

# SAFETY DATA SHEET

Date Printed: 04/19/2024

Date Revised: 01/15/2022

## SECTION 1. IDENTIFICATION

**Product Identifier:** (5N) 99.999% Dysprosium Fluoride Sputtering Target

**Product Code:** DY-F-05-ST

**CAS Number:** 13569-80-7

**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

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin irritation (Category 2), H315

Eye irritation (Category 2A), H319

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

2.2 GHS Label elements, including precautionary statements



Pictogram

Signal word Warning

Hazard statement(s)

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statement(s)

P261 Avoid breathing dust/ fume/ gas/ mist/ Vapors/ spray.

P264 Wash skin thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ eye protection/ face protection.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P312 Call a POISON CENTER/doctor if you feel unwell.  
P321 Specific treatment (see supplemental first aid instructions on this label).  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P362 Take off contaminated clothing and wash before reuse.  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P501 Dispose of contents/ container to an approved waste disposal plant.  
2.3 Hazards not otherwise classified (HNOC) or not covered by GHS  
Strong hydrogen fluoride-releaser

---

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

### **3.1 Substances**

Formula : DyF<sub>3</sub>

Molecular weight : 219.50 g/mol

CAS-No. : 13569-80-7

EC-No. : 236-992-9

Hazardous components

Component Classification Concentration

Dysprosium trifluoride

Skin Irrit. 2; Eye Irrit. 2A;

STOT SE 3; H315, H319,

H335

<= 100 %

---

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

### **4.1 Description of first aid measures**

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Hydrofluoric (HF) acid burns require

immediate and specialized first aid and medical treatment. Symptoms may be delayed up to 24 hours depending on the

concentration of HF. After decontamination with water, further damage can occur due to penetration/absorption of the

fluoride ion. Treatment should be directed toward binding the fluoride ion as well as the effects of exposure. Skin

exposures can be treated with a 2.5% calcium gluconate gel repeated until burning ceases. More serious skin

exposures may require subcutaneous calcium gluconate except for digital areas unless the physician is experienced in

this technique, due to the potential for tissue injury from increased pressure. Absorption can readily occur through the

subungual areas and should be considered when undergoing decontamination. Prevention of

absorption of the fluoride

ion in cases of ingestion can be obtained by giving milk, chewable calcium carbonate tablets or Milk of Magnesia to

conscious victims. Conditions such as hypocalcemia, hypomagnesemia and cardiac arrhythmias should be monitored

for, since they can occur after exposure.

If inhaled

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

In case of skin contact

Wash off with soap and plenty of water. Consult a physician. First treatment with calcium gluconate paste.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

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

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

---

## **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

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

---

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

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing Vapors, mist or gas. Ensure adequate

ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

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

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

---

## SECTION 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

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.

Keep in a dry place. Do not store in glass

### 7.3 Specific end use(s)

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

---

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

Components with workplace control parameters

Component CAS-No. Value Control

parameters

Basis

Dysprosium

trifluoride

13569-80-7 TWA 2.500000

mg/m<sup>3</sup>

USA. Occupational Exposure Limits

(OSHA) - Table Z-1 Limits for Air

Contaminants

Remarks CAS number varies with compound

TWA 2.500000

mg/m<sup>3</sup>

USA. Occupational Exposure Limits

(OSHA) - Table Z-2

Z37.28-1969

TWA 2.500000

mg/m<sup>3</sup>

USA. ACGIH Threshold Limit Values

(TLV)

Bone damage

Fluorosis

Substances for which there is a Biological Exposure Index or Indices

(see BEI® section)

Not classifiable as a human carcinogen

varies

TWA 2.500000

mg/m<sup>3</sup>

USA. ACGIH Threshold Limit Values

(TLV)

Bone damage

Fluorosis

Substances for which there is a Biological Exposure Index or Indices

(see BEI® section)

Not classifiable as a human carcinogen

varies

TWA 2.5 mg/m<sup>3</sup> USA. Occupational Exposure Limits

(OSHA) - Table Z-1 Limits for Air

Contaminants

CAS number varies with compound

TWA 2.5 mg/m<sup>3</sup> USA. ACGIH Threshold Limit Values

(TLV)

Bone damage

Fluorosis

Substances for which there is a Biological Exposure Index or Indices

(see BEI® section)

Not classifiable as a human carcinogen

varies

Biological occupational exposure limits

Component CAS-No. Parameters Value Biological

specimen

Basis

Dysprosium

trifluoride

13569-80-7 Fluoride 3.0000

mg/g

In urine ACGIH - Biological

Exposure Indices

(BEI)

Remarks Prior to shift (16 hours after exposure ceases)

Fluoride 10.0000

mg/g

In urine ACGIH - Biological

Exposure Indices

(BEI)

End of shift (As soon as possible after exposure ceases)

Fluoride 2 mg/l Urine ACGIH - Biological

Exposure Indices

(BEI)

Prior to shift (16 hours after exposure ceases)

Fluoride 3 mg/l Urine ACGIH - Biological

Exposure Indices

(BEI)

End of shift (As soon as possible after exposure ceases)

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 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

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. 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.

---

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- a) Appearance Form: powder
  - b) Odor No data available
  - c) Odor Threshold No data available
  - d) pH No data available
  - e) Melting point/freezing point  
No data available
  - 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: octanol/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

---

## 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

Avoid moisture.

Reacts dangerously with glass.

### 10.5 Incompatible materials

Strong oxidizing agentsglass

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Hydrogen fluoride, Metal oxides

Other decomposition products - No data available

In the event of fire: see section 5

---

## 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: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Dysprosium trifluoride)

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

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia.  
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Rare earth compounds may cause delayed blood clotting leading to hemorrhages.  
Inhalation of rare earths may cause sensitivity to heat, itching, and increased awareness of odor and taste.

---

## **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

---

## **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.

---

## **SECTION 14. TRANSPORT INFORMATION**

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

---

## **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

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De

Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards



Acute Health Hazard

Massachusetts Right To Know Components

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

Pennsylvania Right To Know Components

Dysprosium trifluoride

CAS-No.

13569-80-7

New Jersey Right To Know Components

Dysprosium trifluoride

CAS-No.

13569-80-7

Revision Date

2008-06-01

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.

---

## 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.