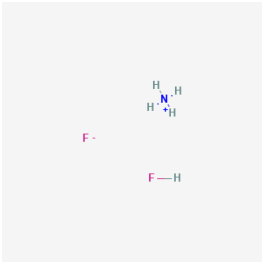
Technical Data Sheet

Ammonium Bifluoride Technical Grade

Technical

Alliance Code	Revised	Revision
ammonium-bifluoride-flakes	2026-10-26	1.7

CAS number 1341-49-7	UN number UN1727	Hazard class · packing group 8 · PG II
 Structure · PubChem	Grade Technical	Signal word **Danger**
Hazards Corrosive · Acute toxicity · H301 H314		
Proper shipping name Ammonium hydrogendifluoride, solid		

IDENTITY & COMPOSITION

PRODUCT NAME
Ammonium Bifluoride Technical Grade

ALLIANCE CODE
ammonium-bifluoride-flakes

GRADE
Technical

CONCENTRATION
—

CAS NUMBER
1341-49-7 PubChem

FORMULA
NH4HF2 Adjudicated

MOLECULAR WEIGHT
57.04 g/mol Adjudicated

PRODUCT TYPE
Pure substance

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay (NH_4HF_2)	≥96.0%	—	—	Interpreted
Ammonium fluoride (NH4F)	4.0 % maximum	—	—	Interpreted
Antimony (Sb)	10 ppm maximum	—	—	Interpreted
Arsenic (As)	10 ppm maximum	—	—	Interpreted
Chloride (Cl)	30 ppm maximum	—	—	Interpreted
Copper (Cu)	30 ppm maximum	—	—	Interpreted
Fluorine (as F)	65.0 % minimum	—	—	Interpreted
Iron (Fe)	10 ppm maximum	—	—	Interpreted
Lead (Pb)	5.0 ppm maximum	—	—	Interpreted
Nickel (Ni)	10 ppm maximum	—	—	Interpreted
Silica (SiO2)	100 ppm maximum	—	—	Interpreted
Sulfate (SO4)	100 ppm maximum	—	—	Interpreted
Water (H2O)	1000 ppm maximum	—	—	Interpreted

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Non-volatile matter (residue after ignition)	0.10 % maximum	—	Gravimetric, ignition at 600 °C in platinum	Interpreted

Values are reproduced from the current product reference. Source labels do not by themselves establish a supplier guarantee or a test result for your lot. Confirm applicable acceptance limits and request lot-specific documentation.

AVAILABLE GRADES SAME CAS, ALTERNATE GRADES AND CONCENTRATIONS

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
THIS GRADE Technical	—	—	current
ACS	—	—	ammonium-bifluoride-flakes-acs-grade

Typical assay for each grade is the average of its recent lots. Confirm a grade meets your specification before substituting it.

PHYSICAL & CHEMICAL PROPERTIES

PROPERTY	VALUE	SOURCE
Appearance	White crystalline solid	Adjudicated
Form	Solid	Published reference
Odor	Odorless to slightly pungent	Adjudicated
pH	4.0–6.5 (5% aqueous solution, 25 °C)	Adjudicated
Specific Gravity	1.50 at 20 °C (water = 1)	Adjudicated
Density	1.5 g/cm^3 at 68 °F (USCG, 1999)	Published reference
Boiling Point	Decomposes at about 230–240 °C (446–464 °F) before boiling	Adjudicated
Melting Point	125–126 °C (257–259 °F)	Adjudicated
Flash Point	Not applicable	Adjudicated
Vapor Pressure	About 0.75 mmHg (1 hPa) at 20 °C	Adjudicated
Solubility (water)	Very soluble in water (about 600 g/L at 20 °C); slightly soluble in ethanol (1.7% at 25 °C)	Adjudicated

MATERIALS OF CONSTRUCTION

MATERIAL	RATING	CONDITIONS	SOURCE
glass / silicate-containing materials	Not recommended	—	lab.solstice.com
glass	Not recommended	—	lab.solstice.com
silicate-containing materials	Not recommended	—	lab.solstice.com

Compatibility is drawn from published manufacturer and supplier documentation for this product; each rating is sourced. Confirm against your specific duty cycle before equipment selection.

