



[Boron Trifluoride Dibutyl Etherate](#)

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Linear Formula	BF ₃ •C ₈ H ₁₈ O
Pubchem CID	68970
MDL Number	MFCD00013195
EC No.	209-783-5
IUPAC Name	1-butoxybutane; trifluoroborane
Beilstein/Reaxys No.	N/A
SMILES	FB(F)F.O(CCCC)CCCC
Inchl Identifier	InChI=1S/C8H18O.BF3/c1-3-5-7-9-8-6-4-2;2-1(3)/h3-8H2,1-2H3;
Inchl Key	PVKVBDZRILNPJY-UHFFFAOYSA-N

Signal Word	Danger
Hazard Statements	P261-P280-P301 + P310-P305 + P351 + P338-P310
Hazard Codes	T
Precautionary Statements	P261-P280-P301 + P310-P305 + P351 + P338-P310
Flash Point	158 °F 70 °C
Risk Codes	23/24/25-34
Safety Statements	26-27-36/37/39-45
RTECS Number	N/A
Transport Information	UN 3264 8 / PGII
WGK Germany	3
GHS Pictograms	<p>GHS05 Corrosive</p>  <p>GHS06 Skull and Crossbones</p> 

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SAFETY DATA SHEET

Date Accessed: 03/29/2024

Date Revised: 01/15/2022

SECTION 1. IDENTIFICATION

Product Identifiers: All applicable American Elements product codes for CAS #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:
Domestic, North America +1 800-424-9300
International +1 703-527-3887

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
Formula: C₈H₁₈BF₃O
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

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

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.

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.

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

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.

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/cm³ 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

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

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

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

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.

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)

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.

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.
