

**Section 1: Product & Company Information****Product Identifier: Ammonium Bifluoride****Other Means of Identification**

Product Number: 112000

**Recommended Use and Restrictions on Use**

Recommended Use: Laboratory chemicals, Synthesis of substances

Restrictions on Use: No data available.

**Manufacturer / Importer / Supplier / Distributor Information****Company Name:** CORECHEM Inc.**Address:** 4320 Greenway Drive  
Knoxville, TN 37918 USA**Information Telephone Number:** 1-865-524-4239**Fax Number:** 1-865-524-3375**Website:** [www.corecheminc.com](http://www.corecheminc.com)**Contact Person:** Regulatory Manager**E-mail:** [regulatory@corecheminc.com](mailto:regulatory@corecheminc.com)**Emergency Phone Number:** Chemtrec® 1-800-424-9300 / Outside USA 1-703-527-3887 (*monitored 24 hours/day*)**Section 2: Hazards Identification****GHS Hazard Classification(s)**

In accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 (HazCom 2012).

**Physical Hazard(s)**

Not classified.

**Health Hazard(s)**

Acute Toxicity, Oral - 3

Corrosion/Irritation, Skin – 1B

(Corrosion)Damage/Irritation, Eye - 1

**Environmental Hazard(s)**

Not classified.

**Label Elements****Signal Word****DANGER****Hazard Symbol(s)****Hazard Statement(s)**

H301: Toxic if swallowed.

H314: Causes severe skin burns and eye damage.

H318: Causes serious eye damage.

**Precautionary Statements****General**

Not applicable.

**Prevention**

P260: Do not breathe dust/fume/gas/mist/vapors/spray.

P264: Wash face, hands and any exposed skin thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

**Response**

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 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.  
 P321: Specific treatment (see supplemental first aid instructions on this label).  
 P330: Rinse mouth.  
 P363: Wash contaminated clothing before reuse.

**Storage**

P405: Store locked up.

**Disposal**

P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Hazard(s) not otherwise classified (HNOC)**

None known.

**Section 3: Composition/Information on Ingredients**
**Substance**

Chemical Identity <sup>2</sup>	Common Name/Synonym(s)	CAS # <sup>3</sup>	Weight %	Impurity or Stabilizing Additive
Ammonium Bifluoride	Ammonium hydrogen difluoride; Acid ammonium fluoride; Ammonium acid fluoride; Ammonium hydrogen bifluoride; Ammonium hydrogen fluoride	1341-49-7	100%	No

1. Information regarding the composition and the percentage ranges of the mixtures ingredients are not presented as it Confidential Business Information (CBI). Where a medical emergency exists (as determined by medical professional), timely disclosure of CBI is assured. The information omitted pertains to only the names of the substances and the concentration in the mixture (product) and can only be requested by a doctor/physician or Local/State/Provincial or Federal Authority.
2. Non-hazardous ingredients are not presented as to protect the proprietary formula of the product.
3. — “Indicates ingredient is a mixture and contains multiple ingredients or may have no identifying CAS number.

**Section 4: First-Aid Measures**
**General Information**

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

**Inhalation**

Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention.

**Skin Contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

**Eye Contact**

After eye contact: rinse out with plenty of water. Immediately call an ophthalmologist. Remove contact lenses.

**Ingestion**

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralize.

**Most important symptoms/effects, acute and delayed**
**Symptoms**

Burning sensation.

**Indication of immediate medical attention and special treatment needed**
**Hazards**

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of the stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

**Treatment**

Treat symptomatically. Symptoms may be delayed.

**Section 5: Fire-Fighting Measures**

**General Fire Hazards**

In case of fire and/or explosion do not breathe fumes. Use water spray to keep fire-exposed containers cool. Move containers from the fire area if you can do so without risk. Water may be ineffective in fighting fire. Fight fire from a protected location.

**Suitable (and Unsuitable) Extinguishing Media**
**Suitable Extinguishing Media**

In case of fire, use water fog, dry chemical, CO<sub>2</sub> or "alcohol resistant" foam.

**Unsuitable Extinguishing Media**

Do not scatter spilled material with high pressure water streams.

**Specific Hazards Arising from the Chemical**

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

**Special Protective Equipment and Precautions for Firefighters**
**Special Fire-Fighting Equipment Procedures**

Suppress gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**Special Protective Equipment for Fire-Fighters**

As in any fire, wear self-contained breathing apparatus pressure-demand (OSHA/NIOSH approved or equivalent) and full protective gear.

## Section 6: Accidental Release Measures

**Personal Precautions, Protective Equipment and Emergency Procedures**

Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Methods and Materials for Containment and Clean-Up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take it up carefully. Dispose of properly. Clean up affected area. Avoid generation of dust.

**Notification Procedures**

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

**Environmental Precautions**

Do not let product enter drains

## Section 7: Handling and Storage

**Precautions for Safe Handling**

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

**Conditions for Safe Storage, including any Incompatibilities**

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Protect from moisture. Store locked up. Store away from other materials.

