

# AMMONIUM BIFLUORIDE EXTRA PURE

## Safety Data Sheet

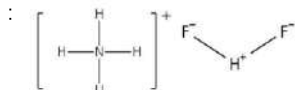
according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Substance  
Trade name : AMMONIUM BIFLUORIDE EXTRA PURE  
EC Index-No. : 009-009-00-4  
EC-No. : 215-676-4  
CAS-No. : 1341-49-7  
Product code : B-00186  
Formula : (NH<sub>4</sub>)HF<sub>2</sub>  
Chemical structure :



Synonyms : Ammonium hydrogen difluoride, Etching powder

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

##### 1.2.1. Relevant identified uses

Use of the substance/mixture : Laboratory chemicals, Manufacture of substances

##### 1.2.2. Uses advised against

No additional information available

#### 1.3. Details of the supplier of the safety data sheet

Bio-Chem Chemicals  
5455, Nicholson Road Science Market,  
Ambala Cantt. 133001 Haryana (India)  
+91-82952 41953  
[info@biofinechemical.com](mailto:info@biofinechemical.com) - [www.biofinechemical.com](http://www.biofinechemical.com)

#### 1.4. Emergency telephone number

Emergency number : +91 99921 51495 (10.00am - 06.30pm) (Office Hours)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 3 H301  
Skin corrosion/irritation, Category 1, Sub-Category 1B H314  
Full text of H- and EUH-statements: see section 16

##### Adverse physicochemical, human health and environmental effects

Toxic if swallowed. Causes severe skin burns and eye damage.

#### 2.2. Label elements

##### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS05

GHS06

Signal word (CLP) :

Danger

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- Hazard statements (CLP) : H301 - Toxic if swallowed.  
H314 - Causes severe skin burns and eye damage.
- Precautionary statements (CLP) : P280 - Wear protective clothing, eye protection, face protection, protective gloves.  
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.  
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
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 doctor.

### Nordic countries regulation

#### Denmark

- MAL code : 00-6 (Executive Order No. 301 from 1993)

### 2.3. Other hazards

Contains no PBT and/or vPvB substances  $\geq 0.1\%$  assessed in accordance with REACH Annex XIII

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

- Substance type : Mono-constituent  
Name : AMMONIUM BIFLUORIDE  
CAS-No. : 1341-49-7  
EC-No. : 215-676-4  
EC Index-No. : 009-009-00-4

Name	Product identifier	%
AMMONIUM BIFLUORIDE	CAS-No.: 1341-49-7 EC-No.: 215-676-4 EC Index-No.: 009-009-00-4	100

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- First-aid measures general : Call a physician immediately.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
- First-aid measures after skin contact : Get medical advice/attention. Rinse skin with water/shower. Take off immediately all contaminated clothing. Call a physician immediately.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Call a physician immediately.
- First-aid measures after ingestion : Rinse mouth. Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. Call a physician immediately. Do not induce vomiting.

### 4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/effects : Causes severe skin burns and eye damage.
- Symptoms/effects after skin contact : Burns.
- Symptoms/effects after eye contact : Serious damage to eyes.
- Symptoms/effects after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard. Burns.

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### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide. Dry powder. Foam. Water spray.  
Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Advice for firefighters

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.

#### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Use personal protective equipment as required. For further information refer to section 8: "Exposure controls/personal protection".  
Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. On land, sweep or shovel into suitable containers.  
Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Do not breathe vapours. Provide good ventilation in process area to prevent formation of vapour. Do not breathe dust/fume/gas/mist/vapours/spray. Wear personal protective equipment.  
Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in a well-ventilated place. Keep cool.

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### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

No additional information available

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

**Appropriate engineering controls:**

Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

**Personal protective equipment symbol(s):**



##### 8.2.2.1. Eye and face protection

**Eye protection:**

Chemical goggles or safety glasses

##### 8.2.2.2. Skin protection

**Skin and body protection:**

Wear a mask

**Hand protection:**

Protective gloves

##### 8.2.2.3. Respiratory protection

**Respiratory protection:**

Wear appropriate mask

##### 8.2.2.4. Thermal hazards

No additional information available

### 8.2.3. Environmental exposure controls

**Environmental exposure controls:**

Avoid release to the environment.

