

## Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

27 November 2023

### Sixty-third session

Geneva, 27 November-6 December 2023

Item 3 of the provisional agenda

**Listing, classification and packing**

## **Additional information to document ST/SG/AC.10/C.3/2023/42 – Classification of UN 1727 AMMONIUM HYDROGENDIFLUORIDE, SOLID**

**Submitted by the expert from Sweden**

### **Background**

This document contains data and information to support the reclassification of UN 1727 Ammonium hydrogendifluoride.

- |           |   |
|-----------|---|
| Annex I   | DATA SHEET TO BE SUBMITTED TO THE UNITED NATIONS FOR NEW OR AMENDED CLASSIFICATION OF SUBSTANCES                                      |
| Annex II  | Brief Profile on UN 1727 Ammonium hydrogendifluoride from the ECHA Database   |
| Annex III | Excerpt from the CLP Regulations (No 1272/2008) about Ammonium hydrogendifluoride (ammonium bifluoride)                               |
| Annex IV  | Summary of Classification and Labelling - Harmonised classification - Annex VI of Regulation (EC) No 1272/2008 from the ECHA Database |
| Annex V   | Table A1.18 of annex 1 of the GHS 10 <sup>th</sup> revised edition  |
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**DATA SHEET TO BE SUBMITTED TO THE UNITED NATIONS  
FOR NEW OR AMENDED CLASSIFICATION OF SUBSTANCES**

Submitted by: Sweden Date: 27 November 2023

Supply all relevant information including sources of basic classification data. Data should relate to the product in the form to be transported. State test methods. Answer all questions - if necessary, state "not known" or "not applicable" - If data is not available in the form requested, provide what is available with details. Delete inappropriate words.

**Section 1. SUBSTANCE IDENTITY**

- 1.1 Chemical name: Ammonium fluoride hydrofluoride
- 1.2 Chemical formula: (NH<sub>4</sub>)HF<sub>2</sub>
- 1.3 Other names/synonyms: Ammonium bifluoride
- 1.4.1 UN number: UN 1727 1.4.2 CAS number: 1341-49-7
- 1.5 Proposed classification for the Recommendations:  
Class 8 PG II (**6.1**)
- 1.5.1 proper shipping name (3.1.2<sup>1</sup>): AMMONIUM HYDROGENDIFLUORIDE, SOLID  
(no change)
- 1.5.2 class/division: 8 (PG II) (no change) subsidiary hazard(s): **6.1 (PG III)**
- 1.5.3 proposed special provisions, if any: **SP XXX** (concerning transitional measures)
- 1.5.4 packing instruction(s): P002 and IBC08 (B2, B4) (no change)  
Limited and excepted quantities: 1 kg, E2 (no change)

**Section 2. PHYSICAL PROPERTIES**

- 2.1 Melting point or range: 126 °C
- 2.2 Boiling point or range: 240 °C
- 2.3 Relative density at: 20 °C: 1.5 g/cm<sup>3</sup>
- 2.4 Vapour pressure at: 20 °C: 1.08 Pa
- 2.5 Viscosity at 20 °C<sup>2</sup>: Not applicable
- 2.6 Solubility in water at 20 °C: 602 g/litre
- 2.7 Physical state at 20 °C (2.2.1.1<sup>1</sup>)  solid  liquid<sup>2</sup>  gas
- 2.8 Appearance at normal transport temperatures: Crystalline solid
- 2.9 Other relevant physical properties: Not known

**Section 3. FLAMMABILITY:** Not flammable

**Section 4. CHEMICAL PROPERTIES**

<sup>1</sup> This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.

<sup>2</sup> See definition of "liquid" in 1.2.1 of the Model Regulations on the Transport of Dangerous Goods.

