



Safety Data Sheet

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SECTION 1: Identification

1.1 GHS Product identifier

Product name BOE 5:1

1.2 Other means of identification

Buffer Oxide Etch

1.3 Recommended use of the chemical and restrictions on use

Industrial, Manufacturing or Laboratory use

1.4 Supplier's details

Name High Purity Products
Address 14546 N. Lombard Street
Portland OR 97203
United States of America

Telephone 503-227-1616
email help.desk@highpp.com

1.5 Emergency phone number

CHEMTREC: 1-800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200)

- Acute toxicity, oral, Cat. 3
- Eye damage/irritation, Cat. 1
- Acute toxicity, dermal, Cat. 2
- Skin corrosion/irritation, Cat. 1A
- Acute toxicity, inhalation, Cat. 3

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2.2 GHS label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H302	Toxic if swallowed
H310	Fatal in contact with skin
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled

Precautionary statement(s)

P261	Avoid breathing vapors.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear eye protection/face protection/protective gloves/protective clothing.
P284	In case of inadequate ventilation wear respiratory protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor
P302+P352	IF ON SKIN: Wash and use calcium gluconate gel
P304+P340	IF INHALED: Remove person to fresh air and keep 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.
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

SECTION 3: Composition/information on ingredients

3.1 Mixture

Components	CAS #	Percent (weight)
Ammonium fluoride	12125-01-8	30-36%
Hydrofluoric acid	7664-39-3	5-10%
Water	7732-18-5	56-60%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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In case of skin contact	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. If available, apply calcium gluconate gel (2.5%) into burn area continuously for 15 minutes or until pain relief. Take patient to a physician or hospital.
In case of eye contact	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention/advice.
If swallowed	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION 5: Fire-fighting measures

- 5.1 Suitable extinguishing media**
Not considered to be a fire hazard.
- 5.2 Specific hazards arising from the chemical**
If involved in a fire, can emit toxic fumes and irritating and corrosive gases.
- 5.3 Special protective actions for fire-fighters**
Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures**
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.
- 6.2 Environmental precautions**
Do not let product enter drains. Prevent further leakage or spillage if safe to do so. Do not contaminate the water.
- 6.3 Methods and materials for containment and cleaning up**
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling**
Keep in tightly closed polyethylene containers. Store in a cool, dry place with adequate ventilation separated from other chemicals. Protect from physical damage. Storage facilities should be constructed for containment and neutralization of spills.
- 7.2 Conditions for safe storage, including any incompatibilities**
Keep container tightly closed in a dry and well-ventilated place.

SECTION 8: Exposure controls/personal protection

- 8.1 Control parameters**
Hydrofluoric acid:
NIOSH REL TWA 3 ppm (2.5 mg/m³) C 6 ppm (5 mg/m³) [15-minute]
- 8.2 Appropriate engineering controls**

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Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Pictograms



Eye/face protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH.

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.

Respiratory protection

If the exposure limit is exceeded and engineering controls are not feasible, a full face piece respirator with an acid gas cartridge and particulate filter (NIOSH type N100 filter) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid
Appearance	Clear Liquid
Color	Colorless
Odor	Slight smell
Odor threshold	No data available.
pH	3-4
Melting point/freezing point	No data available.
Boiling point or initial boiling point and boiling range	No data available.
Flash point	Not Flammable
Evaporation rate	No data available.
Flammability	No data available.
Vapor pressure	No data available.
Relative vapor density	No data available.
Density and/or relative density	1.118
Solubility	Miscible
Partition coefficient n-octanol/water (log value)	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Kinematic viscosity	No data available.

Particle characteristics

No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity

None under normal use conditions.

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10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Reaction with strong acids to produce hazardous HF gas or Hydrofluoric Acid, with strong bases to yield Ammonia. Avoid strong oxidizing agents. Corrodes glass and metals. On heating to decomposition, could yield toxic fumes of fluorides, nitric oxides, and ammonia. On contact with metals, liberates hydrogen gas. Attacks glass and other silicon containing compounds. Reacts with silica to produce silicon tetrafluoride, a hazardous colorless gas.

