SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Identifier: (2N) 99% Barium Niobate

Product Code: BA-NBO-02-C

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 : $BaNb_2O_6$
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 %

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

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

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.

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/m3: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
TWA 0.500000 mg/m3: USA. ACGIH Threshold Limit Values (TLV)
Remarks:
Eye, skin, & Gastrointestinal irritation
Muscular stimulation
Not classifiable as a human carcinogen
Value:
TWA 0.5 mg/m3 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.

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

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

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.

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. 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.

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)

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.

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.