

Printing date 07/19/2021

Reviewed on 07/19/2021

## 1 Identification

- **Product name**
- **Trade name:** Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH<sub>4</sub>F)
- **Item number:** 93-0205
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Strem Chemicals, Inc.  
7 Mulliken Way  
NEWBURYPORT, MA 01950  
USA  
info@strem.com
- **Information department:** Technical Department
- **Emergency telephone number:**  
EMERGENCY: CHEMTREC: + 1 (800) 424-9300  
During normal opening times: +1 (978) 499-1600

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05



GHS06

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH<sub>4</sub>F)
- **Hazard statements**  
H301 Toxic if swallowed.  
H314 Causes severe skin burns and eye damage.
- **Precautionary statements**  
P260 Do not breathe dusts or mists.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P232 Protect from moisture.  
P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

**Safety Data Sheet**  
according to OSHA HCS

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(Contd. of page 1)

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

**3 Composition/information on ingredients**

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

1341-49-7	Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH <sub>4</sub> F)	96.0%
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**4 First-aid measures**

- **Description of first aid measures**
- **General information:**  
Immediately remove any clothing soiled by the product.  
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**  
Do not induce vomiting; immediately call for medical help.  
Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

**5 Fire-fighting measures**

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**  
During heating or in case of fire poisonous gases are produced.

(Contd. on page 3)

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**Trade name: Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH<sub>4</sub>F)**

(Contd. of page 2)

- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Mount respiratory protective device.  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**  
Use neutralizing agent.  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

1341-49-7	Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH <sub>4</sub> F)	11 mg/m <sup>3</sup>
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· **PAC-2:**

1341-49-7	Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH <sub>4</sub> F)	130 mg/m <sup>3</sup>
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· **PAC-3:**

1341-49-7	Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH <sub>4</sub> F)	750 mg/m <sup>3</sup>
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**7 Handling and storage**

- **Handling:**
- **Precautions for safe handling**  
Thorough dedusting.  
Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.

(Contd. on page 4)

**Safety Data Sheet**  
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(Contd. of page 3)

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

**1341-49-7 Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH<sub>4</sub>F)**

PEL	Long-term value: 2.5 mg/m <sup>3</sup> as F
REL	Long-term value: 2.5 mg/m <sup>3</sup> as F
TLV	Long-term value: 2.5 mg/m <sup>3</sup> as F, BEI

· **Ingredients with biological limit values:**

**1341-49-7 Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH<sub>4</sub>F)**

BEI	2 mg/L Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific)
	3 mg/L Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:** Wear protective clothing

· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.

· **Breathing equipment:** A NIOSH approved respirator in accordance with 29 CFR 1910.134.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 5)

**Safety Data Sheet**  
according to OSHA HCS

Printing date 07/19/2021

Reviewed on 07/19/2021

Trade name: Ammonium hydrogen fluoride, min. 96% (contains 3-4%  $NH_4F$ )

(Contd. of page 4)

· Eye protection:



Tightly sealed goggles

**9 Physical and chemical properties**

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Solid
Color:	White
· Odor:	Odorless
· Odor threshold:	Not determined.

· pH-value: Not applicable.

· Change in condition

Melting point/Melting range:	126 °C (259 °F)
Boiling point/Boiling range:	Undetermined.

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not determined.

· Ignition temperature:

Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

· Vapor pressure at 20 °C (68 °F): 1 hPa (1 mm Hg)

· Density at 20 °C (68 °F): 1.5 g/cm<sup>3</sup> (12.5175 lbs/gal)

· Bulk density at 20 °C (68 °F):	750 kg/m <sup>3</sup>
· Relative density	Not determined.
· Vapor density	Not applicable.
· Evaporation rate	Not applicable.

· Solubility in / Miscibility with

Water at 20 °C (68 °F): 630 g/l

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic:	Not applicable.
Kinematic:	Not applicable.

