

# SAFETY DATA SHEET

Date Accessed: 09/18/2024

Date Revised: 01/15/2022

---

## SECTION 1. IDENTIFICATION

**Product Name:** Manganese Fluoride Sputtering Target

**Product Number:** All applicable American Elements product codes, e.g. MN2-F-02 , MN2-F-03 , MN2-F-04 , MN2-F-05

**CAS #:** 7782-64-1

**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

---

## SECTION 2. HAZARDS IDENTIFICATION

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

GHS06 Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2

H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

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



GHS06

Signal word

Danger

Hazard statements

H302 Harmful if swallowed.

H331 Toxic if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statements

P261

Avoid breathing dust/fume/gas/mist/vapours/spray.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

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

P304+P340

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

D2B - Toxic material causing other toxic effects

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

Health (acute effects) = 2

Flammability = 0

Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

---

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization: Substances

CAS# Description:

7782-64-1 Manganese(II) fluoride

Identification number(s):

EC number: 231-960-0

---

## SECTION 4. FIRST AID MEASURES

Description of 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 medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed

No further relevant information available.

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

---

## **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media

Suitable extinguishing agents

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

Special hazards arising from the substance or mixture

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

Hydrogen fluoride (HF)

Metal oxide fume

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

---

## **SECTION 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:

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Prevention of secondary hazards:

No special measures required.

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.

---

## **SECTION 7. HANDLING AND STORAGE**

Handling

Precautions for safe handling

Handle under dry protective gas.

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:  
The product is not flammable  
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 water/moisture.  
Store away from oxidizing agents.  
Further information about storage conditions:  
Store under dry inert gas.  
This product is hygroscopic.  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Protect from humidity and water.  
Specific end use(s)  
No further relevant information available.

---

## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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.  
Avoid contact with the eyes and skin.  
Maintain an ergonomically appropriate working environment.  
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.  
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:  
Safety glasses  
Body protection:  
Protective work clothing.

---

## **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties  
General Information  
Appearance:  
Form: Crystalline powder

Color: Red  
Odor: Not determined  
Odor threshold: Not determined.  
pH-value: Not applicable.  
Change in condition  
Melting point/Melting range: 856 °C (1573 °F)  
Boiling point/Boiling range: Not determined  
Sublimation temperature / start: Not determined  
Flammability (solid, gaseous)  
Not determined.  
Ignition temperature: Not determined  
Decomposition temperature: Not determined  
Auto igniting: Not determined.  
Danger of explosion: Not determined.  
Explosion limits:  
Lower: Not determined  
Upper: Not determined  
Vapor pressure: Not applicable.  
Density at 20 °C (68 °F): 3.98 g/cm<sup>3</sup> (33.213 lbs/gal)  
Relative density  
Not determined.  
Vapor density  
Not applicable.  
Evaporation rate  
Not applicable.  
Solubility in / Miscibility with Water: Not determined  
Partition coefficient (n-octanol/water): Not determined.  
Viscosity:  
dynamic: Not applicable.  
kinematic: Not applicable.  
Other information  
No further relevant information available.

---

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

### Reactivity

No information known.

### 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

Reacts with strong oxidizing agents

Conditions to avoid

No further relevant information available.

Incompatible materials:

Water/moisture

Oxidizing agents

Hazardous decomposition products:

Hydrogen fluoride

Metal oxide fume

---

## SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity:

Harmful if swallowed.

Toxic if inhaled.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification:

No data

Skin irritation or corrosion:

Causes skin irritation.

Eye irritation or corrosion:

Causes serious eye irritation.

Sensitization:

No sensitizing effects known.

Germ cell mutagenicity:

No effects known.

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:

No effects known.

Specific target organ system toxicity - single exposure:

May cause respiratory irritation.

Aspiration hazard:

No effects known.

Subacute to chronic toxicity:

No effects known.

Additional toxicological information:

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

---

## SECTION 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.

Additional ecological information:

General notes:

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

Avoid transfer into the environment.  
Results of PBT and vPvB assessment  
PBT:  
Not applicable.  
vPvB:  
Not applicable.  
Other adverse effects  
No further relevant information available.

---

## **SECTION 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.

---

## **SECTION 14. TRANSPORT INFORMATION**

UN-Number  
DOT, IMDG, IATA  
UN3288  
UN proper shipping name  
DOT  
Toxic solid, inorganic, n.o.s. (Manganese(II) fluoride)  
IMDG, IATA  
TOXIC SOLID, INORGANIC, N.O.S. (Manganese(II) fluoride)  
Transport hazard class(es)  
DOT  
Class  
6.1 Toxic substances.  
Label  
6.1  
Class  
6.1 (T5) Toxic substances  
Label  
6.1  
IMDG, IATA  
Class  
6.1 Toxic substances.  
Label  
6.1  
Packing group  
DOT, IMDG, IATA  
III  
Environmental hazards:  
Not applicable.  
Special precautions for user  
Warning: Toxic substances  
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":

UN3288, Toxic solid, inorganic, n.o.s. (Manganese(II) fluoride), 6.1, III

---

## SECTION 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

GHS06

Signal word

Danger

Hazard statements

H302 Harmful if swallowed.

H331 Toxic if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statements

P261

Avoid breathing dust/fume/gas/mist/vapours/spray.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

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

P304+P340

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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 Non-Domestic Substances List (NDSL).

SARA Section 313 (specific toxic chemical listings)

7782-64-1 Manganese(II) fluoride

California Proposition 65

Prop 65 - Chemicals known to cause cancer

Substance is not listed.

Prop 65 - Developmental toxicity

Substance is not listed.

Prop 65 - Developmental toxicity, female

Substance is not listed.

Prop 65 - Developmental toxicity, male

Substance is not 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.

Substance is not 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.

Substance is not listed.

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

Substance is not listed.

Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

---

## **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 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.