- 4.1 Does the substance require inhibition/stabilization or other treatment such as nitrogen blanket to prevent hazardous reactivity?      yes/no
- 4.2 Is the substance an explosive according to paragraph 2.1.1.1? (2.1<sup>1</sup>)      yes/no
- 4.3 Is the substance a desensitized explosive? (2.4.2.4<sup>1</sup>)      yes/no
- 4.4 Is the substance a self-reactive substance? (2.4.1<sup>1</sup>)      yes/no
- 4.5 Is the substance pyrophoric? (2.4.3<sup>1</sup>)      yes/no
- 4.6 Is the substance liable to self-heating? (2.4.3<sup>1</sup>)      yes/no
- 4.7 Is the substance an organic peroxide (2.5.1<sup>1</sup>)      yes/no
- 4.8 Does the substance in contact with water emit flammable gases? (2.4.4<sup>1</sup>)      yes/no
- 4.9 Does the substance have oxidizing properties (2.5.1<sup>1</sup>)      yes/no
- 4.10 Corrosivity (2.8<sup>1</sup>) to: Skin corrosive Class 8 (PG II)
- 4.11 Other relevant chemical properties: Not applicable

#### **Section 5. HARMFUL BIOLOGICAL EFFECTS**

- 5.1 LD<sub>50</sub>, oral (2.6.2.1.1<sup>1</sup>)      **130 (100-147) mg/kg** (ECHA Database) Animal species: Rat
- 5.2 LD<sub>50</sub>, dermal (2.6.2.1.2<sup>1</sup>)      Not data available
- 5.3 LC<sub>50</sub>, inhalation (2.6.2.1.3<sup>1</sup>)      Not data available

#### **Section 6. SUPPLEMENTARY INFORMATION**

- 6.1 Recommended emergency action: Not applicable
- 6.2 Is it proposed to transport the substance in: (no change to the current transport conditions)
- 6.2.1 Bulk Containers (6.8<sup>1</sup>)      yes/no
- 6.2.2 Intermediate Bulk Containers (6.5<sup>1</sup>)?      yes/no
- 6.2.3 Portable tanks (6.7<sup>1</sup>)?      yes/no

If yes, give details in sections 7, 8 and/or 9.

#### **Section 7. BULK CONTAINERS (only complete if yes in 6.2.1)**

- 7.1 Proposed type(s): Not applicable

#### **Section 8. INTERMEDIATE BULK CONTAINERS (IBCs) (only complete if yes in 6.2.2)**

- 8.1 Type(s): Already assigned IBC08

#### **Section 9. MULTIMODAL TANK TRANSPORT (only complete if yes in 6.2.3)**

- 9.1 Description of tank (including IMO tank type if known): Already assigned T3, TP33

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<sup>1</sup> This and similar references are to chapters and paragraphs in the Model Regulations on the Transport of Dangerous Goods.

The Brief Profile summarizes the non-confidential data on substances as it is held in the databases of the European Chemicals Agency (ECHA), including data provided by third parties. The Brief Profile is automatically generated; note that it does not currently distinguish between harmonised classification and minimum classification; information requirements under different legislative frameworks may therefore not be fully up to date or complete. For accuracy reasons, substance manufacturers and imports have the responsibility to consult official sources, e.g. the electronic edition of the Official Journal of the European Union. This Brief Profile is covered by the [ECHA Legal Notice](#).

## Ammonium hydrogendifluoride

Brief Profile - Last updated: 21/11/2023

### Substance Description

Substance identity	
$\text{NH}_4^+$	EC / List name:
$\text{HF}$	IUPAC name:
	<u>Substance names and other identifiers</u>
$\text{F}^-$	
	SMILES:
	InChI:
	<b>Type of substance:</b> Mono constituent substance
	<b>Origin:</b> Inorganic
	<b>Registered compositions:</b> 11
	<b>Of which contain:</b> 0 impurities relevant for classification 0 additives relevant for classification
	<b>Substance Listed:</b> EINECS (European Inventory of Existing Commercial chemical Substances) List
<b>EC / List no.:</b>	215-676-4
<b>CAS no.:</b>	1341-49-7
<b>Index number:</b>	009-009-00-4
Molecular formula:	

