Safety Data Sheet · OSHA HCS 2024

Ammonium Bifluoride Technical Grade

Technical

Standard	Revised	Emergency
OSHA HCS 2024 · GHS Rev. 7	2026-11-12	Chemtel 1-800-255-3924 (24/7)

1 Identification

Product Identifier	Ammonium Bifluoride Technical Grade
Grade	Technical
CAS Number	1341-49-7
Chemical Formula	NH4HF2
Molecular Weight	57.04 g/mol
Manufacturer	Alliance Chemical 204 South Edmond Street, Taylor, TX 76574
Emergency Phone	Chemtel 1-800-255-3924 (24/7)
Synonyms	Ammonium hydrogen difluoride; ammonium hydrogen fluoride; ammonium acid fluoride; ABF
Recommended Use	Glass etching and frosting; metal surface treatment (aluminum brightening, pickling); oil-well acidizing; laundry sour; cleaning formulations.
Restrictions on Use	For industrial and laboratory use. Contact with acids releases toxic hydrogen fluoride gas. Never store or use in glass, ceramic or metal containers.

2 Hazard Identification



Corrosive



Acute toxicity

Classification	Acute toxicity (oral), Category 3 Skin corrosion/irritation, Category 1 Serious eye damage/eye irritation, Category 1
Signal Word	**Danger**
Hazard Statements	H301 Toxic if swallowed H314 Causes severe skin burns and eye damage

Precautionary Statements

P260 Do not breathe dust, fume, gas, mist, vapors or spray.

P264 Wash hands and face thoroughly after handling.

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

P280 Wear protective gloves, protective clothing, and eye/face protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor.

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 or 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 or doctor.

P321 Specific treatment (see first-aid information on this label).

P330 Rinse mouth.

P363 Wash contaminated clothing before reuse.

P405 Store locked up.

P501 Dispose of contents and container in accordance with local, regional, national, and international regulations.

Classification, hazard (H) and precautionary (P) statements and pictograms per OSHA HCS 2024 (29 CFR 1910.1200, Appendices A–C), aligned with GHS Rev. 7.

3 Composition / Information on Ingredients

Component	CAS No.	Formula	Concentration
Ammonium bifluoride (ammonium hydrogen difluoride)	1341-49-7	NH4HF2	≥ 96% (w/w)
Ammonium fluoride	12125-01-8	NH4F	<= 4% (w/w)

Concentrations are nominal; lot-specific values appear on the Certificate of Analysis. Components not contributing to classification are omitted.

4 First-Aid Measures

Eyes

Rinse with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention immediately.

Skin

Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing. Wash with soap. Get medical attention immediately.

Inhalation

Move person to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. 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.

Most Important Symptoms and Effects

Causes burns to the skin, eyes and mucous membranes; eye contact may cause permanent damage including blindness; ingestion burns the mouth, throat and stomach.

Ingestion may cause nausea, vomiting and abdominal pain; larger amounts may cause systemic poisoning.

Immediate Medical Attention and Special Treatment

Immediate medical attention is required after eye or skin contact or ingestion; tissue damage may continue after exposure ends.

Get immediate medical attention after any significant exposure; symptoms may be delayed.

5 Fire-Fighting Measures

Suitable Extinguishing Media	Dry chemical, CO2, water spray. Use water spray to cool containers.
Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter and spread fire.
Specific Hazards Arising from the Chemical	Fire may release corrosive and toxic gases. Containers may rupture when heated.
Protective Equipment	Wear self-contained breathing apparatus and full protective clothing.
Hazardous Combustion Products	Hydrogen fluoride, ammonia and nitrogen oxides when heated or in contact with acids.

6 Accidental Release Measures

Personal Precautions	Use PPE as described in Section 8. Ensure adequate ventilation. Evacuate personnel to safe areas.
Hazard-Specific Precautions	Do not touch spilled material without protective equipment. Neutralize residue only with a method suitable for the material, then collect.
Environmental Precautions	Prevent leakage or spillage from entering drains, sewers, or waterways.
Containment & Cleanup	Sweep or vacuum up, avoiding dust. Collect in appropriate waste container. Dispose per applicable regulations.

7 Handling and Storage

Safe Handling	Use with adequate ventilation. Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling. Keep container closed when not in use.
Safe Storage	Store in a cool, dry, well-ventilated area. Use corrosion-resistant containers. Keep away from incompatible materials (see Section 10). Keep containers tightly closed.
Specific Storage Precautions	Keep in the original tightly closed polyethylene container in a cool, dry, ventilated area, away from acids, bases and moisture. Never store in glass or metal. Store locked up.

8 Exposure Controls / Personal Protection

Occupational Exposure Limits

Limit	Value
OSHA PEL	2.5 mg/m^3 TWA (F)
ACGIH TLV	2.5 mg/m^3 TWA (fluorides, as F); BEI fluoride in urine 2 mg/L prior to shift, 3 mg/L end of shift
NIOSH REL	2.5 mg/m^3 TWA (F)
IDLH	250 mg/m^3 (F)
Other Limits	NIOSH REL 2.5 mg/m^3 TWA (fluorides, as F)

Engineering Controls	Use adequate ventilation. Provide eyewash stations and quick-drench showers accessible to areas of use.

