

## 1 Identification

### Product identifier

**Product name:** Manganese(II) nitrate, 50% w/w aqueous solution

**Stock number:** 33340

**Relevant identified uses of the substance or mixture and uses advised against.**

**Identified use:** SU24 Scientific research and development

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

#### Manufacturer/Supplier:

Alfa Aesar  
Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Tel: 800-343-0660  
Fax: 800-322-4757  
Email: tech@alfa.com  
www.alfa.com

**Information Department:** Health, Safety and Environmental Department

#### Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

### Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS03 Flame over circle

Ox. Liq. 2 H272 May intensify fire; oxidizer.



GHS08 Health hazard

STOT RE 2 H373 May cause damage to the brain through prolonged or repeated exposure. Route of exposure: Inhalative.



GHS05 Corrosion

Skin Corr. 1C H314 Causes severe skin burns and eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

**Hazards not otherwise classified** No information known.

### Label elements

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

### Hazard pictograms



GHS03 GHS05 GHS07 GHS08

### Signal word

Danger

### Hazard-determining components of labeling:

Manganese(II) nitrate

### Hazard statements

H272 May intensify fire; oxidizer.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H373 May cause damage to the brain through prolonged or repeated exposure. Route of exposure: Inhalative.

### Precautionary statements

P221 Take any precaution to avoid mixing with combustibles.

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### WHMIS classification

D1B - Toxic material causing immediate and serious toxic effects

D2A - Very toxic material causing other toxic effects

E - Corrosive material



### Classification system

#### HMIS ratings (scale 0-4)

#### (Hazardous Materials Identification System)

HEALTH 3 Health (acute effects) = 3

FIRE 0 Flammability = 0

REACTIVITY 2 Physical Hazard = 2

### Other hazards

#### Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

**Product name: Manganese(II) nitrate, 50% w/w aqueous solution**

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### 3 Composition/information on ingredients

#### Chemical characterization: Mixtures

#### Dangerous components:

10377-66-9	Manganese(II) nitrate	50.0%
	Ox. Sol. 2, H272; STOT RE 2, H373; Skin Corr. 1C, H314; Eye Dam. 1, H318; Acute Tox. 4, H302	

Additional information None known.

#### Non-Hazardous Ingredients

7732-18-5	Water	50.0%
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### 4 First-aid measures

#### Description of first aid measures

**General information** Immediately remove any clothing soiled by the product.

#### After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

#### After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing** Seek medical treatment.

#### Information for doctor

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

Causes severe skin burns.

Causes serious eye damage.

**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

### 5 Fire-fighting measures

#### Extinguishing media

**Suitable extinguishing agents** Product is not flammable. Use fire-fighting measures that suit the surrounding fire.

**For safety reasons unsuitable extinguishing agents** Halocarbon extinguisher

#### Special hazards arising from the substance or mixture

This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

If this product is involved in a fire, the following can be released:

Nitrogen oxides (NOx)

Metal oxide fume

#### Advice for firefighters

#### Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

### 6 Accidental release measures

#### Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**Environmental precautions:** Do not allow product to reach sewage system or any water course.

#### Methods and material for containment and cleaning up:

Use neutralizing agent.

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Absorb with liquid-binding material.

#### Prevention of secondary hazards:

Acts as an oxidizing agent on organic materials such as wood, paper and fats

Keep away from combustible material.

#### Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

### 7 Handling and storage

#### Handling

#### Precautions for safe handling

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

#### Information about protection against explosions and fires:

Substance/product can reduce the ignition temperature of flammable substances.

This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

#### Conditions for safe storage, including any incompatibilities

#### Storage

**Requirements to be met by storerooms and receptacles:** No special requirements.

#### Information about storage in one common storage facility:

Store away from flammable substances.

Store away from reducing agents.

Do not store with organic materials.

Store away from metal powders.

Store away from strong bases.

Water reacts with many metals to give hydrogen, often violently. Water is also incompatible with many reactive organic and inorganic chemicals.

#### Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

**Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

#### Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

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**Product name: Manganese(II) nitrate, 50% w/w aqueous solution**

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**Control parameters**

**Components with limit values that require monitoring at the workplace:**

**10377-66-9 Manganese(II) nitrate (50.0%)**

PEL (USA)	Ceiling limit value: 5 mg/m <sup>3</sup> as Mn
REL (USA)	Short-term value: 3 mg/m <sup>3</sup> Long-term value: 1 mg/m <sup>3</sup> as Mn
TLV (USA)	Long-term value: 0.02* 0.1* mg/m <sup>3</sup> as Mn; *respirable **inhalable fraction
EL (Canada)	Long-term value: 0.2 mg/m <sup>3</sup> as Mn; R

**Additional information:** No data

**Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Do not inhale dust / smoke / mist.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Recommended filter device for short term use:**

Use a respirator with acid gas cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

**Penetration time of glove material (in minutes)** Not determined

**Eye protection:**

Tightly sealed goggles

Full face protection

**Body protection:** Protective work clothing.

**9 Physical and chemical properties**

**Information on basic physical and chemical properties**

**General Information**

**Appearance:**

<b>Form:</b>	Liquid
<b>Color:</b>	Pink
<b>Odor:</b>	Amine-like
<b>Odor threshold:</b>	Not determined.

**pH-value at 20 °C (68 °F):** 1 (approx)

**Change in condition**

<b>Melting point/Melting range:</b>	Not determined
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined.
<b>Flammability (solid, gaseous)</b>	Not determined.
<b>Ignition temperature:</b>	Not determined
<b>Decomposition temperature:</b>	Not determined
<b>Auto igniting:</b>	Product is not selfigniting.

**Danger of explosion:** Not determined.

**Explosion limits:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined
<b>Vapor pressure at 20 °C (68 °F):</b>	23 hPa (17 mm Hg)
<b>Density at 20 °C (68 °F):</b>	1.54 g/cm <sup>3</sup> (12.851 lbs/gal)
<b>Relative density</b>	Not determined.
<b>Vapor density</b>	Not determined.
<b>Evaporation rate</b>	Not determined.
<b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Fully miscible
<b>Partition coefficient (n-octanol/water):</b>	Not determined.
<b>Viscosity:</b>	
<b>dynamic:</b>	Not determined.
<b>kinematic:</b>	Not determined.

**Solvent content:**

<b>Organic solvents:</b>	0.0 %
<b>Solids content:</b>	50.0 %
<b>Other information</b>	No further relevant information available.

**10 Stability and reactivity**

**Reactivity** May intensify fire; oxidizer.

**Chemical stability** Stable under recommended storage conditions.

**Thermal decomposition / conditions to be avoided:** Decomposition will not occur if used and stored according to specifications.

**Possibility of hazardous reactions**

Water reacts violently with alkali metals.

Water reacts with many metals to give hydrogen, often violently. Water is also incompatible with many reactive organic and inorganic chemicals.

Reacts with reducing agents

Reacts with flammable substances

**Conditions to avoid** No further relevant information available.

**Incompatible materials:**

Flammable substances

Reducing agents

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USA

**Product name: Manganese(II) nitrate, 50% w/w aqueous solution**

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Bases  
Organic materials  
Metal powders  
**Hazardous decomposition products:**  
Nitrogen oxides  
Metal oxide fume

**11 Toxicological information**

**Information on toxicological effects**

**Acute toxicity:**  
Harmful if swallowed.  
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.  
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.  
**LD/LC50 values that are relevant for classification:** No data  
**Skin irritation or corrosion:** Causes severe skin burns.  
**Eye irritation or corrosion:** Causes serious eye damage.  
**Sensitization:** No sensitizing effects known.  
**Germ cell mutagenicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.  
**Carcinogenicity:**  
EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.  
ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.  
**Reproductive toxicity:** No effects known.  
**Specific target organ system toxicity - repeated exposure:**  
May cause damage to the brain through prolonged or repeated exposure. Route of exposure: Inhalative.  
**Specific target organ system toxicity - single exposure:** No effects known.  
**Aspiration hazard:** No effects known.  
**Subacute to chronic toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.  
**Additional toxicological information:**  
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Harmful  
Corrosive