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### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: White crystalline.
Appearance	: Crystalline powder, Flakes.
Molecular mass	: 57.07 g/mol
Odour	: Odourless.
Odour threshold	: Not available
Melting point	: 125 °C
Freezing point	: Not applicable
Boiling point	: 240 °C
Flammability	: Non flammable.
Lower explosion limit	: Not applicable
Upper explosion limit	: Not applicable
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: > 230 °C
pH	: 3,5
pH solution concentration	: 5 %
Viscosity, kinematic	: Not applicable
Solubility	: Water: 63 g/100ml at 20°C - Soluble Ethanol: Slightly soluble
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: 1 hPa at 20°C
Vapour pressure at 50°C	: Not available
Density	: 1.5 g/cm <sup>3</sup>
Relative density	: Not available
Relative vapour density at 20°C	: Not applicable
Particle size	: Not available

#### 9.2. Other information

##### 9.2.1. Information with regard to physical hazard classes

No additional information available

##### 9.2.2. Other safety characteristics

Refractive index : 1.39

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Thermal decomposition generates : Corrosive vapours.

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

#### 10.4. Conditions to avoid

Direct sunlight. Overheating. Open flame. Sparks.

#### 10.5. Incompatible materials

No additional information available

#### 10.6. Hazardous decomposition products

Thermal decomposition generates : Corrosive vapours.

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### SECTION 11: Toxicological information

#### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Toxic if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Skin corrosion/irritation	: Causes severe skin burns. pH: 3.5
Serious eye damage/irritation	: Assumed to cause serious eye damage pH: 3.5
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

#### AMMONIUM BIFLUORIDE EXTRA PURE (1341-49-7)

Viscosity, kinematic	Not applicable
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#### 11.2. Information on other hazards

##### 11.2.1. Endocrine disrupting properties

No additional information available

##### 11.2.2. Other information

Potential adverse human health effects and symptoms : Toxic if swallowed.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general	: Before neutralisation, the product may represent a danger to aquatic organisms.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

#### 12.2. Persistence and degradability

No additional information available

#### 12.3. Bioaccumulative potential

No additional information available

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Results of PBT and vPvB assessment

No additional information available

#### 12.6. Endocrine disrupting properties

No additional information available

#### 12.7. Other adverse effects

No additional information available

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### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
Ecology - waste materials	: Hazardous waste due to toxicity.

### SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

#### 14.1. UN number or ID number

UN-No. (ADR)	: UN 1727
UN-No. (IMDG)	: UN 1727
UN-No. (IATA)	: UN 1727
UN-No. (ADN)	: UN 1727
UN-No. (RID)	: UN 1727

#### 14.2. UN proper shipping name

Proper Shipping Name (ADR)	: AMMONIUM HYDROGENDIFLUORIDE, SOLID
Proper Shipping Name (IMDG)	: AMMONIUM HYDROGENDIFLUORIDE, SOLID
Proper Shipping Name (IATA)	: Ammonium hydrogendifluoride, solid
Proper Shipping Name (ADN)	: AMMONIUM HYDROGENDIFLUORIDE, SOLID
Proper Shipping Name (RID)	: AMMONIUM HYDROGENDIFLUORIDE, SOLID
Transport document description (ADR)	: UN 1727 AMMONIUM HYDROGENDIFLUORIDE, SOLID, 8, II, (E)
Transport document description (IMDG)	: UN 1727 AMMONIUM HYDROGENDIFLUORIDE, SOLID, 8, II
Transport document description (IATA)	: UN 1727 Ammonium hydrogendifluoride, solid, 8, II
Transport document description (ADN)	: UN 1727 AMMONIUM HYDROGENDIFLUORIDE, SOLID, 8, II
Transport document description (RID)	: UN 1727 AMMONIUM HYDROGENDIFLUORIDE, SOLID, 8, II