## Section 8: Exposure Controls/Personal Protection

**Control Parameters**
**Occupational Exposure Limits**

Chemical Identity	Type	Value	Source
Ammonium Bifluoride - as F	TWA	2.5 mg/m <sup>3</sup>	US. ACGIH Threshold Limit Values
Ammonium Bifluoride - as F	PEL	2.5 mg/m <sup>3</sup>	US OSHA Table Z-1
Ammonium Bifluoride - as F	TWA	2.5 mg/m <sup>3</sup>	US OSHA Table Z-1
Ammonium Bifluoride - Dust.	TWA	2.5 mg/m <sup>3</sup>	US OSHA Table Z-1

**Biological Limit Values**

Chemical Identity	CAS #	Parameter	Value	Biological Specimen	Source
Ammonium Bifluoride	1341-49-7	Fluoride	2 mg/l	Urine	ACGIH – Biological Exposure Indices (BEI)
Remarks: Sampling Time: Prior to shift					
Ammonium Bifluoride	1341-49-7	Fluoride	3 mg/l	Urine	ACGIH – Biological Exposure Indices (BEI)
Remarks: Sampling Time: End of shift					

**Appropriate Engineering Controls**

Showers, eyewash stations, and ventilation systems.

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

**General Information**

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

**Eye/Face Protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles.

**Skin Protection**
**Hand Protection**

Wear suitable gloves. Impervious gloves.

**Other**

Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

**Respiratory Protection**

Required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Hygiene Measures**

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

## Section 9: Physical and Chemical Properties

**Appearance:**

Physical State:	Solid
Color:	White
<b>Odor:</b>	Slightly Pungent.
<b>Odor Threshold:</b>	No data available.
<b>pH:</b>	No data available.
<b>Melting Point/Freezing Point:</b>	124.6 °C (257 °F) - lit.
<b>Initial Boiling Point and Boiling Range:</b>	>239.5 °C / °F
<b>Flash Point:</b>	No data available.
<b>Evaporation Rate (butyl acetate=1):</b>	No data available.
<b>Flammability (solid, gas):</b>	The product is not flammable.

**Upper/Lower Limit on Flammability or Explosive Limits**

Flammability Limit – Upper:	No data available.
Flammability Limit – Lower:	No data available.
Explosive Limit – Upper:	No data available.
Explosive Limit – Lower:	No data available.

**Vapor Pressure:**

<b>Vapor Density (air =1):</b>	No data available.
<b>Relative Density (water=1):</b>	1.5

**Solubility(ies):**

Solubility in water:	Very soluble in water.
Solubility in ethanol:	1.73% @ 25°C

**Partition coefficient (n-octanol/water):**

<b>Auto-Ignition Temperature:</b>	No data available.
<b>Decomposition Temperature:</b>	No data available.

**Viscosity:**

<b>Other Information:</b>	No data available.
Molecular Weight:	57.04 g/mol

Formula:	H5F2N
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## Section 10: Stability and Reactivity

**Reactivity**

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

**Chemical Stability**

The product is chemically stable under standard ambient conditions (room temperature).

**Possibility of Hazardous Reactions**

None under normal processing..

## Conditions to Avoid

Exposure to air or moisture over prolonged periods. Avoid generation of dust. Heat, flames and sparks.

## Incompatible Materials

Acids. Bases. Oxidizing agent. Alkali. Amines.

## Hazardous Decomposition Products

Thermal decomposition can lead to the release of irritating and toxic gases and vapors. Ammonia. Hydrogen fluoride.

## Section 11: Toxicological Information

### Information on routes of exposure

**Ingestion:** Specific test data for the substance or mixture is not available. Causes burns. (Based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

**Inhalation:** Specific test data for the substance or mixture is not available. Corrosive by inhalation. (Based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.

**Skin Contact:** Specific test data for the substance or mixture is not available. Corrosive. (Based on components). Causes burns.

**Eye Contact:** Specific test data for the substance or mixture is not available. Causes serious eye damage. (Based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.

### Information on Toxicological Effects

#### Acute Toxicity (List all possible routes of exposure)

##### Oral

Ammonium Bifluoride: LD 50 (Rat): Approximate 130 mg/kg

##### Dermal

No data available.

##### Inhalation

No data available.

##### Repeated Dose Toxicity

No data available.

### Skin Corrosion/Irritation

Causes burns.

### Serious Eye Damage/Eye Irritation

Risk of serious damage to eyes. Causes burns.

### Respiratory/Skin Sensitization

No data available.

### Carcinogenicity

#### IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

Group 3.

#### US. National Toxicology Program (NTP) Report on Carcinogens

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.

#### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

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.

### Germ Cell Mutagenicity

#### In Vitro

No mutagenic components identified.

#### In Vivo

No mutagenic components identified.

### Reproductive Toxicity

No components toxic to reproduction

### Specific Target Organ Toxicity – Single Exposure

No data available.

### Specific Target Organ Toxicity – Repeated Exposure

No data available.

**Aspiration Hazard**

Not classified.

**Other Effects**

None known.

## Section 12: Ecological Information

**Ecotoxicity****Acute Hazards to the Aquatic Environment****Fish**

No data available.

