

# SHORECHEM, LLC

## MATERIAL SAFETY DATA SHEET

### Ammonium Fluoroborate

#### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Ammonium Fluoroborate

**OTHER/GENERIC NAMES:** Ammonium Tetrafluoroborate  
Ammonium Borofluoroborate

**PRODUCT CODES:** 194-1273

**PRODUCT USE:** Industrial

**DISTRIBUTOR:** ShoreChem, LLC  
12 Route 17 North, Suite 309  
Paramus, NJ 07652

**TELEPHONE:** (201) 845-4666  
(Monday-Friday, 8:30 AM – 5:00 PM)

**CHEMTREC PHONE:** 1800-424-9300  
(24 Hours/Day, 7 Days/Week)

#### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME:</u>	<u>CAS NO.</u>	<u>% WT</u>
Ammonium fluoborate	13826-83-0	>98
Tricalcium phosphate (* free-flowing grade only)	7758-87-4	*

Trace impurities and additional material names not listed above may also appear in Section 15 towards the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

**OSHA Hazard Communication Standard:** *This product is considered hazardous under the OSHA Hazard Communication Standard.*

#### SECTION 3: HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** White odorless crystals. Harmful or may be fatal if swallowed. Harmful if inhaled. May cause skin irritation. Causes eye irritation. Not flammable.

#### POTENTIAL HEALTH HAZARDS

**SKIN:** Contact with dust or solution may cause irritation. Prolonged or repeated contact will intensify the condition.

**EYES:** Direct eye contact to dust or mist will product severe irritation; prolonged contact may cause severe corneal damage.

**INHALATION:** Breathing dust, mist or fumes (latter from heated solutions) may irritation nose, throat and lungs.  
Gross overexposure may result in further toxic effects, including chills, labored breathing, fevers and unproductive cough.

**INGESTION:** Soluble fluoborates are expected to be corrosive to the gastrointestinal tract and may cause hemorrhagic gastroenteritis. Symptoms include severe shock, vasomotor depression, cardiac disturbances (which may result in fatal ventricular fibrillation), and

# SHORECHEM, LLC

## MATERIAL SAFETY DATA SHEET

### Ammonium Fluoroborate

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dangerous poisoning due to hypocalcemia (fluoride content will precipitate calcium stored in the body).

**DELAYED EFFECTS:** There is no chronic toxicity data on this material, however, NIOSH links inorganic fluoroborates with inorganic fluorides. Chronic exposure to fluorides is associated with osseous fluorosis- increased radiographic density of bones, mottling of teeth, etc. These conditions will not develop if permissible exposure levels are not exceeded. Kidney damage, asthma and symptoms resembling rheumatism may occur.

Ingredients found on one of the three OSHA designated carcinogen lists are listed below.

<u>INGREDIENT NAME</u>	<u>NTP STATUS</u>	<u>IARC STATUS</u>	<u>OSHA LIST</u>
No ingredients listed in this section			

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#### SECTION 4: FIRST AID MEASURES

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**SKIN:** Promptly wash with plenty of soap and water, then flush with water until all chemical is removed. Get medical attention for any irritation. Promptly remove contaminated clothing and wash before reuse.

**EYES:** Immediately flush eyes with large quantities of water for 15-20 minutes, holding eyelids open to allow thorough flushing. Get medical attention for potential corneal damage.

**INHALATION:** Remove to fresh air. If breathing is difficult, give oxygen, provided a qualified operator is available. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

**INGESTION:** Do not induce vomiting. If conscious give several glasses of milk or other calcium-containing liquids, or several ounces of milk of magnesia, if available; otherwise, give large quantities of water and get immediate medical attention.

**ADVICE TO PHYSICIAN:** Keep patient warm (but not hot) and quiet. Focus medical efforts on combating shock and reducing systemic toxicity of the fluoride ion. Fluorides can reduce serum calcium levels resulting in potentially fatal hypocalcemia.

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#### SECTION 5: FIRE-FIGHTING MEASURES

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##### FLAMMABLE PROPERTIES

<b>FLASH POINT:</b>	Not flammable
<b>FLASH POINT METHOD:</b>	Not applicable
<b>AUTOIGNITION TEMPERATURE:</b>	Not applicable
<b>UPPER FLAME LIMIT (volume % in air)</b>	Not applicable
<b>LOWER FLAME LIMIT (volume % in air)</b>	Not applicable
<b>FLAME PROPAGATION RATE (solids)</b>	Not applicable

##### **EXTINGUISHING MEDIA:**

Although not flammable, if involved in a fire, use water. Water spray will tend to reduce fumes and irritating gases.

