored in tanks constructed of stainless steel, fiberglass, polypropylene, or polyethylene. Valves should be inspected on a regular basis and replaced as needed to prevent leakage. Transfer equipment should be constructed of stainless steel or chemical-resistant plastic. Do

no store in aluminum vessels. For packaged product, do not stack pallets more than two (2) high. Do not store near food or feed.

Handling Practices:

Keep away from incompatible materials.. Do not breathe mists. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Wash with soap and water after handling.

Work/Hygiene Practices:

Avoid getting chemicals ON YOU or IN YOU. Wash hands with soap and water after handling chemicals. Do not eat or drink around or while handling chemicals. Keep out of reach of children.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Ventilation/Engineering Controls: Use with adequate ventilation to keep airborne levels below recommended exposure limits.

Respiratory Protection: If work conditions generate vapors or mist, wear a NIOSH approved respirator appropriate for those emission levels. Appropriate respirator may be a full facepiece respirator, an SCBA in the pressure demand mode, or a supplied-air respirator.

Eye Protection: Chemical dust/splash goggles or full-face shield to prevent eye contact. As a general rule, contact lenses should not be worn when working with chemicals because they contribute to the severity of an eye injury.

Hand Protection: Rubber gloves with gauntlets.

Body Protection: Use body protection appropriate for task. Chemical-resistant coveralls and rubber aprons are generally acceptable.

Other Protective Measures: An eyewash and safety shower should be nearby and ready for use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<u>Appearance:</u>	Clear, light brown liquid	<u>Boiling Point:</u>	>212°F
<u>Odor:</u>	Slight ammonia odor	<u>Freezing Point:</u>	<32°F
<u>pH:</u>	8.5 to 9.5	<u>Vapor Pressure:</u>	NA.
<u>Water Solubility:</u>	100%.	<u>Vapor Density (air = 1):</u>	NA.
<u>Density:</u>	10.3 lbs/gallon.		NA = Not Available.
<u>Specific Gravity (H₂O = 1):</u>	1.235		

SECTION 10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions and pressure.

Conditions To Avoid: Strong Acids

Incompatibility: Avoid high heat

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity Data:

Not Available

Acute Effects:

Eyes: Moderate irritant. May cause redness, burning, inflammation, and/or damage.

Skin: Moderate irritant, especially with prolonged exposure. May cause skin ulceration and/or burns.

Ingestion: May cause severe gastrointestinal irritation, vomiting, stomach cramps, and diarrhea. May interfere with circulation and oxygen carrying capacity of blood with prolonged exposure.

Inhalation: May cause irritation to mucous membranes, coughing, or breathing difficulties. If exposed to decomposition gases remove from area immediately.

Chronic Effects: Repeated overexposure may cause dermatitis, conjunctivitis or cataracts.

SECTION 12. ECOLOGICAL INFORMATION

Effect Of Material On Plants/Animals: May be harmful to fish, livestock, and wildlife. Dissolved mineral salts may cause irritation of the digestive tract. Non-persistent. Non-cumulative when applied using normal agricultural practices.

Effect Of Material On Aquatic Life: Not known

SECTION 13. DISPOSAL CONSIDERATIONS

Do not contaminate lakes, streams, ponds, estuaries, oceans, or other waters by discharge of waste effluents or equipment rinsate. Dispose of waste effluents according to federal, state, and local regulations. Chemical additions or other alterations of this product may invalidate any disposal information in this MSDS.

SECTION 14. TRANSPORTATION INFORMATION

This material is not regulated by US DOT for highway transportation.

Other Shipping Description: Fertilizing Compounds (Manufactured). Liquid
NMFC Item 68140 Sub 6, LTL Class 70

SECTION 15. REGULATORY INFORMATION

CERCLA: None listed for manganese compounds

SARA Reporting Requirements: SARA, TITLE III, SECTION 313: This product does contain toxic chemicals subject to the reporting requirements of Section 313 of The Emergency Planning and Community Right –To-Know Act of 1986 (40CFR 372): Manganese Compounds (15.6%)

California Proposition 65: WARNING. This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

SECTION 16. OTHER INFORMATION

The information and recommendations herein are taken from data contained in independent, industry recognized references including NIOSH, OSHA, ANSI, and NFPA. This information is, as of date listed above, true and accurate to the best of Moore Agricultural Products Company knowledge. It is intended for use by persons possessing technical knowledge and at their own discretion and risk. Since actual use is beyond our control, no guarantee, express or implied, and no liability is assumed by Moore Agricultural Products Company, Inc. in conjunction with the use of this information. Actual conditions of use and handling may require consideration of information other than, or in addition to, that which is provided herein.