**Aquatic Invertebrates**

No data available.

**Toxicity to Aquatic Plants**

No data available.

**Chronic Hazards to the Aquatic Environment****Fish**

No data available.

**Aquatic Invertebrates**

No data available.

**Toxicity to Aquatic Plants**

No data available.

**Persistence and Degradability****Biodegradation**

Inherently biodegradable.

**BOD/COD Ratio**

No data available.

**Bioaccumulative Potential****Biocconcentration Factor (BCF)**

No data available on bioaccumulation.

**Partition Coefficient n-octanol / water (log Kow)**

No data available.

**Mobility in Soil**

No data available.

**Other Adverse Effects**

No information available.

## Section 13: Disposal Considerations

**Disposal Instructions**

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

**Contaminated Packaging**

Handle uncleaned containers like the product itself.

## Section 14: Transportation Information

**US Department of Transportation (DOT)**

UN Number: UN1727

UN Proper Shipping Name: Ammonium hydrogen difluoride, solid

Technical Name:

Hazard Class: 8

Subsidiary Hazard Risk: -

Packing Group: II

DOT Label/Placard Exemptions: Not determined

Special Provisions: 1B8, IP2, IP4, N34, T3, TP33.

Packaging Exceptions: 49CFR 173.154

Packaging Non-Bulk: 49CFR 173.212

Packaging Bulk: 49CFR 173.240

Reportable Quantity (RQ): 100lb (45.4kg)

Marine Pollutant: No

Poison Inhalation Hazard: No

Special precautions for user: Transport within the user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Emergency Response Guidebook (ERG) #: 154

*Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.*

## Section 15: Regulatory Information

### US Federal Regulations

#### Toxic Substance Control Act (TSCA), Chemical Substance Inventory, Section 8(b)

This product or ingredient(s) are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

#### Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substance List (40 CFR 302.4)

The following chemical(s) in this material are subject to reporting levels established by CERCLA:

Ammonium Bifluoride (CAS# 1341-49-7) - RQ 100 lb final RQ

#### Clean Air Act (CAA), Section 112(r)

No chemical(s) in this material are subject to the reporting requirements of CAA.

#### Emergency Planning and Community Right-To-Know Act (EPCRA)

##### EPCRA 302 Extremely Hazardous Substance

No chemical(s) in this material are subject to the reporting requirements of SARA Title III, Section 302.

##### EPCRA 304 Emergency Response Notification

No chemical(s) in this material are subject to the reporting requirements of SARA Title III, Section 304.

##### EPCRA 311/312 Emergency and Hazardous Materials Reporting

Fire Hazard: No

Sudden Release of Pressure: No

Reactive: No

Acute (Immediate) Health Hazard: Yes

Chronic (Delayed) Health Hazard: No

##### EPCRA 313 Toxic Chemical Release Inventory (TRI) Reporting

The following chemical(s) in this material are subject to reporting levels established by SARA Title III, Section 313:

Ammonium Bifluoride.

### US State Regulations

#### California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

*Important Note: Due to the changing nature of regulatory requirements, the information in this document should NOT be considered all-inclusive or authoritative. Users should make their own investigations to determine the suitability of the information for their particular purposes. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.*

## Section 16: Other Information

### Hazardous Materials Identification System (HMIS®) Classification

**Health Hazard: 3**

**Chronic Health Hazard: /**

**Flammability: 0**

**Physical Hazard: 0**

**Personal Protection: X**

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

### National Fire Protection Association (NFPA 704) Rating

**Health Hazard: 3**

**Fire Hazard: 0**

**Reactivity Hazard: 0**

**Special: N/A**

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

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Sections Revised: 8, 10, 15

## Key to Abbreviations and Acronyms

ATE - Acute Toxicity Estimate	ACGIH - American Conference of Industrial Hygienists
BCF - Bioconcentration Factor	AIHA - American Industrial Hygiene Association
EC50 - Effective concentration, 50%	BEI - Biological Exposure Indices
IDHL - Immediately Dangerous to Life and Health	CAS - Chemical Abstracts Service
Kg - Kilogram	DOT - US Department of Transportation
l - Liter	EPA - US Environmental Protection Agency
Ib - Pound	GHS - Globally Harmonized System of Classification and Labelling of Chemicals
LC50 - Lethal Concentration, 50%	IARC - International Agency for Research on Cancer
LD50 - Lethal Dose, 50%	IATA - International Air Transport Association
mg - milligram	IBC - Intermediate Bulk Container
ml - milliliter	IMDG - International Maritime Dangerous Goods
N/A - Not Applicable	NIOSH - National Institute for Occupational Safety and Health
N/D - Not Determined	NTP - National Toxicology Program
PEL - Permissible Exposure Limit	OSHA - US Occupational Health and Safety Administration
REL - Recommended Exposure Limit	SARA - US EPA Superfund Amendments and Reauthorization Act
STEL - Short-term Exposure Limit	TSCA - US EPA Toxic Substances Control Act
TWA - Time weighted average	UN - United Nations

## References

HSDB® - Hazardous Substances Data Bank

## Disclaimer

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