

Ammonium hydrogen difluoride v.p.

Revision: 20.06.2025

Product code: AC14.00416

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Ammonium hydrogen difluoride v.p.

CAS No: 1341-49-7
Index No: 009-009-00-4
EC No: 215-676-4

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of the substance/mixture**

Reagents and laboratory chemicals
Only for laboratory and analysis purposes.

Uses advised against

Do not use for private purposes (household).

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

Company name: AnalytiChem Services, Unipessoal, Lda
Street: Rua de Júlio Dinis 676 7º
Place: N-4050-320 Porto
Telephone: +351 226002917
E-mail: info@analytichem.com
Contact person: SDS service department
E-mail: SDS@analytichem.com
Internet: www.analytichem.com
Responsible Department: SDS service department

Supplier or manufacturer details

Company name: AnalytiChem Belgium NV
Street: Industriezone "De Arend" 2
Place: B-8210 Zedelgem
Telephone: +32 50 28 83 20
E-mail: info.be@analytichem.com
Contact person: SDS service department
E-mail: SDS@analytichem.com
Responsible Department: AnalytiChem
EU-Belgium: AnalytiChem Belgium, Industriezone "De Arend" 2, 8210 Zedelgem, Belgium, +32 50 28 83 20
EU-Germany: AnalytiChem Germany, Stempelstrasse 6, 47167 Duisburg, Germany, +49 203 51 94 – 200
EU-Netherlands: AnalytiChem Netherlands, Communicatieweg 7, 3641 SG Mijdrecht, The Netherlands, +31 297 286848
UK: AnalytiChem UK, Unit 7 Launton Business Center, Murdock Road, Bicester, OX26 4XB, England, +44 1869 355 500
USA: AnalytiChem USA, 227 China Road, Winslow, Maine, 04901, United States, +1 800-244-8378
Canada: AnalytiChem Canada, 21800 Clark Graham Avenue, Baie d'Urfe, H9X 4B6, Canada, +1 514-457-0701
Australia: ORE Research & Exploration Pty Ltd, 37A Hosie Street, Bayswater North, 3153, Australia, +61 3 9729 0333

1.4. Emergency telephone**number:**

+44 20 3807 3798 (CHEMTREC)

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Further Information

A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

Acute Tox. 3; H301
Skin Corr. 1B; H314

Full text of hazard statements: see SECTION 16.

2.2. Label elements**Regulation (EC) No 1272/2008**

Signal word: Danger

Pictograms:

**Hazard statements**

H301 Toxic if swallowed.
H314 Causes severe skin burns and eye damage.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
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 POISON CENTER/doctor.

Additional advice on labelling

No information available.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients**3.1. Substances**

Sum formula: H5F2N
Molecular weight: 57,04 g/mol

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Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
1341-49-7	ammonium bifluoride			100 %
	215-676-4	009-009-00-4		
	Acute Tox. 3, Skin Corr. 1B; H301 H314			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
1341-49-7	215-676-4	ammonium bifluoride	100 %
	oral: LD50 = 130 mg/kg Skin Corr. 1B; H314: >= 1 - 100 Skin Irrit. 2; H315: >= 0,1 - < 1 Eye Irrit. 2; H319: >= 0,1 - < 1		

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

fast help required

First aider: Pay attention to self-protection! Remove affected person from the danger area and lay down.

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

Provide fresh air.

If breathing is irregular or stopped, administer artificial respiration.

Call a physician immediately.

After contact with skin

Remove contaminated, saturated clothing immediately.

Wash immediately with: Water and soap

Call a physician immediately.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Remove contact lenses, if present and easy to do. Continue rinsing.

Protect uninjured eye.

After ingestion

Never give anything by mouth to an unconscious person or a person with cramps.

Rinse mouth immediately and drink plenty of water.

Do NOT induce vomiting. Call a physician immediately.

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

Risk of serious damage to eyes.

Cough

Dyspnoea

Headache

Gastrointestinal complaints

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Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

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

It is recommended to consult a doctor with experience in the treatment of lesions caused by hydrofluoric acid

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Non-combustible solids

Hazardous combustion products

In case of fire may be liberated:

Hydrogen fluoride

Ammonia (NH₃)

Nitrogen oxides (NO_x)

Fluor

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

In case of fire and/or explosion do not breathe fumes. Use water spray jet to protect personnel and to cool endangered containers.

