

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Identifier:** (4N) 99.99% Ultra Thin Manganese Nanofilm

**Product Code:** MN-M-04-FN

**CAS Number:** 7439-96-5

**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

Classification of the substance or mixture

The substance is not classified according to the Globally Harmonized System (GHS).

Classification according to Directive 67/548/EEC or Directive 1999/45/EC N/A

Information concerning particular hazards for human and environment: N/A

Label elements

Labelling according to EU guidelines:

Observe the general safety regulations when handling chemicals

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

Health (acute effects) = 0

Flammability = 0

Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: N/A

vPvB: N/A

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## **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substances

CAS No. / Substance Name:

7439-96-5 Manganese

Identification number(s):

EC number: 231-105-1

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

Description of first aid measures

General information No special measures required.

If inhaled: Seek medical treatment in case of complaints.

In case of skin contact: Generally the product does not irritate the skin.

In case of eye contact:

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

If swallowed:

If symptoms persist consult doctor.

Information for doctor

Most important symptoms and effects, both acute and delayed

No data available

Indication of any immediate medical attention and special treatment needed

No data available

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## **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media

Suitable extinguishing agents Special powder for metal fires. Do not use water.

For safety reasons unsuitable extinguishing agents Water

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Metal oxide fume

Advice for firefighters

Protective equipment: No special measures required.

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

Personal precautions, protective equipment and emergency procedures Not required.

Environmental precautions:

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

Methods and materials for containment and cleanup: Pick up mechanically.

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.

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## SECTION 7. HANDLING AND STORAGE

### Handling

Precautions for safe handling

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Information about protection against explosions and fires: No special measures required.

Conditions for safe storage, including any incompatibilities

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

Information about storage in one common storage facility: No data available

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well-sealed containers.

Specific end use(s) No data available

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

Components with limit values that require monitoring at the workplace:

7439-96-5 Manganese (100.0%)

PEL () Short-term value: C 5\* \*\* mg/m<sup>3</sup>  
as Mn \*and inorganic compounds \*\*fume

REL () Short-term value: 3\* \*\* mg/m<sup>3</sup>

Long-term value: 1\* \*\* mg/m<sup>3</sup>  
as Mn \*and inorganic compounds \*\*fume

TLV () (0.2) NIC-0.02\* NIC-0.2\* mg/m<sup>3</sup>  
as Mn;+ inorg. comp.;\*resp.,\*\*inh. fraction:NIC-A4

Additional information: No data

### Exposure controls

#### Personal protective equipment

Follow typical protective and hygienic practices for handling chemicals.

Breathing equipment: Not required.

Protection of hands: Not required.

Eye protection: Safety glasses

Body protection: Protective work clothing.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:

Form: Solid in various forms

Color: Grey

Odor: No data available

Odor threshold: No data available.

pH: N/A

Melting point/Melting range: 1246°C (2275 °F)

Boiling point/Boiling range: 2095°C (3803 °F)

Sublimation temperature / start: No data available

Flammability (solid, gas) No data available.

Ignition temperature: No data available

Decomposition temperature: No data available  
Autoignition: No data available.  
Explosion limits:  
Lower: No data available  
Upper: No data available  
Vapor pressure at 20°C (68 °F): 0 hPa  
Density at 20°C (68 °F): 7.3 g/cm<sup>3</sup> (60.919 lbs/gal)  
Relative density No data available.  
Vapor density N/A  
Evaporation rate N/A  
Segregation coefficient (n-octanol/water): No data available.  
Viscosity:  
Dynamic: N/A  
Kinematic: N/A  
Other information No data available

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## **SECTION 10. STABILITY AND REACTIVITY**

Reactivity  
Chemical stability  
Thermal decomposition / conditions to be avoided:  
Decomposition will not occur if used and stored according to specifications.  
Possibility of hazardous reactions No dangerous reactions known  
Incompatible materials: No data available  
Hazardous decomposition products: Metal oxide fume

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## **SECTION 11. TOXICOLOGICAL INFORMATION**

Information on toxicological effects  
Acute toxicity:  
Primary irritant effect:  
on the skin: Powder: irritant effect  
on the eye: Powder: irritant effect  
Sensitization: No sensitizing effects known.  
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.  
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute and/or other multiple dose toxicity data for components in this product.  
The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive and/or mutation data for components in this product.  
The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

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## **SECTION 12. ECOLOGICAL INFORMATION**

Toxicity  
Aquatic toxicity: No data available

Persistence and degradability No data available

Behavior in environmental systems:

Bioaccumulative potential No data available

Mobility in soil No data available

Additional ecological information:

General notes:

Do not allow undiluted product or large quantities of it to reach groundwater, water courses, or sewage systems.

Do not allow material to be released to the environment without official permits. Results of PBT and vPvB assessment

PBT: N/A

vPvB: N/A

Other adverse effects No data available

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste treatment methods

Recommendation Consult official regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

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## **SECTION 14. TRANSPORT INFORMATION**

UN-Number

DOT, ADR, ADN, IMDG, IATA N/A

UN proper shipping name

DOT, ADR, ADN, IMDG, IATA N/A

Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA

Class N/A

Packing group

DOT, ADR, IMDG, IATA N/A

Environmental hazards:

Marine pollutant: No

Special precautions for user N/A

Transport in bulk according to Annex II of

MARPOL73/78 and the IBC Code N/A

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## **SECTION 15. REGULATORY INFORMATION**

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

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.

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 is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.  
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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## **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 1997-2019 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.