

# SAFETY DATA SHEET

Date Printed: 05/09/2021

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## SECTION 1. IDENTIFICATION

**Product Name:** Manganese Iron Oxide Nanoparticles / Nanopowder

**Product Number:** All applicable American Elements product codes, e.g. MN-FEO-02-NP , MN-FEO-03-NP , MN-FEO-04-NP , MN-FEO-05-NP

**CAS #:** 12063-10-4

**Relevant identified uses of the substance:** Scientific research and development

**Supplier details:**

American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351

**Emergency telephone number:**

+1 800-424-9300

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## SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

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

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Manganese ferrite

Iron manganese oxide

Iron manganese spinel

Formula : MnFe<sub>2</sub>O<sub>4</sub>

Molecular weight : 230.63 g/mol

CAS-No. : 12063-10-4

EC-No. : 269-056-3

Hazardous components

Component Classification Concentration

Iron manganese oxide  
<= 100 %

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## **SECTION 4. FIRST AID MEASURES**

### 4.1 Description of first aid measures

#### General advice

Move out of dangerous area.

#### If inhaled

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

#### In case of skin contact

Wash off with soap and plenty of water.

#### In case of eye contact

Flush eyes with water as a precaution.

#### If swallowed

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

### 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

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## **SECTION 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

Iron oxides, Manganese/manganese oxides

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

No data available

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

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

Avoid dust formation. Avoid breathing Vapors, mist or gas.

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. Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed.

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.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

Components with workplace control parameters

Component CAS-No. Value Control parameters

Basis

Iron manganese oxide

12063-10-4 C 5.000000

mg/m<sup>3</sup>

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/m<sup>3</sup>

USA. ACGIH Threshold Limit Values

(TLV)

Central Nervous System impairment

Adopted values or notations enclosed are those for which changes are proposed in the NIC

See Notice of Intended Changes (NIC)

varies

TWA 1.000000

mg/m<sup>3</sup>

USA. NIOSH Recommended

Exposure Limits

ST 3.000000

mg/m<sup>3</sup>

USA. NIOSH Recommended

Exposure Limits

TWA 0.100000

mg/m<sup>3</sup>

USA. ACGIH Threshold Limit Values

(TLV)

Central Nervous System impairment

2015 Adoption

varies

TWA 0.020000

mg/m<sup>3</sup>

USA. ACGIH Threshold Limit Values

(TLV)

Central Nervous System impairment

2015 Adoption

varies

C 5 mg/m<sup>3</sup> 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/m<sup>3</sup> USA. ACGIH Threshold Limit Values

(TLV)

Central Nervous System impairment

Not classifiable as a human carcinogen

varies

TWA 0.02 mg/m<sup>3</sup> USA. ACGIH Threshold Limit Values

(TLV)

Central Nervous System impairment

Not classifiable as a human carcinogen

varies

TWA 1 mg/m<sup>3</sup> USA. NIOSH Recommended

Exposure Limits

ST 3 mg/m<sup>3</sup> USA. NIOSH Recommended

Exposure Limits

8.2 Exposure controls

Appropriate engineering controls

General industrial hygiene practice.

Personal protective equipment

Eye/face protection

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

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and

to the specific work-place., The type of protective equipment must be selected according to the concentration

and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type

N95 (US) or type P1 (EN 143) dust masks. 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.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- a) Appearance Form: solid
  - b) Odor No data available
  - c) Odor Threshold No data available
  - d) pH No data available
  - e) Melting point/freezing point Melting point/range: > 300 °C (> 572 °F)
  - f) Initial boiling point and boiling range No data available
  - g) Flash point N/A
  - h) Evaporation rate No data available
  - i) Flammability (solid, gas) No data available
  - j) Upper/lower flammability or explosive limits No data available
  - k) Vapor pressure No data available
  - l) Vapor density No data available
  - m) Relative density No data available
  - n) Water solubility No data available
  - o) Partition coefficient: noctanol/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 No data available
- 9.2 Other safety information  
No data available
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## **SECTION 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

No data available

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

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## **SECTION 11. TOXICOLOGICAL INFORMATION**

### 11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

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

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

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.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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## SECTION 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

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

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

#### Contaminated packaging

Dispose of as unused product.

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## **SECTION 14. TRANSPORT INFORMATION**

### DOT (US)

Not dangerous goods

### IMDG

Not dangerous goods

### IATA

Not dangerous goods

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## **SECTION 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:

#### Iron manganese oxide

##### CAS-No.

12063-10-4

##### Revision Date

2007-07-01

### SARA 311/312 Hazards

#### Chronic Health Hazard

### Massachusetts Right To Know Components

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

### Pennsylvania Right To Know Components

#### Iron manganese oxide

##### CAS-No.

12063-10-4

##### Revision Date

2007-07-01

### New Jersey Right To Know Components

#### Iron manganese oxide

##### CAS-No.

12063-10-4

##### Revision Date

2007-07-01

### 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.

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## **SECTION 16. OTHER INFORMATION**

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). 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. American Elements 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 1997-2021 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.