Eye/Face Protection	Wear chemical safety goggles or face shield.
Skin Protection	Wear chemical-resistant gloves and protective clothing.
Respiratory Protection	Where mist, spray or dust is generated (e.g., spraying, atomization, pressure washing), use a NIOSH-approved half-face air-purifying respirator with combination acid gas / P100 cartridges. Ensure local exhaust ventilation.

Exposure limits sourced from NIOSH Pocket Guide, OSHA 29 CFR 1910.1000 and ACGIH TLVs.

9 Physical & Chemical Properties

Appearance	White crystalline solid
Odor	Odorless to slightly pungent
Odor Threshold	No data available
pH	4.0–6.5 (5% aqueous solution, 25 °C)
Melting Point / Freezing Point	125–126 °C (257–259 °F)
Boiling Point	Decomposes at about 230–240 °C (446–464 °F) before boiling
Flash Point	Not applicable
Evaporation Rate	No data available
Flammability (solid, gas)	No data available
Upper/Lower Flammability or Explosive Limits	No data available
Vapor Pressure	About 0.75 mmHg (1 hPa) at 20 °C
Vapor Density	No data available
Relative Density	1.50 at 20 °C (water = 1)
Solubility	Very soluble in water (about 600 g/L at 20 °C); slightly soluble in ethanol (1.7% at 25 °C)
Partition Coefficient (n-octanol/water)	No data available
Auto-ignition Temperature	No data available
Decomposition Temperature	Above 230 °C; releases hydrogen fluoride and ammonia
Viscosity	No data available
Particle Characteristics	No data available
Form	Solid
Density	1.5 g/cm^3 at 68 °F (USCG, 1999)

Values shown reflect product-specific canonical data. Lot-specific ranges may vary; see the Certificate of Analysis for the shipped lot.

10 Stability and Reactivity

Reactivity	Not reactive under normal conditions of use and storage.
Chemical Stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing conditions.
Conditions to Avoid	Moisture and humidity (the material is hygroscopic and becomes corrosive), heat above 120 °C, and contact with acids.
Incompatible Materials	Acids (release hydrogen fluoride gas); strong bases (release ammonia); strong oxidizers; glass, ceramics and light metals such as aluminum and magnesium (attacked); moisture.

Hazardous Decomposition Products	Hydrogen fluoride, ammonia and nitrogen oxides when heated or in contact with acids.

11 Toxicological Information

See below for route-specific acute toxicity data.

Likely Routes of Exposure	Inhalation, skin contact, eye contact, ingestion.
Symptoms	Causes burns to the skin, eyes and mucous membranes; eye contact may cause permanent damage including blindness; ingestion burns the mouth, throat and stomach. Ingestion may cause nausea, vomiting and abdominal pain; larger amounts may cause systemic poisoning.
Delayed and Chronic Effects	No delayed or chronic effects identified beyond the classification in Section 2.

Route	Value
LD50 Oral	130 mg/kg (rat, OECD 401)

Carcinogen Classification

Agency	Status
IARC	Not evaluated. See Section 2 for GHS hazard classification.
NTP	Not evaluated. See Section 2 for GHS hazard classification.
OSHA	Not evaluated. See Section 2 for GHS hazard classification.

12 Ecological Information

Ecotoxicity	Data not available. Avoid release to the environment.
Persistence & Degradability	Inorganic; dissociates to NH_4^+ and HF_2^-/F^-; acidic conditions release hydrofluoric acid (HF) — Not applicable (inorganic salt)
Bioaccumulative Potential	Not Available
Mobility in Soil	Not Available

13 Disposal Considerations

Dispose of contents/container in accordance with applicable federal, state, and local regulations. Do not dispose of into drains or waterways.

EPA RCRA Waste Codes	Not a P- or U-listed waste. Evaluate aqueous wastes for D002 (pH ≤ 2); the generator makes the final hazardous-waste determination.

If discarded, this material may be a corrosive hazardous waste (EPA RCRA D002, 40 CFR 261.22): aqueous with pH ≤ 2 or ≥ 12.5, or a liquid that corrodes steel at more than 6.35 mm per year. The waste generator must make the final hazardous-waste determination.

14 Transport Information

US DOT (49 CFR)

UN Number	UN1727
Proper Shipping Name	Ammonium hydrogendifluoride, solid
Hazard Class	8
Packing Group	II

IMDG / IATA classifications may differ from US DOT. Verify current regulations before international shipment.

15 Regulatory Information

Inventory / List	Status
California Proposition 65	Not listed
US EPA TSCA Active Inventory	Listed
EPCRA SARA 313 (TRI)	Not listed
CERCLA Reportable Quantity (RQ)	Ammonium bifluoride (CAS 1341-49-7) 100 lb (45.4 kg). No single Alliance package reaches it (largest: 44-lb bag); a release of 100 lb or more is reportable to the National Response Center.

SARA 311/312 hazard categories correspond to the GHS classification in Section 2. Data retrieved as of: California Proposition 65 2026-11-02; US EPA TSCA Active Inventory 2026-11-02; EPCRA SARA 313 (TRI) 2026-11-02.

16 Other Information

Revision Date	2026-11-12
Format	16-section format per OSHA HCS 2024 (29 CFR 1910.1200, Appendix D), aligned with GHS Rev. 7.

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