# SHORECHEM, LLC

## MATERIAL SAFETY DATA SHEET

### Ammonium Fluoroborate

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#### UNUSUAL FIRE AND EXPLOSION HAZARDS:

Ammonium fluoborate decomposes at elevated temperatures to form toxic ammonia, hydrogen fluoride and boron trifluoride gases.  $\text{NH}_4\text{BF}_4$  may sublime when hot and condense on cool surfaces.

#### SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

As toxic gases may be present, firefighters should wear NIOSH-approved self-contained breathing apparatus, full protective clothing and goggles for needed eye protection. Do not splash onto personnel any water which has contacted this material. Cool fire-exposed containers with water spray.

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#### SECTION 6: ACCIDENTAL RELEASE MEASURES

##### IN CASE OF SPILL OR OTHER RELEASE: (See section 8 for recommended personal protective equipment.)

Sweep or shovel up with a minimum of dusting and collect in plastic container; cover, label and store for later disposal. Flush residue with water to complete clean-up, if permitted by applicable disposal regulations, taking care to keep solution that is formed from contacting eyes, skin and clothing.

Spills and releases may have to be reported to Federal and/or local authorities. See section 15 regarding reporting requirements.

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#### SECTION 7: HANDLING AND STORAGE

##### NORMAL HANDLING: (See section 8 for recommended personal protective equipment.)

Avoid contact with eyes, skin and clothing. Avoid breathing dust. Observe good personal hygiene and good housekeeping practices. Wash thoroughly after handling. Use with adequate ventilation and do not eat or smoke while handling.

##### STORAGE RECOMMENDATIONS:

Store at moderate temperatures in a dry, well-ventilated area away from food products. Material is an acid salt and should be kept away from water, acids and alkalis to prevent metal corrosion and increased irritation to skin and eyes. Keep containers tightly closed and protect from physical damage.

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#### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

##### ENGINEERING CONTROLS:

Ventilation should be adequate to meet TWA/TLV requirements. If dusty or misty conditions prevail, or if decomposition products are formed, provide local exhaust ventilation system of corrosion-resistant construction.

##### PERSONAL PROTECTIVE EQUIPMENT

- SKIN PROTECTION:** Wear protective rubber gloves and full protective clothing for routine product use. Exposed work clothing should be changed daily and never taken home. Shower daily after work.
- EYE PROTECTION:** Under normal working conditions, wear safety glasses. Where the possibility of contact of eyes with dust, mist or solution exists, wear chemical safety goggles and full facepiece. Do not wear contact lenses.

# SHORECHEM, LLC

## MATERIAL SAFETY DATA SHEET

### Ammonium Fluoroborate

#### RESPIRATORY PROTECTION

For low levels of dust or mist (<10 x TLV), use a NIOSH-approved dust or mist respirator. For intermediate levels of exposure (>10 x but <100 x TLV), use NIOSH approved, full-face, air cleaning respirators for both lung and eye protection. For high levels, use NIOSH-approved self-contained or supplied-air breathing systems.

#### ADDITIONAL RECOMMENDATIONS

Provide eyewash stations and quick drench shower facilities near work areas.

#### EXPOSURE GUIDELINES:

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER LIMIT</u>
Ammonium Fluoroborate	2.5 mg/m <sup>3</sup> ( as F) TWA	2.5 mg/m <sup>3</sup> (as F) TWA	F in urine: 3 mg/g creatinine pre shift, 10 mg/g Postshift. <sup>3</sup>

<sup>1</sup> = Limit established by Industry Standard.

<sup>2</sup> = Workplace Environmental Exposure Level (AIHA).

<sup>3</sup> = Biological Exposure Index (ACGIH).

#### OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:

None

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	White crystals
PHYSICAL STATE:	Solid
MOLECULAR WEIGHT:	104.84
CHEMICAL FORMULA:	NH <sub>4</sub> BF <sub>4</sub>
ODOR:	Essentially Odorless
SPECIFIC GRAVITY (H <sub>2</sub> O = 1):	1.85
SOLUBILITY IN WATER (weight %):	21 % @ 25C
BOILING POINT:	Not applicable; decomposition begins ~ 100 C
MELTING POINT:	Sublimes above 238 C
VAPOR PRESSURE:	Not applicable
VAPOR DENSITY (air= 1.0):	Not applicable
EVAPORATION RATE:	Not applicable
% VOLATILES:	Not applicable
FLASH POINT:	Not flammable

(Flash point method and additional flammability data are found in Section 5.)

### SECTION 10: STABILITY AND REACTIVITY

#### NORMALLY STABLE/(CONDITIONS TO AVOID):

Stable. Avoid high temperatures (material decomposes).

#### INCOMPATIBILITIES:

Solutions containing ammonium fluoroborate will be acidic and will react with acid-incompatible materials, e.g., cyanides, sulfides. Strong oxidants.

**SHORECHEM, LLC**  
**MATERIAL SAFETY DATA SHEET**  
**Ammonium Fluoroborate**

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**HAZARDOUS DECOMPOSITION PRODUCTS:**

Ammonia, hydrogen fluoride and boron trifluoride gases.  
In dilute solution, some hydrolysis to hydrofluoric acid may occur.

**HAZARDOUS POLYMERIZATION:**

Will not occur.

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**SECTION 11: TOXICOLOGICAL INFORMATION**

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**IMMEDIATE (ACUTE) EFFECTS:**

Hypocalcemia, possibly severe or fatal, may occur due to the fluoride content, which can precipitate calcium stored in the body.

**DELAYED (SUBCHRONIC AND CHRONIC EFFECTS)**

Chronic exposure to fluorides may damage the kidney and cause fluorosis.

**OTHER DATA:**

None.

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**SECTION 12: ECOLOGICAL INFORMATION**

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No data available but may be dangerous if it enters water intakes.

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**SECTION 13: DISPOSAL CONSIDERATIONS**

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**RCRA**

Is the unused product a RCRA hazardous waste if discarded? No      If yes, the RCRA ID number is: Not applicable.

**OTHER DISPOSAL CONSIDERATIONS:**

If permitted by regulations, material may be neutralized with alkali.

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product such as Mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

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**SECTION 14: TRANSPORT INFORMATION**

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**US DOT HAZARD CLASS:** Not regulated  
**US DOT ID NUMBER:**

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

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**SECTION 15: REGULATORY INFORMATION**

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**TOXIC SUBSTANCES CONTROL ACT (TSCA)**

**TSCA INVENTORY STATUS:** All ingredients listed on the TSCA Inventory

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# SHORECHEM, LLC

## MATERIAL SAFETY DATA SHEET

### Ammonium Fluoroborate

**OTHER TSCA ISSUES:** None

**SARA TITLE III/ CERCLA**

"Reportable/ Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>INGREDIENT NAME</u>	<u>SARA/CERCLA RQ (LB)</u>	<u>SARA EHS TPQ(LB)</u>
Ammonium fluoborate	5000	-----

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center (800) 424-8803 and to your Local Emergency Planning Committee.

**SECTION 311 HAZARD CLASS:** Immediate, delayed

**SARA 313 TOXIC CHEMICALS:**

The following ingredients are SARA 313 "Toxic Chemicals" and may be subject to annual reporting requirements. CAS numbers and weight percents are found in Section 2.

<u>INGREDIENT NAME</u>	<u>COMMENT</u>
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**STATE RIGHT-TO-KNOW**

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

<u>INGREDIENT NAME</u>	<u>WEIGHT%</u>	<u>COMMENT</u>
No ingredients listed in this section.		

**ADDITIONAL REGULATORY INFORMATION:**

None listed.

**WHMIS CLASSIFICATION (CANADA):**

Not determined

**FOREIGN CHEMICAL CONTROL INVENTORY STATUS**

Listed on Canadian DSL and EU EINECS.

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**SECTION 16: OTHER INFORMATION**

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**CURRENT ISSUE DATE:** October 4, 2005

**PREVIOUS ISSUE DATE:** JUNE 17, 2005

**CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:**

New Format

**OTHER INFORMATION:** None

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# SHORECHEM, LLC

## MATERIAL SAFETY DATA SHEET

### Ammonium Fluoroborate

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Date Created	Created By	Replaces	Area	Product/ Process	Special
10/04/05	JD	7/27/05	MSDS	Ammonium FI	CCS