· Solvent content:

Organic solvents:	0.0 %
VOC content:	0.0 g/l / 0.00 lb/gl

(Contd. on page 6)

**Safety Data Sheet**  
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**Trade name: Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH<sub>4</sub>F)**

(Contd. of page 5)

- **Solids content:** 100.0 %
- **Other information** No further relevant information available.

**10 Stability and reactivity**

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

**11 Toxicological information**

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:**  
Strong caustic effect.  
Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Toxic  
Corrosive  
Irritant  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

1341-49-7	Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH <sub>4</sub> F)	3
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· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

**12 Ecological information**

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Must not reach bodies of water or drainage ditch undiluted or unneutralized.

(Contd. on page 7)

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(Contd. of page 6)

- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

**13 Disposal considerations**

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

· <b>UN-Number</b>	
· <b>DOT, IMDG, IATA</b>	UN1727
· <b>UN proper shipping name</b>	
· <b>DOT</b>	Ammonium hydrogendifluoride, solid mixture
· <b>IMDG, IATA</b>	AMMONIUM HYDROGENDIFLUORIDE, SOLID mixture
· <b>Transport hazard class(es)</b>	
· <b>DOT</b>	
	
· <b>Class</b>	8 Corrosive substances
· <b>Label</b>	8
<hr style="border-top: 1px dashed black;"/>	
· <b>IMDG, IATA</b>	
	
· <b>Class</b>	8 Corrosive substances
· <b>Label</b>	8
· <b>Packing group</b>	
· <b>DOT, IMDG, IATA</b>	II
· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Warning: Corrosive substances
· <b>Danger code (Kemler):</b>	80
· <b>EMS Number:</b>	F-A,S-B
· <b>Segregation groups</b>	Acids, ammonium compounds
· <b>Stowage Category</b>	A
· <b>Stowage Code</b>	SW1 Protected from sources of heat. SW2 Clear of living quarters.

(Contd. on page 8)



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(Contd. of page 7)

· <b>Segregation Code</b>	SG35 Stow "separated from" acids.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>DOT</b>	
· <b>Quantity limitations</b>	On passenger aircraft/rail: 15 kg On cargo aircraft only: 50 kg
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	1 kg
· <b>Excepted quantities (EQ)</b>	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
· <b>UN "Model Regulation":</b>	UN 1727 AMMONIUM HYDROGENDIFLUORIDE, SOLID MIXTURE, 8, II

**15 Regulatory information**

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

1341-49-7 Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH<sub>4</sub>F)

A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 9)



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(Contd. of page 8)

· **Hazard pictograms**



GHS05 GHS06

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

*Ammonium hydrogen fluoride, min. 96% (contains 3-4% NH<sub>4</sub>F)*

· **Hazard statements**

*H301 Toxic if swallowed.*

*H314 Causes severe skin burns and eye damage.*

· **Precautionary statements**

*P260 Do not breathe dusts or mists.*

*P280 Wear protective gloves/protective clothing/eye protection/face protection.*

*P232 Protect from moisture.*

*P264 Wash thoroughly after handling.*

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

*P501 Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

**16 Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Department issuing SDS:** *Technical Department.*

· **Contact:** *Technical Director*

· **Date of preparation / last revision** *07/19/2021 / -*

· **Abbreviations and acronyms:**

*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*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*ACGIH: American Conference of Governmental Industrial Hygienists*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*ELINCS: European List of Notified Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*VOC: Volatile Organic Compounds (USA, EU)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*NIOSH: National Institute for Occupational Safety*

*OSHA: Occupational Safety & Health*

*TLV: Threshold Limit Value*

*PEL: Permissible Exposure Limit*

*REL: Recommended Exposure Limit*

*BEI: Biological Exposure Limit*

*Acute Tox. 3: Acute toxicity – Category 3*

*Skin Corr. 1B: Skin corrosion/irritation – Category 1B*

*Eye Dam. 1: Serious eye damage/eye irritation – Category 1*