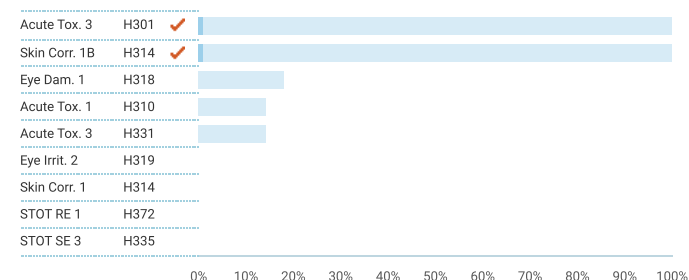
### Hazard classification & labelling



**Danger!** According to the **harmonised classification and labelling (CLP00)** approved by the European Union, this substance is toxic if swallowed and causes severe skin burns and eye damage.

**Additionally**, the classification provided by companies to ECHA in **CLP notifications** identifies that this substance is fatal in contact with skin, is toxic if inhaled and causes serious eye damage.

#### Breakdown of all 3138 C&L notifications submitted to ECHA



✓ Harmonised Classification

■ REACH registration dossiers notifications

■ CLP notifications

⚠ At least one notifier has indicated that an impurity or an additive present in the substance impacts the notified classification.

### Properties of concern

### Regulatory context

#### Registration, Evaluation, Authorisation & Restriction of Chemicals (REACH)

##### Registration

**Pre-registration:** Substance pre-registered under REACH.

**Registration:** This substance has 12 active registrations under REACH, 2 Joint Submission(s) and 0 Individual Submission(s).

##### Evaluation

**Dossier Evaluation:** Registration dossiers submitted to ECHA for this substance have been evaluated under REACH.

Substance Evaluation:

##### Authorisation

Candidate List:

**Annex XIV** (Authorisation List):

##### Restriction

**Annex XVII** (Restriction List):

#### Persistent Organic Pollutants Regulation (POPs)

List of substances subject to the POPs Regulation:

List of substances proposed as POPs:

#### Classification Labelling & Packaging (CLP)

##### Harmonised C&L:

A European Union Harmonised Classification & Labelling has been assigned to this substance.

##### Seveso Annex I:

##### Notified C&L:

Classification & Labelling has been notified by industry to ECHA for this substance.

#### Biocidal Products Regulation (BPR)

Active Substance:

Biocidal Products:

#### Prior Informed Consent (PIC)

Annex I:

Annex V:

#### European Union Observatory for Nanomaterials (EUON)

EUON:

## About this substance

### General

This substance is registered under the REACH Regulation and is manufactured in and / or imported to the European Economic Area, at  $\geq 10\,000$  tonnes per annum.

This substance is used by professional workers (widespread uses), in formulation or re-packing, at industrial sites and in manufacturing.

### Consumer Uses

ECHA has no public registered data indicating whether or in which chemical products the substance might be used.

ECHA has no public registered data on the routes by which this substance is most likely to be released to the environment.

### Article service life

ECHA has no public registered data on the use of this substance in activities or processes at the workplace.

ECHA has no public registered data on the routes by which this substance is most likely to be released to the environment.

ECHA has no public registered data indicating whether or into which articles the substance might have been processed.

### Widespread uses by professional workers

This substance is used in the following products: non-metal-surface treatment products and washing & cleaning products.

This substance is used for the manufacture of: .

This substance is used in the following activities or processes at workplace: roller or brushing applications, industrial spraying, mixing in open batch processes, non-industrial spraying, laboratory work and hand mixing with intimate contact only with personal protective equipment available.

Other release to the environment of this substance is likely to occur from: indoor use as reactive substance and outdoor use as reactive substance.

### Formulation or re-packing

This substance is used in the following products: metal surface treatment products, non-metal-surface treatment products and washing & cleaning products.

