

Ammonium Fluoroborate

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ammonium Fluoroborate

Synonyms/Generic Names: Ammonium tetrafluoroborate

Product Number: 0477

Product Use: Industrial, Manufacturing or Laboratory use

Manufacturer: Columbus Chemical Industries, Inc.
N4335 Temkin Rd.
Columbus, WI. 53925

For More Information Call: 920-623-2140 (Monday-Friday 8:00-4:30)

In Case of Emergency Call: CHEMTREC - 800-424-9300 or 703-527-3887 (24 Hours/Day, 7 Days/Week)

2. HAZARDS IDENTIFICATION

OSHA Hazards: Corrosive

Target Organs: None

Signal Word: Danger

Pictograms:



GHS Classification:

Skin irritation	Category 1B
Serious eye damage	Category 1

GHS Label Elements, including precautionary statements:

Hazard Statements:

H314	Causes severe skin burns and eye damage.
------	--

Precautionary Statements:

P260	Do not breathe dusts or mists.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do not induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.
P310	Immediately call a POISON CENTER/doctor/physician.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local regulations.

Potential Health Effects

Eyes	Causes eye burns.
Inhalation	May be harmful if inhaled.
Skin	May be harmful if absorbed through skin. Causes skin burns.
Ingestion	May be harmful if swallowed.

NFPA Ratings

Health	3
Flammability	0
Reactivity	0
Specific hazard	Not Available

HMIS Ratings

Health	3
Fire	0
Reactivity	0
Personal	Not Available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	CAS #	EINECS# / ELINCS#	Formula	Molecular Weight
Ammonium Fluoroborate	>99	13826-83-0	237-531-4	NH ₄ BF ₄	104.86 g/mol

4. FIRST-AID MEASURES

Eyes	Rinse with plenty of water for at least 15 minutes and seek medical attention immediately.
Inhalation	Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
Skin	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap. Get medical attention immediately.
Ingestion	Do Not Induce Vomiting! Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media	Product is not flammable. Use appropriate media for adjacent fire. Cool unopened containers with water.
Special protective equipment and precautions for firefighters	Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.
Specific hazards arising from the chemical	Emits toxic fumes (borane, boron oxides, hydrogen fluoride, boron trifluoride, ammonia) under fire conditions. (See also Stability and Reactivity section).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	See section 8 for recommendations on the use of personal protective equipment.
Environmental precautions	Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements.

Methods and materials for containment and cleaning up	Sweep up and place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations.
--	--

7. HANDLING AND STORAGE

Precautions for safe handling

See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use. Avoid formation of dusts.

Conditions for safe storage, including any incompatibilities

Store in cool, dry well ventilated area. Keep away from incompatible materials (see section 10 for incompatibilities).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls:

Component	Exposure Limits	Basis	Entity
Ammonium Fluoroborate	2.5 mg/m ³	PEL	OSHA
	2.5 mg/m ³	REL	NIOSH
	2.5 mg/m ³	REL	ACGIH

TWA: Time Weighted Average over 8 hours of work.

TLV: Threshold Limit Value over 8 hours of work.

REL: Recommended Exposure Limit

PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit during x minutes.

IDLH: Immediately Dangerous to Life or Health

WEEL: Workplace Environmental Exposure Levels

CEIL: Ceiling

Personal Protection

Eyes	Wear chemical safety glasses or goggles.
Inhalation	Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.
Skin	Wear nitrile or rubber gloves, and apron or lab coat. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Other	Not Available

Other Recommendations

Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	White crystals.
Odor	Odorless.
Odor threshold	Not Available
pH	3.5 at 5 g/L at 20°C
Melting point/freezing point	Sublimes above 238°C.
Initial boiling point and boiling range	Decomposes.
Flash point	Not Flammable
Evaporation rate	Not Available
Flammability (solid, gas)	Not Flammable
Upper/lower flammability or explosive limit	Not Explosive

Vapor pressure	Not Available
Vapor density	Not Available
Density	1.85 g/cm ³
Solubility (ies)	Not Available
Partition coefficient: n-octanol/water	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	Not Available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable
Possibility of Hazardous Reactions	Will not occur.
Conditions to Avoid	Moisture, excessive heat.
Incompatible Materials	Glass, strong acids, strong bases, aluminum.
Hazardous Decomposition Products	Borane, boron oxides, hydrogen fluoride, boron trifluoride, ammonia.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Skin	Not Available
Eyes	Not Available
Respiratory	Not Available
Ingestion	Not Available

Carcinogenicity

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

Signs & Symptoms of Exposure

Skin	Irritation, inflammation, blistering.
Eyes	Irritation, redness, watering eyes, itchiness.
Respiratory	Burning, sneezing, coughing.
Ingestion	Irritation, nausea, vomiting, diarrhea, hypocalcemia, vasomotor depression, cardiac disturbances.

Chronic Toxicity	Chronic exposure to fluorides may damage kidneys and cause fluorosis.
Teratogenicity	Not Available
Mutagenicity	Not Available
Embryotoxicity	Not Available
Specific Target Organ Toxicity	Not Available
Reproductive Toxicity	Not Available
Respiratory/Skin Sensitization	Not Available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Aquatic Vertebrate	Not Available
Aquatic Invertebrate	Not Available
Terrestrial	Not Available

Persistence and Degradability	Not Available
Bioaccumulative Potential	Not Available
Mobility in Soil	Not Available
PBT and vPvB Assessment	Not Available
Other Adverse Effects	Not Available

13. DISPOSAL CONSIDERATIONS

Waste Product or Residues	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product or residue.
Product Containers	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

14. TRANSPORTATION INFORMATION

US DOT	UN3260, Corrosive solids, acidic, inorganic, n.o.s., (ammonium fluoroborate), 8, pg II
TDG	UN3260, CORROSIVE SOLIDS, ACIDIC, INORGANIC, N.O.S., (AMMONIUM FLUOROBORATE), 8, PG II
IMDG	UN3260, CORROSIVE SOLIDS, ACIDIC, INORGANIC, N.O.S., (AMMONIUM FLUOROBORATE), 8, PG II
Marine Pollutant	No
IATA/ICAO	UN3260, Corrosive solids, acidic, inorganic, n.o.s., (ammonium fluoroborate), 8, pg II

15. REGULATORY INFORMATION

TSCA Inventory Status	All ingredients are listed on the TSCA inventory.
DSCL (EEC)	All ingredients are listed on the DSCL inventory.
California Proposition 65	Not Listed
SARA 302	Not Listed
SARA 304	Not Listed
SARA 311	Acute Health Hazard
SARA 312	Acute Health Hazard
SARA 313	Not Listed
WHMIS Canada	Class E: Corrosive solid.

16. OTHER INFORMATION

Revision	Date
Revision 1	03/12/2013
Revision 2	02/16/2015
Revision 3	06/20/2017

Disclaimer: Columbus Chemical Industries, Inc. ("Columbus") believes that the information herein is factual but is not intended to be all inclusive. The information relates only to the specific material designated and does not relate to its use in combination with other materials or its use as to any particular process. Because safety standards and regulations are subject to change and because Columbus has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. COLUMBUS MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING (WITHOUT LIMITATION)

WARRANTIES WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED
HEREIN OR WITH RESPECT TO FITNESS FOR ANY PARTICULAR USE.