

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 08/26/2010

Reviewed on 08/25/2010

**1 Identification of substance:****Product details:****Product name:** Manganese(II) nitrate tetrahydrate**Stock number:** A18521**Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company  
 Johnson Matthey Catalog Company, Inc.  
 30 Bond Street  
 Ward Hill, MA 01835-8099  
 Emergency Phone: (978) 521-6300  
 CHEMTREC: (800) 424-9300  
 Web Site: www.alfa.com

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

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

**2 Hazards identification****Hazard description:**

Xn Harmful  
 O Oxidizing

**Information pertaining to particular dangers for man and environment**

R 8 Contact with combustible material may cause fire.

R 20/22 Harmful by inhalation and if swallowed.

R 36/37/38 Irritating to eyes, respiratory system and skin.

**Classification system****HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	2
FIRE	0
REACTIVITY	2

Health (acute effects) = 2

Flammability = 0

Reactivity = 2

**GHS label elements****Danger**

3.1/3 - Toxic if swallowed.

3.1/4 - Harmful if inhaled.

3.2/2 - Causes skin irritation.

3.3/2A - Causes serious eye irritation.

3.8/3 - May cause respiratory irritation.

**Response:**

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

IF ON SKIN: Wash with plenty of soap and water.

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

Specific treatment (see on this label).

**Storage:**

Store locked up.

**Disposal:**

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

**3 Composition/Data on components:****Chemical characterization:****Description: (CAS#)**

Manganese (II) nitrate, tetrahydrate  
 (CAS# 20694-39-7)

**Identification number(s):****EINECS Number:** 233-828-8

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**4 First aid measures****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 immediate medical advice.

**5 Fire fighting measures**

**Suitable extinguishing agents** Water spray

**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Metal oxide fume

Nitrogen oxides (NOx)

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

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

**6 Accidental release measures****Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

**Measures for cleaning/collecting:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

**Additional information:**

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****Information 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.

**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 water/moisture.

**Further information about storage conditions:**

This product is hygroscopic.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from humidity and water.

**8 Exposure controls and 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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**Components with limit values that require monitoring at the workplace:**

Manganese, elemental &amp; inorganic compounds (as Mn)

	mg/m <sup>3</sup>
ACGIH TLV	0.2
Austria MAK	5
Belgium TWA	1; 3-STEL (fume)
Denmark TWA	2.5
Finland TWA	0.5
France VME	1 (fume)
Germany MAK	0.55
Japan OEL	0.3 (respirable dust)
Korea TLV	0.2
Netherlands MAC-TGG	1; 3-MAC-K
Norway TWA	1
Russia	0.2-STEL (fume)
Sweden NGV	1; 2.5-TGV (resp. dust)
	2.5; 5-TGV (total dust)
Switzerland MAK-W	5
	1 (fume)
United Kingdom TWA	5
	1; 3-STEL (fume)
USA PEL	5-Ceiling (fume)

**Additional information:** No data**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.

Avoid contact with the eyes and skin.

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

Impervious gloves

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

**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Lump
<b>Color:</b>	Pink
<b>Odor:</b>	Odorless

**Change in condition**

<b>Melting point/Melting range:</b>	25.8°C (78°F)
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined

**Flammability (solid, gaseous)** Contact with combustible material may cause fire.**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Explosion limits:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined

**Vapor pressure:** Not determined**Density:** Not determined**Solubility in / Miscibility with**

<b>Water:</b>	Soluble
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**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

**Materials to be avoided:**

Reducing agents

Metal powders

Water/moisture

Organic materials

**Dangerous reactions**

Reacts with reducing agents

Reacts with flammable substances

**Dangerous products of decomposition:**

Metal oxide fume

Nitrogen oxides

**11 Toxicological information****Acute toxicity:****Primary irritant effect:****on the skin:** Irritant to skin and mucous membranes.**on the eye:** Irritating effect.**Sensitization:** No sensitizing effects known.**Subacute to chronic toxicity:**

Chronic exposure to manganese may cause impairment to the central nervous system. Symptoms include sluggishness, sleepiness, muscle weakness, loss of facial muscle control, edema, emotional disturbances, spastic gait and falling. Chronic manganese poisoning may develop after as little as three months of heavy exposure but usually cases develop after one to three years of exposure,

Small doses of nitrates may cause weakness, general depression, headache and mental impairment. Larger doses may cause dizziness, abdominal cramps, vomiting, bloody diarrhea, convulsions and collapse.

**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

**12 Ecological information:****Additional ecological information:****General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

**13 Disposal considerations****Product:****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****DOT regulations:****Hazard class:**

5.1

**Identification number:**

UN2724

**Packing group:**

III

**Proper shipping name (technical name):** MANGANESE NITRATE

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**Label** 5.1**Land transport ADR/RID (cross-border)**

**ADR/RID class:** 5.1 (02) Oxidizing substances  
**Danger code (Kemler):** 50  
**UN-Number:** 2724  
**Packaging group:** III  
**Description of goods:** 2724 MANGANESE NITRATE

**Maritime transport IMDG:**

**IMDG Class:** 5.1  
**UN Number:** 2724  
**Label** 5.1  
**Packaging group:** III  
**Marine pollutant:** No  
**Proper shipping name:** MANGANESE NITRATE

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 5.1  
**UN/ID Number:** 2724  
**Label** 5.1  
**Packaging group:** III  
**Proper shipping name:** MANGANESE NITRATE

**UN "Model Regulation": UN2724, MANGANESE NITRATE, 5.1, III****15 Regulations****Product related hazard informations:****Hazard symbols:**

Xn Harmful  
 O Oxidizing

**Risk phrases:**

8 Contact with combustible material may cause fire.  
 20/22 Harmful by inhalation and if swallowed.  
 36/37/38 Irritating to eyes, respiratory system and skin.

**Safety phrases:**

9 Keep container in a well-ventilated place.  
 17 Keep away from combustible material.  
 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 36/37 Wear suitable protective clothing and gloves.

**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).

**Information about limitation of use:**

For use only by technically qualified individuals.  
 This product contains manganese and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

**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

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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 MSDS:** Health, Safety and Environmental Department.

**Contact:** Zachariah Holt

**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)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

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

HMIS: Hazardous Materials Identification System (USA)

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