

# SAFETY DATA SHEET

Date Printed: 09/21/2024

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## SECTION 1. IDENTIFICATION

**Product Identifier:** (5N) 99.999% Barium Niobate Ingot

**Product Code:** BA-NBO-05-I

**CAS Number:** 12009-14-2

**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)

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)

H302 + H332 Harmful if swallowed or if inhaled

Precautionary statement(s)

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

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

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

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position

comfortable for breathing.

P312 Call a POISON CENTER or doctor/ physician if you feel unwell.

P330 Rinse mouth.

P501 Dispose of contents/ container to an approved waste disposal plant.

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

Formula : BaNb<sub>2</sub>O<sub>6</sub>

Molecular weight : 419.14 g/mol

CAS-No. : 12009-14-2

EC-No. : 234-543-1

Index-No. : 056-002-00-7

Hazardous components

Component Classification Concentration

Barium niobate

Acute Tox. 4; H302 + H332 <= 100 %

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## **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. Move out of dangerous area.

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.

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. 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

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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

Barium oxide, niobium 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  
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas.  
Ensure adequate ventilation. 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.

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## **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.  
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: Barium niobate  
CAS-No.: 12009-14-2  
Value:  
TWA 0.500000 mg/m<sup>3</sup>: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants  
TWA 0.500000 mg/m<sup>3</sup>: USA. ACGIH Threshold Limit Values (TLV)  
Remarks:  
Eye, skin, & Gastrointestinal irritation  
Muscular stimulation  
Not classifiable as a human carcinogen  
Value:  
TWA 0.5 mg/m<sup>3</sup> USA. ACGIH Threshold Limit Values (TLV)  
Remarks:  
Eye irritation  
Muscular stimulation  
Skin irritation

Gastrointestinal irritation

Not classifiable as a human carcinogen

## 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

Complete suit protecting against chemicals, 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.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Appearance Form: solid

b) Odour No data available

c) Odour 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 Not applicable

h) Evaporation rate No data available

i) Flammability (solid, gas) No data available

j) Upper/lower flammability or explosive limits

No data available

k) Vapour pressure No data available

l) Vapour 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  
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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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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. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

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## **SECTION 14. TRANSPORT INFORMATION**

DOT (US)

UN number: 1564 Class: 6.1 Packing group: III

Proper shipping name: Barium compounds, n.o.s. (Barium niobate)

Poison Inhalation Hazard: No

IMDG

UN number: 1564 Class: 6.1 Packing group: III EMS-No: F-A, S-A

Proper shipping name: BARIUM COMPOUND, N.O.S. (Barium niobate)

IATA

UN number: 1564 Class: 6.1 Packing group: III

Proper shipping name: Barium compound, n.o.s. (Barium niobate)

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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:

Barium niobate

CAS-No.

12009-14-2

Revision Date

2007-07-01

### 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

Barium niobate

CAS-No.

12009-14-2

Revision Date

2007-07-01

### New Jersey Right To Know Components

Barium niobate

CAS-No.

12009-14-2

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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## 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.