SAFETY DATA SHEET

Date Printed: 09/22/2019
Date Revised: 05/15/2015

SECTION 1. IDENTIFICATION

Product Identifier: (2N) 99% Boron Trifluoride Dibutyl Etherate

Product Code: BF3-OMX-02

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
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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: 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

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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.

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

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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

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.