10.4 Conditions to avoid

Glass & Metals

10.5 Incompatible materials

Oxidizing agents, strong acids, Moisture, bases, organic material, metals, glass, ceramics, aluminum, stainless steel, carbonates, cyanides, sulfides.
Reacts violently with acetic anhydride, ammonium hydroxide, arsenic trioxide, calcium oxide, potassium permanganate, sodium, sodium hydroxide, sulfuric acid

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions - Nitrogen oxides (NOx), Hydrogen Fluoride, Ammonia.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Ammonium Fluoride:

LD50 – oral – rat – 223 mg/kg

LD50 – dermal – rat – 2.00 mg/kg

Hydrofluoric Acid:

LC50 – inhalation – rat – 1,276 ppm/1H

Skin corrosion/irritation

Irritation, burns, dermatitis.

Serious eye damage/irritation

Irritation, burns

Respiratory or skin sensitization

Irritation, chills, difficulty breathing, coughing, fever.

Germ cell mutagenicity

May cause genetic effects based on animal data.

Carcinogenicity

No data available.

Reproductive toxicity

May cause fetal toxicity based on animal data.

STOT-single exposure

Liver, Kidneys, Bone.

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STOT-repeated exposure

No data available.

Aspiration hazard

No data available.

SECTION 12: Ecological information

Toxicity

Ammonium Fluoride:

The LC50/96-hour values for fish are over 100 mg/l.

Hydrofluoric Acid:

Aquatic fish; EC50 (48 hours): 270 mg/l

This material is expected to be slightly toxic to aquatic life.

Persistence and degradability

Expected to be readily biodegradable.

Bioaccumulative potential

No data available.

SECTION 13: Disposal considerations

Disposal methods

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN Number: UN2922

Class: 8 (6.1)

Packing Group: II

Proper Shipping Name: Corrosive liquids, toxic, n.o.s., (Hydrofluoric Acid, Ammonium Fluoride)

Reportable quantity (RQ): 300 lbs.

IMDG

UN Number: UN2922

Class: 8 (6.1)

Packing Group: II

Proper Shipping Name: Corrosive liquids, toxic, n.o.s., (Hydrofluoric Acid, Ammonium Fluoride)

IATA

UN Number: UN2922

Class: 8 (6.1)

Packing Group: II

Proper Shipping Name: Corrosive liquids, toxic, n.o.s., (Hydrofluoric Acid, Ammonium Fluoride)

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Massachusetts Right To Know Components

Chemical name: Ammonium fluoride

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CAS number: 12125-01-8

New Jersey Right To Know Components

Common name: AMMONIUM FLUORIDE

CAS number: 12125-01-8

Pennsylvania Right To Know Components

Chemical name: Ammonium fluoride

CAS number: 12125-01-8

Canadian Domestic Substances List (DSL)

Chemical name: Ammonium fluoride ((NH4)F)

CAS: 12125-01-8

Massachusetts Right To Know Components

Chemical name: Hydrofluoric acid

CAS number: 7664-39-3

New Jersey Right To Know Components

Common name: HYDROGEN FLUORIDE

CAS number: 7664-39-3

Pennsylvania Right To Know Components

Chemical name: Hydrofluoric acid

CAS number: 7664-39-3

Canadian Domestic Substances List (DSL)

Chemical name: Hydrofluoric acid

CAS: 7664-39-3

EPCRA Section 302 (EHS) TPQ Extremely Hazardous Substances

Hydrofluoric Acid: 100 lbs

EPCRA Section 304 EHS RQ Reportable Quantities

Hydrofluoric Acid: 100 lbs

CERCLA RQ Hazardous Substances

Ammonium Fluoride: 100 lbs

Hydrofluoric Acid: 100 lbs

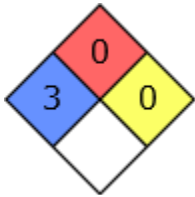
EPCRA Section 313 Toxic chemicals

Hydrofluoric Acid

HMIS Rating

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HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

NFPA Rating



SECTION 16: Other information

16.1 Further information/disclaimer

High Purity Products provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. **HIGH PURITY PRODUCTS MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, HIGH PURITY PRODUCTS WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.**