#### 14.3. Transport hazard class(es)

##### ADR

Transport hazard class(es) (ADR)	: 8
Danger labels (ADR)	: 8



##### IMDG

Transport hazard class(es) (IMDG)	: 8
Danger labels (IMDG)	: 8



##### IATA

Transport hazard class(es) (IATA)	: 8
Danger labels (IATA)	: 8



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### ADN

Transport hazard class(es) (ADN) : 8  
Danger labels (ADN) : 8



### RID

Transport hazard class(es) (RID) : 8  
Danger labels (RID) : 8



### 14.4. Packing group

Packing group (ADR) : II  
Packing group (IMDG) : II  
Packing group (IATA) : II  
Packing group (ADN) : II  
Packing group (RID) : II

### 14.5. Environmental hazards

Dangerous for the environment : No  
Marine pollutant : No  
Other information : No supplementary information available

### 14.6. Special precautions for user

#### Overland transport

Classification code (ADR) : C2  
Limited quantities (ADR) : 1kg  
Excepted quantities (ADR) : E2  
Packing instructions (ADR) : P002, IBC08  
Special packing provisions (ADR) : B4  
Mixed packing provisions (ADR) : MP10  
Portable tank and bulk container instructions (ADR) : T3  
Portable tank and bulk container special provisions (ADR) : TP33  
Tank code (ADR) : SGAN  
Vehicle for tank carriage : AT  
Transport category (ADR) : 2  
Special provisions for carriage - Packages (ADR) : V11  
Hazard identification number (Kemler No.) : 80  
Orange plates :



Tunnel restriction code (ADR) : E  
EAC code : 2X

#### Transport by sea

Limited quantities (IMDG) : 1 kg  
Excepted quantities (IMDG) : E2  
Packing instructions (IMDG) : P002  
IBC packing instructions (IMDG) : IBC08  
IBC special provisions (IMDG) : B21, B4  
Tank instructions (IMDG) : T3  
Tank special provisions (IMDG) : TP33  
EmS-No. (Fire) : F-A



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EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW1, SW2
Segregation (IMDG)	: SGG1, SGG2, SG35, SG36, SG49
Properties and observations (IMDG)	: White deliquescent crystals. Decomposed by heat or acids, evolving hydrogen fluoride, a toxic, extremely irritating and corrosive gas, apparent as white fumes. In the presence of moisture, highly corrosive to glass, other siliceous materials and most metals. Causes burns to skin and mucous membranes.
MFAG-No	: 154

### Air transport

PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y844
PCA limited quantity max net quantity (IATA)	: 5kg
PCA packing instructions (IATA)	: 859
PCA max net quantity (IATA)	: 15kg
CAO packing instructions (IATA)	: 863
CAO max net quantity (IATA)	: 50kg
ERG code (IATA)	: 8L

### Inland waterway transport

Classification code (ADN)	: C2
Limited quantities (ADN)	: 1 kg
Excepted quantities (ADN)	: E2
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 0

### Rail transport

Classification code (RID)	: C2
Limited quantities (RID)	: 1kg
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P002, IBC08
Special packing provisions (RID)	: B4
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T3
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAN
Transport category (RID)	: 2
Special provisions for carriage – Packages (RID)	: W11
Colis express (express parcels) (RID)	: CE10
Hazard identification number (RID)	: 80

### 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

##### REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

##### REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

##### REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

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### PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

### POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

### Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

### Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

### Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

### 15.1.2. National regulations

#### Germany

- Water hazard class (WGK) : WGK 1, Slightly hazardous to water (Classification according to AwSV; ID No. 292).  
Chemicals Prohibition Ordinance (ChemVerbotsV) : This product is subject to ChemVerbotsV Annex 2 Entry 1. The following requirements must be observed: authorization requirement (according to § 6 paragraph 1 sentence 1), basic requirements for carrying out the delivery (according to § 8 paragraph 1, 3 and 4), identification and documentation (according to § 9 paragraph 1 to 3) and exclusion of the shipping route (according to § 10).  
Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

#### Netherlands

- SZW-lijst van kankerverwekkende stoffen : The substance is not listed  
SZW-lijst van mutagene stoffen : The substance is not listed  
SZW-lijst van reprotoxische stoffen – Borstvoeding : The substance is not listed  
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : The substance is not listed  
SZW-lijst van reprotoxische stoffen – Ontwikkeling : The substance is not listed

#### Denmark

- MAL code : 00-6 (Executive Order No. 301 from 1993)  
Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration

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Abbreviations and acronyms:	
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.