

# SAFETY DATA SHEET

Date Printed: 05/16/2024

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## SECTION 1. IDENTIFICATION

**Product Identifier:** (4N) 99.99% Boron Trifluoride Dibutyl Etherate

**Product Code:** BF3-OMX-04

**CAS Number:** 593-04-4

**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

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

Flammable liquids(Category 4), H227

Acute toxicity, Oral(Category 3), H301

Acute toxicity, Inhalation(Category 3), H331

Acute toxicity, Dermal(Category 3), H311

Skin corrosion(Category 1B), H314

Serious eye damage(Category 1), H318

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H227

Combustible liquid

H301 + H311 + H331

Toxic if swallowed, in contact with skin or if inhaled

H314

Causes severe skin burns and eye damage.

Precautionary statement(s)

P210

Keep away from heat/sparks/open flames/hot surfaces. -No smoking.

P261

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

P280

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

P301 + P310

IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

P301 + P330 + P331

IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

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.

P310

Immediately call a POISON CENTER or doctor/ physician.

P322

Specific measures (see supplemental first aid instructions on this label).

P361

Remove/Take off immediately all contaminated clothing.

P363

Wash contaminated clothing before reuse.

P370 + P378

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P403 + P233

Store in a well-ventilated place. Keep container tightly closed.

P403 + P235

Store in a well-ventilated place. Keep cool.

P405

Store locked up.

P501

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

Hazards not otherwise classified (HNOC) or not covered by GHS-none

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Formula: C<sub>8</sub>H<sub>18</sub>BF<sub>3</sub>O

Molecular Weight: 198.03 g/mol

CAS-No.: 593-04-4

EC-No.: 209-783-5

Boron trifluoride dibutyl etherate

Flam. Liq.4; Acute Tox.3; Skin Corr.1B; Eye Dam.1; H227, H301 + H311 + H331, H314

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## SECTION 4. FIRST AID MEASURES

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

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

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

Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water.

Consult a physician.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

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 media

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen fluoride, Borane/boron oxides

Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Use water spray to cool unopened containers.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing Vapors, mist or gas. Ensure adequate ventilation.

Remove all sources of ignition. Evacuate personnel to safe areas. Beware of Vapors accumulating to

form explosive concentrations. Vapors can accumulate in low areas.

For personal protection see section 8.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

Reference to other sections

For disposal see section 13.

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

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of Vapor or mist.

Keep away from sources of ignition -No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Moisture sensitive.

Specific end use(s)

Apart from the uses mentioned in section 1 no other specific uses are stipulated

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

Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). 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

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators

and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Form: liquid

Odor

no data available

Odor Threshold

no data available

pH

no data available

Melting point/freezing point

no data available

Initial boiling point and boiling range

no data available

Flash point

70 °C (158 °F)-closed cup

Evaporation rate

no data available

Flammability (solid, gas)

no data available

Upper/lower flammability or explosive limits

no data available

Vapor pressure

no data available

Vapor density

no data available

Relative density

0.959 g/cm<sup>3</sup> at 25 °C (77 °F)

Water solubility

no data available

Partition coefficient: n-octanol/water

no data available

Auto-ignition temperature

no data available

Decomposition temperature

no data available

Viscosity

no data available

Explosive properties

no data available

Oxidizing properties

no data available

Other safety information

no data available

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## SECTION 10. STABILITY AND REACTIVITY

### Reactivity

no data available

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

Heat, flames and sparks.

### Incompatible materials

Strong oxidizing agents

Strong oxidizing agents

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

### Information on toxicological effects

#### Acute toxicity

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.

##### ACGIH:

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

##### 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

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

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## SECTION 12. ECOLOGICAL INFORMATION

#### Toxicity

no data available

#### Persistence and degradability

no data available

#### Bioaccumulative potential

no data available

#### Mobility in soil

no data available

#### Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

#### Other adverse effects

no data available

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## SECTION 13. DISPOSAL CONSIDERATIONS

#### Waste treatment methods

##### Product

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

Offer surplus and non-recyclable solutions to a licensed disposal company.

##### Contaminated packaging

Dispose of as unused product.

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## SECTION 14. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### DOT (US)

UN number: 3264

Class: 8

Packing group: II

Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s.(Boron trifluoride dibutyl etherate)

Marine pollutant: No

Poison Inhalation Hazard: No

#### IMDG

UN number: 3264

Class: 8

Packing group: II

EMS-No: F-A, S-B

Proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(Boron trifluoride dibutyl etherate)

Marine pollutant: No

#### IATA

UN number: 3264

Class: 8

Packing group: II

Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s.(Boron trifluoride dibutyl etherate)

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## SECTION 15. REGULATORY INFORMATION

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: 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

Fire Hazard

Massachusetts Right To Know Components

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

Pennsylvania Right To Know Components

Boron trifluoride dibutyl etherate

CAS-No.

593-04-4

New Jersey Right To Know Components

Boron trifluoride dibutyl etherate

CAS-No.

593-04-4

Revision Date

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.