

## SAFETY DATA SHEET

Version 6.1  
Revision Date 05/28/2017  
Print Date 10/04/2019

---

1. PRODUCT AND COMPANY IDENTIFICATION

## 1.1 Product identifiers

Product name : Manganese(II) nitrate hydrate

Product Number : 288640

Brand : Aldrich

CAS-No. : 15710-66-4

## 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

## 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 Spruce Street  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765

Fax : +1 800 325-5052

## 1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887

---

2. HAZARDS IDENTIFICATION

## 2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Oxidizing solids (Category 3), H272

Skin irritation (Category 2), H315

Eye irritation (Category 2A), H319

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H272

May intensify fire; oxidizer.

H315

Causes skin irritation.

H319

Causes serious eye irritation.

H335

May cause respiratory irritation.

Precautionary statement(s)

P210

Keep away from heat.

|                    |  |
|--------------------|--|
| P220               | Keep/Store away from clothing/ combustible materials.  |
| P221               | Take any precaution to avoid mixing with combustibles.   |
| P261               | Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.   |
| P264               | Wash skin thoroughly after handling.   |
| P271               | Use only outdoors or in a well-ventilated area.  |
| P280               | Wear protective gloves/ eye protection/ face protection.   |
| P302 + P352        | IF ON SKIN: Wash with plenty of soap and water.  |
| P304 + P340 + P312 | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell. |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.                               |
| P332 + P313        | If skin irritation occurs: Get medical advice/ attention.  |
| P337 + P313        | If eye irritation persists: Get medical advice/ attention.   |
| P362               | Take off contaminated clothing and wash before reuse.  |
| P370 + P378        | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.  |
| P403 + P233        | Store in a well-ventilated place. Keep container tightly closed.   |
| P405               | Store locked up.   |
| P501               | Dispose of contents/ container to an approved waste disposal plant.  |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

|                  |  |
|------------------|--|
| Formula          | : $\text{MnN}_2\text{O}_6 \cdot x\text{H}_2\text{O}$ |
| Molecular weight | : 178.95 g/mol                                       |
| CAS-No.          | : 15710-66-4   |
| EC-No.           | : 233-828-8  |

#### Hazardous components

| Component                          | Classification  | Concentration |
|------------------------------------|---|---------------|
| <b>Manganese dinitrate hydrate</b> |   |               |
|                                    | Ox. Sol. 3; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; H272, H315, H319, H335 | <= 100 %      |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

- 4.3 Indication of any immediate medical attention and special treatment needed**  
No data available

---

## 5. FIREFIGHTING MEASURES

- 5.1 Extinguishing media**  
**Suitable extinguishing media**  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- 5.2 Special hazards arising from the substance or mixture**  
Manganese/manganese oxides
- 5.3 Advice for firefighters**  
Wear self-contained breathing apparatus for firefighting if necessary.
- 5.4 Further information**  
Use water spray to cool unopened containers.

---

## 6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures**  
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.  
For personal protection see section 8.
- 6.2 Environmental precautions**  
Do not let product enter drains.
- 6.3 Methods and materials for containment and cleaning up**  
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.
- 6.4 Reference to other sections**  
For disposal see section 13.

---

## 7. HANDLING AND STORAGE

- 7.1 Precautions for safe handling**  
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of dust. Dust formation should be taken into consideration before additional processing.  
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.  
For precautions see section 2.2.
- 7.2 Conditions for safe storage, including any incompatibilities**  
Keep container tightly closed in a dry and well-ventilated place.  
  
Recommended storage temperature 2 - 8 °C  
  
Hygroscopic. Handle and store under inert gas.
- 7.3 Specific end use(s)**  
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

---

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 Control parameters**  
**Components with workplace control parameters**

| Component                   | CAS-No.    | Value   | Control parameters | Basis  |
|-----------------------------|------------|---|--------------------|--|
| Manganese dinitrate hydrate | 15710-66-4 | CEIL  | 5.000000 mg/m3     | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|                             |            | C   | 5.000000 mg/m3     | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|                             | Remarks    | Ceiling limit is to be determined from breathing-zone air samples.  |                    |  |
|                             |            | TWA   | 0.200000 mg/m3     | USA. ACGIH Threshold Limit Values (TLV)  |
|                             |            | Central Nervous System impairment<br>Adopted values or notations enclosed are those for which changes are proposed in the NIC<br>See Notice of Intended Changes (NIC)<br>varies |                    |  |
|                             |            | TWA   | 1.000000 mg/m3     | USA. NIOSH Recommended Exposure Limits   |
|                             |            | ST  | 3.000000 mg/m3     | USA. NIOSH Recommended Exposure Limits   |
|                             |            | TWA   | 0.100000 mg/m3     | USA. ACGIH Threshold Limit Values (TLV)  |
|                             |            | Central Nervous System impairment<br>2015 Adoption<br>varies  |                    |  |
|                             |            | TWA   | 0.020000 mg/m3     | USA. ACGIH Threshold Limit Values (TLV)  |
|                             |            | Central Nervous System impairment<br>2015 Adoption<br>varies  |                    |  |
|                             |            | C   | 5 mg/m3            | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|                             |            | Ceiling limit is to be determined from breathing-zone air samples.  |                    |  |
|                             |            | TWA   | 0.1 mg/m3          | USA. ACGIH Threshold Limit Values (TLV)  |
|                             |            | Central Nervous System impairment<br>Not classifiable as a human carcinogen<br>varies   |                    |  |
|                             |            | TWA   | 0.02 mg/m3         | USA. ACGIH Threshold Limit Values (TLV)  |
|                             |            | Central Nervous System impairment<br>Not classifiable as a human carcinogen<br>varies   |                    |  |
|                             |            | TWA   | 1 mg/m3            | USA. NIOSH Recommended Exposure Limits   |
|                             |            | ST  | 3 mg/m3            | USA. NIOSH Recommended Exposure Limits   |

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Body Protection**

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use (EN 143) respirator cartridges as a backup to engineering controls. If th full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**

Do not let product enter drains.