Additional information

Suppress gases/vapours/mists with water spray jet.

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water. Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Consult an expert

Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

Clean contaminated articles and floor according to the environmental legislation.

6.3. Methods and material for containment and cleaning up**For containment**

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Take up carefully when dry. Take up dust-free and set down dust-free.

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For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

Read label before use. Handle and open container with care.

When using do not eat, drink, smoke, sniff. Keep container tightly closed.

Use personal protection equipment. Use extractor hood (laboratory).

Provide adequate ventilation. Avoid dust formation. Do not breathe dust.

Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion

Usual measures for fire prevention.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs.

Make available sufficient washing facilities

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Further information on handling

Draw up and observe skin protection programme.

Wash hands and face before breaks and after work and take a shower if necessary.

Take off immediately all contaminated clothing and wash it before reuse.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaustion at critical locations.

Unsuitable container/equipment material:

Glass

Copper

Hints on joint storage

Take national regulations into account.

Further information on storage conditions

Handle and store contents under inert gas. Protect from moisture.

Store in a dry place.

Keep cool. Protect from sunlight.

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

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8.1. Control parameters**DNEL/DMEL values**

CAS No	Substance	Exposure route	Effect	Value
DNEL type				
1341-49-7	ammonium bifluoride			
Worker DNEL, long-term		inhalation	systemic	2,3 mg/m ³
Worker DNEL, acute		inhalation	local	3,8 mg/m ³
Consumer DNEL, long-term		inhalation	systemic	0,045 mg/m ³
Consumer DNEL, long-term		oral	systemic	0,015 mg/kg bw/day

PNEC values

CAS No	Substance	Value
Environmental compartment		
1341-49-7	ammonium bifluoride	
Freshwater		1,3 mg/l
Micro-organisms in sewage treatment plants (STP)		76 mg/l
Soil		22 mg/kg

8.2. Exposure controls**Appropriate engineering controls**

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Do not breathe dust.

Technical measures and the application of suitable work processes have priority over personal protection equipment.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Suitable eye protection: goggles.

Wear eye protection/face protection.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Suitable examples are gloves of KCL GmbH, D-36124 Eichenzell, e-mail: vertrieb@kcl.de with the following specification (test according to EN 374):

By long-term hand contact

Trade name/designation KCL 741 Dermatril® L

Suitable material: NBR (Nitrile rubber) 0,11 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation KCL 741 Dermatril® L

Suitable material: NBR (Nitrile rubber) 0,11 mm

Wearing time with occasional contact (splashes): > 480 min

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The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Wear suitable protective clothing. Chemical protection clothing Full protection suit

Take off immediately all contaminated clothing.

Wash hands before breaks and after work.

The choice of body protection depends on the concentration and quantity of hazardous substances. The chemical resistance of protective agents must be clarified with their suppliers.

Respiratory protection

Respiratory protection necessary at: dust formation

Filtering device with filter or ventilator filtering device of type: P3

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:	solid
Colour:	white
Odour:	No data available
Melting point/freezing point:	125 °C
Boiling point or initial boiling point and boiling range:	not determined
Flammability:	not applicable
Lower explosion limits:	not determined
Upper explosion limits:	not determined
Flash point:	not applicable
Auto-ignition temperature:	not applicable
Decomposition temperature:	not determined
pH-Value (at 20 °C):	~3,5 (50 g/l)
Viscosity / kinematic:	not determined
Water solubility: (at 20 °C)	620 g/l
Solubility in other solvents	not determined
Partition coefficient n-octanol/water:	not determined
Vapour pressure:	not determined
Vapour pressure:	not determined
Density:	1,5 g/cm³
Bulk density:	not determined
Relative vapour density:	not determined

9.2. Other information**Information with regard to physical hazard classes**

Explosive properties

not applicable

Sustained combustibility:

No data available

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Self-ignition temperature

Solid:

not applicable

Gas:

not applicable

Oxidizing properties

Not oxidising.