REGULATORY & TRANSPORT

DOT / 49 CFR

UN NUMBER

UN1727 49 CFR 172.101

HAZARD CLASS

8 Adjudicated

PACKING GROUP

II Adjudicated

PROPER SHIPPING NAME

Ammonium hydrogendifluoride, solid Adjudicated

GHS / OSHA HCS 2024

SIGNAL WORD

Danger Adjudicated

H-CODES (HAZARD STATEMENTS)

H301, H314 Adjudicated

P-CODES (PRECAUTIONARY STATEMENTS)

P260, P264, P270, P280, P301+P310, P301+P330+P331, P303+P361+P353, P304+P340, P305+P351+P338, P310, P321, P330, P363, P405, P501

Adjudicated

OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)

2.5 mg/m³ TWA (F) Adjudicated

ACGIH TLV

2.5 mg/m³ TWA (fluorides, as F); BEI fluoride in urine 2 mg/L prior to shift, 3 mg/L end of shift

Adjudicated

NIOSH REL

2.5 mg/m³ TWA (F) Adjudicated

NIOSH IDLH

250 mg/m³ (F) Adjudicated

Transport descriptions reflect 49 CFR 172.101 lookup at time of publication. Sourced data: NIOSH Pocket Guide for REL/IDLH, OSHA Z-Tables for PEL. Always verify against the latest regulatory text before shipment-critical decisions.

HEALTH & FIRE HAZARD

ACUTE TOXICOLOGY

LD_{50} ORAL

130 mg/kg (rat, OECD 401)

Adjudicated

Acute toxicology values from SDS Section 11 or NIOSH RTECS.

APPLICATIONS

Fluoride source for etching, surface treatment and chemical processing where controlled fluoride activity is required

labproinc.com

Glass and silica etching, surface treatment, materials science research, analytical and laboratory chemistry, metallurgical processing and chemical manufacturing

labproinc.com

Hydraulic fracturing fluids and industrial use (supplier SDS states this as the recommended use)

mubychem.com

Applications are drawn from published manufacturer and supplier documentation; each is sourced. Suitability for a specific use is the buyer's to confirm.

STORAGE & HANDLING

RECOMMENDED STORAGE

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.

Adjudicated

HANDLING PRECAUTIONS

Use in ventilation or with respiratory protection — vapour is the primary exposure. Chemical splash goggles and gloves. Open and transfer cool; pressure can build in warm sealed containers. Neutralization with acid is exothermic.

Class-level guidance — not product-specific; the SDS controls.

INCOMPATIBILITIES

Acids (release hydrogen fluoride gas); strong bases (release ammonia); strong oxidizers; glass, ceramics and light metals such as aluminum and magnesium (attacked); moisture.

Adjudicated

SHELF LIFE

Consult Technical Services for product-specific shelf life

For full hazard, PPE, and emergency response guidance, refer to the Safety Data Sheet (SDS) for this product. The SDS controls in all cases where guidance differs.

PACKAGING & LOGISTICS

SHIPPING DESCRIPTION (US DOT)

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UN1727, Ammonium hydrogendifluoride, solid, 8, PG II
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Sourced from 49 CFR 172.101. Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS	PLACARD	PACKING GROUP
60	Corrosive	PG II

REVISION HISTORY

Last reviewed 2026-10-26 by Andre Taki, Chief Commercial Officer, DOT Hazmat–certified (49 CFR 172.704).