---

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

- |   |  |
|---|--|
| a) Appearance                                   | Form: solid  |
| b) Odour  | No data available  |
| c) Odour Threshold                              | No data available  |
| d) pH   | No data available  |
| e) Melting point/freezing point                 | No data available  |
| f) Initial boiling point and boiling range      | No data available  |
| g) Flash point                                  | ( )Not applicable  |
| h) Evaporation rate                             | No data available  |
| i) Flammability (solid, gas)                    | No data available  |
| j) Upper/lower flammability or explosive limits | No data available  |
| k) Vapour pressure                              | No data available  |
| l) Vapour density                               | No data available  |
| m) Relative density                             | No data available  |
| n) Water solubility                             | No data available  |
| o) Partition coefficient: n-octanol/water       | No data available  |
| p) Auto-ignition temperature                    | No data available  |
| q) Decomposition temperature                    | No data available  |
| r) Viscosity                                    | No data available  |
| s) Explosive properties                         | No data available  |
| t) Oxidizing properties                         | The substance or mixture is classified as oxidizing with the category 3. |

**9.2 Other safety information**

No data available

---

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Avoid moisture.

### 10.5 Incompatible materials

Strong reducing agents, Strong acids

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Manganese/manganese oxides

Other decomposition products - No data available

In the event of fire: see section 5

---

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

No data available Manganese dinitrate hydrate

Dermal: No data available (Manganese dinitrate hydrate)

No data available (Manganese dinitrate hydrate)

#### Skin corrosion/irritation

No data available (Manganese dinitrate hydrate)

#### Serious eye damage/eye irritation

No data available (Manganese dinitrate hydrate)

#### Respiratory or skin sensitisation

No data available (Manganese dinitrate hydrate)

#### Germ cell mutagenicity

No data available (Manganese dinitrate hydrate)

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

#### Reproductive toxicity

No data available (Manganese dinitrate hydrate)

No data available (Manganese dinitrate hydrate)

#### Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation. (Manganese dinitrate hydrate)

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available (Manganese dinitrate hydrate)

## Additional Information

RTECS: Not available

Men exposed to manganese dusts showed a decrease in fertility. Chronic man system. Early symptoms include languor, sleepiness and weakness in the le disturbances such as uncontrollable laughter and a spastic gait with tend cases. High incidence of pneumonia has been found in workers exposed to t, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(Manganese dinitrate hydrate)

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence(Manganese dinitrate hydrate)

---

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available(Manganese dinitrate hydrate)

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

No data available

---

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. 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 chem scrubber.

#### Contaminated packaging

Dispose of as unused product.

---

## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 2724      Class: 5.1      Packing group: III

Proper shipping name: Manganese nitrate

Poison Inhalation Hazard: No

### IMDG

UN number: 2724      Class: 5.1      Packing group: III      EMS-No: F-A, S-Q

Proper shipping name: MANGANESE NITRATE

### IATA

UN number: 2724      Class: 5.1      Packing group: III

Proper shipping name: Manganese nitrate

---

## 15. REGULATORY INFORMATION

### SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

|                             | CAS-No.    | Revision Date |
|-----------------------------|------------|---------------|
| Manganese dinitrate hydrate | 15710-66-4 | 1987-01-01    |

### SARA 311/312 Hazards

Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

### Pennsylvania Right To Know Components

|                             | CAS-No.    | Revision Date |
|-----------------------------|------------|---------------|
| Manganese dinitrate hydrate | 15710-66-4 | 1987-01-01    |

### New Jersey Right To Know Components

|                             | CAS-No.    | Revision Date |
|-----------------------------|------------|---------------|
| Manganese dinitrate hydrate | 15710-66-4 | 1987-01-01    |

### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

---

## 16. OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3.

|      |                                   |
|------|-----------------------------------|
| H272 | May intensify fire; oxidizer.     |
| H315 | Causes skin irritation.           |
| H319 | Causes serious eye irritation.    |
| H335 | May cause respiratory irritation. |

### HMIS Rating

|                        |   |
|------------------------|---|
| Health hazard:         | 2 |
| Chronic Health Hazard: | * |
| Flammability:          | 0 |
| Physical Hazard        | 1 |

### NFPA Rating

|                    |    |
|--------------------|----|
| Health hazard:     | 2  |
| Fire Hazard:       | 0  |
| Reactivity Hazard: | 1  |
| Special hazard.I:  | OX |

### Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only. 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 Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

### Preparation Information

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

Version: 6.1

Revision Date: 05/28/2017

Print Date: 10/04/2019