Other safety characteristics

Evaporation rate:

not determined

Solvent separation test:

not applicable

Solvent content:

not applicable

Solid content:

not determined

Sublimation point:

not determined

Softening point:

not determined

Pour point:

not determined

not determined:

Viscosity / dynamic:

not determined

Flow time:

not determined

Further Information

No data available

SECTION 10: Stability and reactivity**10.1. Reactivity**

No data available

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Acid / Release of: Hydrogen fluoride

Heat

10.4. Conditions to avoid

Humidity

10.5. Incompatible materials

Copper

Glass

10.6. Hazardous decomposition products

In case of fire:

SECTION 5: Firefighting measures

Further information

No data available

SECTION 11: Toxicological information**11.1. Information on hazard classes****Toxicokinetics, metabolism and distribution**

No data available

Acute toxicity

Toxic if swallowed.

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
1341-49-7	ammonium bifluoride				
	oral	LD50 mg/kg	130	Rat	Study report (1990) OECD Guideline 401

Irritation and corrosivity

Skin corrosion/irritation: Causes severe skin burns and eye damage.

Serious eye damage/eye irritation: Causes serious eye damage.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

11.2. Information on other hazards**Endocrine disrupting properties**

No data available

Other information

see also Section 4

Further information

Risk of serious damage to eyes.

Avoid exposure - obtain special instructions before use.

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

SECTION 12: Ecological information**12.1. Toxicity**

Based on available data, the classification criteria are not met.

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
1341-49-7	ammonium bifluoride					
	Acute fish toxicity	LC50 421,4 mg/l	96 h	no data	Other company data (1987)	Acute fish toxicity test
	Acute crustacea toxicity	EC50 101 mg/l	48 h	Daphnia magna	Environ. Toxicol. Chem. 5: 443-447 (1986)	other: ASTM E729-80
	Fish toxicity	NOEC 1,2 mg/l	61 d	Oncorhynchus gorbuscha	Fish. Bull. 78(3): 641-648 (1980)	OECD Guideline 210

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of UK REACH.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

No data available

Further information

Avoid release to the environment.

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Do not allow to enter into surface water or drains.

Send to a physico-chemical treatment facility under observation of official regulations.

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Contaminated packaging

This material and its container must be disposed of as hazardous waste.

Handle contaminated packages in the same way as the substance itself.

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

SECTION 14: Transport information**Land transport (ADR/RID)****14.1. UN number or ID number:**

UN 1727

14.2. UN proper shipping name:

AMMONIUM HYDROGENDIFLUORIDE, SOLID

14.3. Transport hazard class(es):

8

14.4. Packing group:

II

Hazard label:

8

Classification code:

C2

Limited quantity:

1 kg

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Excepted quantity: E2
Transport category: 2
Hazard No: 80
Tunnel restriction code: E

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 1727
14.2. UN proper shipping name: AMMONIUM HYDROGENDIFLUORIDE, SOLID
14.3. Transport hazard class(es): 8
14.4. Packing group: II
Hazard label: 8
Classification code: C2
Limited quantity: 1 kg
Excepted quantity: E2

Marine transport (IMDG)

14.1. UN number or ID number: UN 1727
14.2. UN proper shipping name: AMMONIUM HYDROGENDIFLUORIDE, SOLID
14.3. Transport hazard class(es): 8
14.4. Packing group: II
Hazard label: 8
Special Provisions: -
Limited quantity: 1 kg
Excepted quantity: E2
EmS: F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 1727
14.2. UN proper shipping name: AMMONIUM HYDROGENDIFLUORIDE, SOLID
14.3. Transport hazard class(es): 8
14.4. Packing group: II
Hazard label: 8
Limited quantity Passenger: 5 kg
Passenger LQ: Y844
Excepted quantity: E2
IATA-packing instructions - Passenger: 859
IATA-max. quantity - Passenger: 15 kg
IATA-packing instructions - Cargo: 863
IATA-max. quantity - Cargo: 50 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: Toxic.

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****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 75

Information according to Directive
2012/18/EU (SEVESO III):

H2 ACUTE TOXIC

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National regulatory information

Employment restrictions:	Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
Water hazard class (D):	1 - slightly hazardous to water
Skin resorption/Sensitization:	Permeates easily through outer skin and causes poisoning.

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 9.

Abbreviations and acronyms

Acute Tox. 3: Acute toxicity, hazard category 3
Skin Corr. 1B: Skin corrosion, sub-category 1B
Eye Dam. 1: Serious eye damage, hazard category 1
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%

Relevant H and EUH statements (number and full text)

H301 Toxic if swallowed.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

Further Information

Provide appropriate information, instructions and training to users

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.