

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/15/2009

Reviewed on 05/15/2009

1 Identification of substance:**Product details:****Product name:** Manganese pieces**Stock number:** 36221**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 Composition/Data on components:**Chemical characterization:****Description: (CAS#)**

Manganese (CAS# 7439-96-5): 100%

Identification number(s):**EINECS Number:** 231-105-1**3 Hazards identification****Hazard description:** Not applicable**Information pertaining to particular dangers for man and environment** Not applicable**Classification system****HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	0
FIRE	0
REACTIVITY	0

Health (acute effects) = 0

Flammability = 0

Reactivity = 0

GHS label elements Void**4 First aid measures****General information** No special measures required.**After inhalation** Seek medical treatment in case of complaints.**After skin contact** Generally the product does not irritate the skin.**After eye contact**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing Seek medical treatment.**5 Fire fighting measures****Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

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

Protective equipment: No special measures required.**6 Accidental release measures****Person-related safety precautions:** Not required.**Measures for environmental protection:**

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

Measures for cleaning/collecting: Pick up mechanically.**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.

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7 Handling and storage**Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

No special precautions are necessary if used correctly.

Information about protection against explosions and fires:

No special measures required.

The product is not flammable

Storage**Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Do not store together with acids.

Store away from strong bases.

Store away from halogens.

Further information about storage conditions: None.**8 Exposure controls and personal protection****Additional information about design of technical systems:** No further data; see item 7.**Components with limit values that require monitoring at the workplace:**

Manganese, elemental & inorganic compounds (as Mn)

mg/m³

ACGIH TLV	0.2
Austria MAK	5
Belgium TWA	5
Denmark TWA	2.5
Finland TWA	0.5
Hungary TWA	0.3; 0.6-STEEL
Germany MAK	0.55
Japan OEL	0.3 (respirable dust)
Korea TLV	0.2
Netherlands MAC-TGG	1; 3-MAC-K
Norway TWA	2.5
Poland TWA	0.3; 5-MAC
Russia	0.2-STEEL (fume)
Sweden NGV	1; 2.5-TGV (respirable dust)
	2.5; 5-TGV (total dust)
United Kingdom TWA	5
USA PEL	5-Ceiling

Additional information: No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Breathing equipment: Not required.**Protection of hands:** Not required.**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

Form:	Pieces
Color:	Grey
Odor:	Odorless

Change in condition

Melting point/Melting range:	1245°C (2273°F)
Boiling point/Boiling range:	2150°C (3902°F)
Sublimation temperature / start:	Not determined

Flash point: Not applicable**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Danger of explosion:** Product does not present an explosion hazard.

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Explosion limits:

Lower: Not determined
Upper: Not determined

Vapor pressure: Not determined

Density at 20°C (68°F): 7.43 g/cm³

Solubility in / Miscibility with

Water: Insoluble

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:

Acids
 Halogens
 Bases

Dangerous reactions No dangerous reactions known

Dangerous products of decomposition: Metal oxide fume

11 Toxicological information**Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	9000 mg/kg (rat)
Irritation of skin	mild	500 mg/24H (rabbit)
Irritation of eyes	mild	500 mg/24H (rabbit)

Primary irritant effect:

on the skin: Powder: irritant effect

on the eye: Powder: irritant effect

Sensitization: No sensitizing effects known.

Other information (about experimental toxicology):

Tumorigenic effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with laboratory animals.

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.

Subacute to chronic toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Brain and Coverings - other degenerative changes.

Behavioral - changes in motor activity (specific assay).

Behavioral - muscle weakness.

Lungs, Thorax, or Respiration - other changes.

Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).

Nutritional and Gross Metabolic - changes in metals, not otherwise specified.

Tumorigenic - equivocal tumorigenic agent by RTECS criteria.

Tumorigenic - tumors at site of application.

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:**General notes:**

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.

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Uncleaned packagings:**Recommendation:** Disposal must be made according to official regulations.**14 Transport information**

Not a hazardous material for transportation.

DOT regulations:**Hazard class:** None**Land transport ADR/RID (cross-border)****ADR/RID class:** None**Maritime transport IMDG:****IMDG Class:** None**Air transport ICAO-TI and IATA-DGR:****ICAO/IATA Class:** None**Transport/Additional information:** Not dangerous according to the above specifications.**15 Regulations****Product related hazard informations:**

Observe the general safety regulations when handling chemicals

National regulations

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

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 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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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