

## MATERIAL SAFETY DATA SHEET

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Version 1.6

## Section 1 - Product and Company Information

Product Name MANGANESE CHLORIDE TETRAHYDRATE, MEETS  
USP TESTING SEPCIFICATIONS  
Product Number M8054  
Brand SIAL  
Company Sigma-Aldrich  
Address 3050 Spruce Street  
SAINT LOUIS MO 63103 US  
Technical Phone: 800-325-5832  
Fax: 800-325-5052  
Emergency Phone: 314-776-6555

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
MANGANESE CHLORIDE TETRAHYDRATE, MEETS USP TESTING SPECS.	13446-34-9	Yes

Formula  $MnCl_2 \cdot 4H_2O$   
Synonyms Manganese chloride tetrahydrate \* Manganese  
dichloride tetrahydrate \* Manganous chloride  
tetrahydrate  
RTECS Number: 009650000

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Harmful.

Harmful if swallowed. Harmful to aquatic organisms.

Target organ(s): Nerves. Lungs.

## HMIS RATING

HEALTH: 1\*

FLAMMABILITY: 0

REACTIVITY: 0

## NFPA RATING

HEALTH: 1

FLAMMABILITY: 0

REACTIVITY: 0

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

## Section 4 - First Aid Measures

## ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is  
conscious. Call a physician.

#### INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

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#### Section 5 - Fire Fighting Measures

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##### FLASH POINT

N/A

##### AUTOIGNITION TEMP

N/A

##### FLAMMABILITY

N/A

##### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
Specific Hazard(s): Emits toxic fumes under fire conditions.

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#### Section 6 - Accidental Release Measures

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##### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

##### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

##### METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

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#### Section 7 - Handling and Storage

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##### HANDLING

User Exposure: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

##### STORAGE

Suitable: Keep tightly closed.

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#### Section 8 - Exposure Controls / PPE

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##### ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

##### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are



Materials to Avoid: Sodium, Strong acids, Potassium, Zinc.

#### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Hydrogen chloride gas, Manganese/manganese oxides.

#### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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### Section 11 - Toxicological Information

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#### ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: Harmful if swallowed.

#### TARGET ORGAN(S) OR SYSTEM(S)

Lungs. Central nervous system.

#### SIGNS AND SYMPTOMS OF EXPOSURE

Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

#### TOXICITY DATA

Oral

Rat

1484 mg/kg

LD50

Intraperitoneal

Rat

138 MG/KG

LD50

Parenteral

Rat

225 MG/KG

LD50

Intraperitoneal

Mouse

144 MG/KG

LD50

Subcutaneous

Mouse

320 MG/KG

LD50

## CHRONIC EXPOSURE - TERATOGEN

Species: Rat  
Dose: 40 GM/KG  
Route of Application: Oral  
Exposure Time: (0-22D PREG/21D POST)  
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Newborn: Behavioral.

Species: Rat  
Dose: 47280 UG/KG  
Route of Application: Intravenous  
Exposure Time: (6-17D PREG)  
Result: Specific Developmental Abnormalities: Musculoskeletal system.

## CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat  
Dose: 141 GM/KG  
Route of Application: Oral  
Exposure Time: (90D PRE-21D POST)  
Result: Effects on Newborn: Behavioral.

Species: Rat  
Dose: 239 MG/KG  
Route of Application: Parenteral  
Exposure Time: (8-12D PREG)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species: Mouse  
Dose: 40 MG/KG  
Route of Application: Subcutaneous  
Exposure Time: (6-15D PREG)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species: Mouse  
Dose: 80 MG/KG  
Route of Application: Subcutaneous  
Exposure Time: (6-15D PREG)  
Result: Maternal Effects: Other effects. Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).  
Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse  
Dose: 50 MG/KG  
Route of Application: Subcutaneous  
Exposure Time: (9D PREG)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).  
Effects on Embryo or Fetus: Fetal death. Specific Developmental Abnormalities: Musculoskeletal system.

Species: Rabbit  
Dose: 105 MG/KG  
Route of Application: Intravenous  
Exposure Time: (30D MALE)  
Result: Paternal Effects: Testes, epididymis, sperm duct.

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## Section 12 - Ecological Information

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No data available.

ACUTE ECOTOXICITY TESTS

Test Type: LC50 Bacteria  
Time: 4.5 h  
Value: 47.5 mg/l

Test Type: EC50 Daphnia  
Species: Daphnia magna  
Time: 48 h  
Value: > 11 mg/l

Test Type: LC50 Fish  
Species: Carassius auratus (Goldfish)  
Time: 7 d  
Value: 18.8 mg/l

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Section 13 - Disposal Considerations

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APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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Section 14 - Transport Information

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DOT

Proper Shipping Name: None  
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA

Non-Hazardous for Air Transport: Non-hazardous for air transport.

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Section 15 - Regulatory Information

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EU ADDITIONAL CLASSIFICATION

Symbol of Danger: Xn  
Indication of Danger: Harmful.  
R: 22-52  
Risk Statements: Harmful if swallowed. Harmful to aquatic organisms.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Harmful.  
Risk Statements: Harmful if swallowed. Harmful to aquatic organisms.  
US Statements: Target organ(s): Nerves. Lungs.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes  
DEMINIMIS: 1 %  
NOTES: This product is subject to SARA section 313 reporting requirements. This product is subject to SARA section 313 reporting requirements.

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in

accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

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## Section 16 - Other Information

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### DISCLAIMER

For R&D or manufacturing use. Not for prescription compound or other uses.

### WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.