

NAVIN FLUORINE INTERNATIONAL LTD		web: <a href="http://www.nfil.in">http://www.nfil.in</a> mailto: <a href="mailto:bulkfluoride@nfil.in">bulkfluoride@nfil.in</a>
		2nd Floor, Suntek Centre, 37/40, Subhash Road, Vile Parle (East), Mumbai-400057. India.

PRODUCT SPECIFICATION	
Title: AMMONIUM BIFLUORIDE (NH <sub>4</sub> HF <sub>2</sub> )	Document No. : NFIL/QC/SPEC/FP/051/00 Effective Date : 05/11/2008

Material Code : FLU008001

Packing : Normal & UN-Certified 35 kg & 25 kg Bags.

Storage Specification : Stored in dry condition at room temperature.

Structural Formula :  $\text{FH}_4\text{N}^+$   
F<sup>-</sup>

Molecular Formula : H<sub>5</sub>F<sub>2</sub>N

Molecular Weight : 57.04

Synonyms : Ammonium hydrogen fluoride; ammonium difluoride

Sr. No.	TEST	SPECIFICATION
<b>Product Specification:</b>		
1	Appearance/ Description	White Hygroscopic flakes
2	Moisture	0.30% Max.
3	NH <sub>4</sub> HF <sub>2</sub>	98.50% Min.

- Customer should discuss with business unit at [bulkfluoride@nfil.in](mailto:bulkfluoride@nfil.in) for the other requirements than specified.
- Analytical Method No. **NFIL/QC/WI/FP/051.**

*Ammonium bifluoride*

**1. CHEMICAL IDENTITY**

Chemical name	Ammonium bifluoride
Synonym	Ammonium hydrogen difluoride
Chemical Formula	H <sub>5</sub> F <sub>2</sub> N

**2. COMPOSITION / INFORMATION ON INGREDIENTS**

Ingredients Name		CAS No.: 1341-49-7
		EC No: 215-676-4

**3. PHYSICAL / CHEMICAL DATA**

Boiling Point	239.5 <sup>0</sup> C@760 mmHg	Vapour Pressure	1 hPa @ 20 <sup>0</sup> C
Melting Point	125 deg C	Solubility in water	630 G/L water (20°C)
Vapour Density	Not available	Appearance	white solid
Specific Gravity	1.50		
pH	3.5 @ 5% solution	Odour	Slightly pungent
Physical State	Solid	Other	

**4. FIRE / EXPLOSION HAZARD DATA**

Flammability	Non Flammable	Flash Point	Not applicable.
Auto ignition temperature	Not applicable	LEL	Not available
Explosion sensitivity to impact		UEL	Not available
Explosion sensitivity to static electricity			
Hazardous Combustion products			
Hazardous Polymerization	Will not occur		
Pyrophoric material		Corrosive	
Organic Peroxide		Oxidizer	
Explosive material		Other	

**5. STABILITY & REACTIVITY DATA**

Chemical Stability	Stable under normal temperatures and pressures. Deliquescent (tending to absorb atmospheric water vapor and become liquid)
Incompatibility	Acids, bases
Conditions to avoid	Dust generation, moisture, temperatures above 300°C
Hazardous reaction / decomposition products.	Hydrogen fluoride gas, ammonia and/or derivatives

**6. HEALTH HAZARD DATA**

Effects of exposure / symptoms	<p><b>Eye:</b> Causes eye burns. May cause chemical conjunctivitis and corneal damage.</p> <p><b>Skin:</b> Contact with liquid causes severe burns and ulceration. May penetrate the skin and cause severe tissue and bone destruction. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.</p> <p><b>Ingestion:</b> Harmful if swallowed. May cause severe and permanent damage to the digestive tract. May cause kidney</p>
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	<p>damage. May cause perforation of the digestive tract. Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. Inorganic fluorides can be harmful. Acute exposure to fluorine compounds can lead to digestive tract burns, and abdominal pain. Fluoride can reduce calcium levels leading to fatal hypocalcemia. May cause systemic effects.</p> <p><b>Inhalation:</b> Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Aspiration may lead to pulmonary edema. Depletes calcium levels in the body which can lead to hypocalcemia and death. May cause systemic effects.</p> <p><b>Chronic:</b> Chronic inhalation and ingestion may cause chronic fluoride poisoning (fluorosis) characterized by weight loss, weakness, anemia, brittle bones, and stiff joints. May cause digestive tract disturbances. Effects may be delayed. Chronic exposure to fluoride compounds may cause systemic toxicity.</p>
<b>7. TOXICOLOGICAL INFORMATION</b>	
LD 50 / LC50	Not available
Exposure Limit	2.5 mg/m <sup>3</sup> TWA (as F) (listed under Fluorides).
<b>8. ECOLOGICAL INFORMATION</b>	
No information available	
<b>9. PREVENTIVE MEASURES / EXPOSURE CONTROL / PERSONAL PROTECTION</b>	
Engineering Control	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Personal Protective Equipment	<p><b>Eyes:</b> Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.</p> <p><b>Skin:</b> Wear appropriate protective gloves to prevent skin exposure.</p> <p><b>Clothing:</b> Wear appropriate protective clothing to prevent skin exposure.</p> <p><b>Respirators:</b> A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.</p>
<b>10. HANDLING &amp; STORAGE</b>	
Normal handling	Wash thoroughly after handling. Minimize dust generation and accumulation. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Discard contaminated shoes. Use only with adequate ventilation.
Storage Recommendation	Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area. Keep away from acids. Keep away from strong bases. Store protected from

	moisture.	
<b>11. EMERGENCY / FIRST AID MEASURES</b>		
Fire	Fire Extinguishing Medium	For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray.
Exposure / First Aid Measure	Inhalation	Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask
	Skin	Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.
	Eyes	Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).
	Ingestion	Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately
Special Procedure		
<b>12. ACCIDENTAL RELEASE MEASURE</b>		
Spills/Leaks	Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.	
<b>13. DISPOSAL CONSIDERATIONS</b>		
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.		
<b>14. TRASPORT INFORMATION</b>		
Proper shipping Name	AMMONIUM HYDROGENDIFLUORIDE, SOLID	
Hazard Class	8	
UN Number	UN1727	
Packing Group	II	

Hazard Label	
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**15. REGULATORY INFORMATION**

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:** T C

**Risk Phrases:**

R 25 Toxic if swallowed.

R 34 Causes burns.

**Safety Phrases:**

S 22 Do not breathe dust.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 37 Wear suitable gloves.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**16. NAME OF FIRM - NAVIN FLUORINE INTERNATIONAL LIMITED**

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