**12 Ecological information**

**Toxicity**  
**Aquatic toxicity:** No further relevant information available.  
**Persistence and degradability** No further relevant information available.  
**Bioaccumulative potential** No further relevant information available.  
**Mobility in soil** No further relevant information available.  
**Ecotoxicological effects:**  
**Remark:** Harmful to aquatic organisms  
**Additional ecological information:**  
**General notes:**  
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.  
May cause long lasting harmful effects to aquatic life.  
Avoid transfer into the environment.  
Harmful to aquatic organisms  
**Results of PBT and vPvB assessment**  
**PBT:** Not applicable.  
**vPvB:** Not applicable.  
**Other adverse effects** No further relevant information available.

**13 Disposal considerations**

**Waste treatment methods**  
**Recommendation** Consult state, local or national regulations to ensure proper disposal.  
**Uncleaned packagings:**  
**Recommendation:** Disposal must be made according to official regulations.  
**Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

<b>UN-Number</b> <b>DOT, IMDG, IATA</b>	UN3093
<b>UN proper shipping name</b> <b>DOT</b> <b>IMDG, IATA</b>	Corrosive liquids, oxidizing, n.o.s. (Manganese nitrate) CORROSIVE LIQUID, OXIDIZING, N.O.S. (MANGANESE NITRATE)
<b>Transport hazard class(es)</b> <b>DOT</b>	
<b>Class</b> <b>Label</b> <b>Class</b> <b>Label</b> <b>IMDG, IATA</b>	8 Corrosive substances. 8+6.1 8 (CO1) Corrosive substances 8+6.1
<b>Class</b> <b>Label</b>	8 Corrosive substances. 8+6.1
<b>Packing group</b> <b>DOT, IMDG, IATA</b>	II
<b>Environmental hazards:</b> <b>Marine pollutant (IMDG):</b>	No

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USA

**Product name: Manganese(II) nitrate, 50% w/w aqueous solution**

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**Special precautions for user**  
**EMS Number:**

Warning: Corrosive substances  
F-A,S-Q

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

**Transport/Additional information:**

**DOT**

**Marine Pollutant (DOT):**

No

**UN "Model Regulation":**

UN3093, Corrosive liquids, oxidizing, n.o.s. (Manganese nitrate), 8 (6.1), II

## 15 Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

**Hazard pictograms**



GHS03 GHS05 GHS07 GHS08

**Signal word** Danger

**Hazard-determining components of labeling:**

Manganese(II) nitrate

**Hazard statements**

H272 May intensify fire; oxidizer.

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**Precautionary statements**

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P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

**SARA Section 313 (specific toxic chemical listings)**

10377-66-9 Manganese(II) nitrate

50.0%

**California Proposition 65**

**Prop 65 - Chemicals known to cause cancer**

None of the ingredients are listed.

**Prop 65 - Developmental toxicity**

None of the ingredients are listed.

**Prop 65 - Developmental toxicity, female**

None of the ingredients are listed.

**Prop 65 - Developmental toxicity, male**

None of the ingredients are listed.

**Information about limitation of use:** For use only by technically qualified individuals.

**Other regulations, limitations and prohibitive regulations**

**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.**

None of the ingredients are listed.

**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**

None of the ingredients is listed.

**Annex XIV of the REACH Regulations (requiring Authorisation for use)**

None of the ingredients is listed.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department

**Date of preparation / last revision** 11/24/2015 / -

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

vPvB: very Persistent and very Bioaccumulative

ACGIH: American Conference of Governmental Industrial Hygienists (USA)

OSHA: Occupational Safety and Health Administration (USA)

NTP: National Toxicology Program (USA)

IARC: International Agency for Research on Cancer

EPA: Environmental Protection Agency (USA)