VERSION	DATE	CHANGE	TRIGGER
1.7	2026-10-26	Canonical data updated: 2 fields changed via the provenance/adjudication pipeline. • appearance · canonical change (coa.data_provenance / adjudication) • conditions_to_avoid · canonical change (coa.data_provenance / adjudication)	canonical_change
1.6	2026-10-08	Canonical data updated: 25 fields changed via the provenance/adjudication pipeline. • ghsClassification · canonical change (coa.data_provenance / adjudication) • hazard_h_codes · canonical change (coa.data_provenance / adjudication) • hazard_p_codes · canonical change (coa.data_provenance / adjudication) • formula · canonical change (coa.data_provenance / adjudication) • molecularWeight · canonical change (coa.data_provenance / adjudication) • synonyms · canonical change (coa.data_provenance / adjudication) • restrictions_on_use · canonical change (coa.data_provenance / adjudication) • odor · canonical change (coa.data_provenance / adjudication) • flashPoint · canonical change (coa.data_provenance / adjudication) • meltingPoint · canonical change (coa.data_provenance / adjudication) • boilingPoint · canonical change (coa.data_provenance / adjudication) • decompositionTemperature · canonical change (coa.data_provenance / adjudication) • vaporPressure · canonical change (coa.data_provenance / adjudication) • specificGravity · canonical change (coa.data_provenance / adjudication) • solubility · canonical change (coa.data_provenance / adjudication) • oel_acgih_tlv · canonical change (coa.data_provenance / adjudication) • oel_other · canonical change (coa.data_provenance / adjudication) • incompatible_materials · canonical change (coa.data_provenance / adjudication) • conditions_to_avoid · canonical change (coa.data_provenance / adjudication) • hazardous_decomposition_products · canonical change (coa.data_provenance / adjudication) • storage_precautions · canonical change (coa.data_provenance / adjudication) • rcra_waste_codes · canonical change (coa.data_provenance / adjudication) • cercla_rq · canonical change (coa.data_provenance / adjudication) • recommended_use · canonical change (coa.data_provenance / adjudication) • pH · canonical change (coa.data_provenance / adjudication)	canonical_change
1.5	2026-10-05	Canonical data updated: 3 fields changed via the provenance/adjudication pipeline. • oel_osha_pel · canonical change (coa.data_provenance / adjudication) • oel_niosh_rel · canonical change (coa.data_provenance / adjudication) • oel_idlh · canonical change (coa.data_provenance / adjudication)	canonical_change

VERSION	DATE	CHANGE	TRIGGER
1.4	2026-09-30	Canonical data updated: 3 fields changed via the provenance/adjudication pipeline. • boilingPoint · canonical change (coa.data_provenance / adjudication) • meltingPoint · canonical change (coa.data_provenance / adjudication) • appearance · canonical change (coa.data_provenance / adjudication)	canonical_change
1.3	2026-08-05	Canonical data updated: 4 fields changed via the provenance/adjudication pipeline. • hazardClass · canonical change (coa.data_provenance / adjudication) • packingGroup · canonical change (coa.data_provenance / adjudication) • signalWord · canonical change (coa.data_provenance / adjudication) • unNumber · canonical change (coa.data_provenance / adjudication)	canonical_change
1.2	2026-07-22	Canonical data updated: 2 fields changed via the provenance/adjudication pipeline. • dotSubsidiaryHazardClass · canonical change (coa.data_provenance / adjudication) • dotProperShippingName · canonical change (coa.data_provenance / adjudication)	canonical_change
1.1	2026-07-17	Canonical data re-verified: 5 fields updated against independent vendor SDSs, CLP Annex VI, 49 CFR, and OSHA HazCom 2024 (GHS classification, hazard/precautionary codes, signal word, physical properties as applicable). • countryOfOrigin · canonical adjudication / reground (coa.data_provenance) • ghsClassification · canonical adjudication / reground (coa.data_provenance) • hazard_h_codes · canonical adjudication / reground (coa.data_provenance) • hazard_p_codes · canonical adjudication / reground (coa.data_provenance) • hsCode · canonical adjudication / reground (coa.data_provenance)	canonical_change
1.0	2026-05-20	Initial URL-first TDS published from canonical chemistry registry.	initial

This Technical Data Sheet is provided for technical reference. The Safety Data Sheet (SDS) controls in all cases where guidance differs. Values reflect Alliance Chemical canonical data at time of generation; subsequent revisions are recorded in the Revision History above.