

PRODUCT IDENTIFICATION



Product Name: Ammonium Bifluoride Flakes
CAS Number: 1341-49-7
Molecular Formula: F₂H₅N
Molecular Weight: 57.044 g/mol
Grade: Technical Grade
Purity / Concentration: Not Available
Synonyms: Ammonium Hydrogen Fluoride, Ammonium Fluoride

PRODUCT OVERVIEW

Alliance Chemical's Ammonium Bifluoride Flakes, Technical Grade, are a white crystalline solid with a minimum assay of 97.5%. This product is commonly used in the semiconductor industry for etching silicon wafers, and is also effective in cleaning glass and metal surfaces by removing oxides.

Grade Significance: Technical Grade Ammonium Bifluoride is suitable for industrial applications where high purity is not the primary requirement but consistent performance is still necessary. While it meets specific assay and impurity limits, it may contain slightly higher levels of certain impurities compared to higher grades, making it a cost-effective option for many applications.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	97.5	95	—	Titration with NaOH
Color (APHA)	APHA	10	—	20	Visual Comparison
Residue After Ignition	%	0.01	—	0.1	Gravimetric
Water Content	%	0.2	—	0.5	Karl Fischer Titration
Heavy Metals (as Pb)	ppm	ND	—	10	ICP-OES
Iron (Fe)	ppm	5	—	10	ICP-OES
Chloride (Cl ⁻)	ppm	15	—	50	Ion Chromatography
Sulfate (SO ₄ ²⁻)	ppm	10	—	50	Turbidimetry

ND = Not Detected. Values are typical and may vary by lot.

PHYSICAL & CHEMICAL PROPERTIES

Appearance	White crystalline flakes	Odor	Slightly pungent
Form	Solid	Boiling Point	240°C (464°F)
Melting / Freezing Point	125°C (257°F)	Specific Gravity	1.5
Solubility	Highly soluble in water	Molecular Formula	F ₂ H ₅ N
Molecular Weight	57.044 g/mol	Density (25°C)	1.25 g/mL

APPLICATIONS

1. **Semiconductor** — Ammonium Bifluoride is crucial in the semiconductor industry for etching silicon wafers during the manufacturing of microchips. Its controlled etching properties allow for precise structuring of silicon surfaces.
2. **Metal Finishing** — In metal finishing, it effectively cleans metal surfaces by removing oxides and scale. This prepares the metal for further processing or coating, improving adhesion and corrosion resistance.
3. **Glass Manufacturing** — Ammonium Bifluoride is utilized for cleaning and etching glass surfaces, removing imperfections and preparing the glass for specialized applications. It ensures a clean and uniform surface for subsequent treatments.
4. **Chemical Synthesis** — It serves as a fluoride source in the synthesis of various fluorinated compounds. This makes it a valuable reagent in the production of specialized chemicals and materials.
5. **Water Treatment** — Ammonium Bifluoride is used for pH adjustment in water treatment processes. It helps maintain the desired acidity or alkalinity levels for optimal water quality and treatment efficiency.
6. **Cleaning Products** — It can be found in specialty cleaning products designed to remove stubborn stains and mineral deposits. Its ability to dissolve oxides and mineral buildup makes it effective in industrial and commercial cleaning applications.

STORAGE & HANDLING

Proper storage is crucial for Ammonium Bifluoride Flakes to maintain their purity and prevent degradation. Because it is toxic if swallowed and causes severe skin burns, it should be stored in tightly sealed containers in a cool, dry, and well-ventilated area, away from incompatible materials and moisture, to prevent accidental exposure and hazardous reactions.

- Store in a cool, dry place away from moisture.
- Use appropriate personal protective equipment (PPE) such as gloves and goggles.
- Avoid contact with strong acids and bases to prevent hazardous reactions.
- Ensure proper ventilation in storage areas to minimize inhalation risks.
- Compatible with HDPE and glass containers; avoid metal containers.

AVAILABLE PACKAGING

- 2 lbs.
- 5 Lbs.
- 44 Lbs.

SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: **Danger**



Hazard Statements:

- H301: Toxic if swallowed [Danger Acute toxicity, oral]
- H314: Causes severe skin burns and eye damage [Danger Skin corrosion/irritation]

Emergency Contact: CHEMTEL - 800-255-3924 (24 Hours/Day, 7 Days/Week)

For complete safety information, refer to the Safety Data Sheet (SDS) for this product.

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