This substance is used in the following activities or processes at workplace: transfer of chemicals, closed processes with no likelihood of exposure, closed, continuous processes with occasional controlled exposure, mixing in open batch processes and transfer of substance into small containers.

Release to the environment of this substance can occur from industrial use: formulation of mixtures.

### Uses at industrial sites

This substance is used in the following products: non-metal-surface treatment products, metal surface treatment products, washing & cleaning products and welding & soldering products.

This substance is used in the following areas: mining, building & construction work and scientific research and development. This substance is used for the manufacture of: .

This substance is used in the following activities or processes at workplace: industrial spraying, treatment of articles by dipping and pouring, greasing at high energy conditions, roller or brushing applications, hand mixing with intimate contact only with personal protective equipment available, closed processes with no likelihood of exposure and closed batch processing in synthesis or formulation.

Release to the environment of this substance can occur from industrial use: as processing aid and in processing aids at industrial sites. Other release to the environment of this substance is likely to occur from: indoor use as reactive substance and outdoor use as reactive substance.

### Manufacture

This substance is used in the following activities or processes at workplace: transfer of chemicals, closed processes with no likelihood of exposure, closed, continuous processes with occasional controlled exposure, closed batch processing in synthesis or formulation, mixing in open batch processes and transfer of substance into small containers.

Release to the environment of this substance can occur from industrial use: manufacturing of the substance.

### Precautionary Measures and safe use

Precautions for using this substance have been recommended by its registrants under REACH, as follows:

#### Prevention statements

When handling this substance: do not breathe the dust, fume, gas, mist, vapours or spray; wear protective gloves and/or clothing, and eye and/or face protection as specified by manufacturer/supplier.

#### Response statements

In case of incident: If on skin (or hair): take off immediately all contaminated clothing. Rinse skin with water or shower. If swallowed: rinse mouth. Do not induce vomiting. If exposed or you feel unwell: call a poison center or doctor/physician. If in eyes: rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

Guidance on the safe use of the substance provided by manufacturers and importers of this substance.

## Registrants/suppliers

### Active

- 3M Belgium BVBA/SPRL (OR8), Hermeslaan 7 1831 Diegem Belgium
- ALTICHEM, 4 Rue Jacques Vaucanson 95310 SAINT-OUEN-L'AUMÔNE VAL D'OISE France
- DERIVADOS DEL FLUOR, S.A.U., Ontón 39706 Castro Urdiales Cantabria Spain
- INTERTEK FRANCE, ZAC Eco parc II 27400 HEUDEBOUVILLE France
- likedeelers GmbH, Hallbergstr. 10 40239 Düsseldorf Germany
- NIPPON PAINT AUTOMOTIVE EUROPE GmbH, Vitalisstraße 114 D-50827 Köln Germany
- NPM Silmet OÜ, Keskk tn. 2 40231 Sillamäe Ida-Virumaa Estonia
- REACHLaw Ltd, Väinrikinkuja 3 JK 21 FI-02600 ESPOO helsinki Finland
- sapi impianti srl, Z.I. loc. Il Piano 53031 casole d'Elsa (SI) Italy
- SCAS Europe S.A./N.V., Leonardo Da Vincilaan 19 B-1831 Diegem Belgium
- Solvay Fluor GmbH, Hans-Boeckler-Allee 20 30173 HANNOVER Germany
- Wegochem Europe B.V., Bredaseweg 108a 4902 NS Oosterhout Netherlands

### Inactive

- Arcerion GmbH, Gabrielenstr. 15 80636 München Germany
- Chemetall Kft., org. složka, Počernická 96 108 00 Praha 10 Czech Republic

## Substance names and other identifiers

[Regulatory process names](#)

Acid ammonium fluoride	Other	Ammonium difluoride	Other
Ammonium acid fluoride	Other	Ammonium fluoride ((NH4)(HF2))	Other
Ammonium bifluoride	Other	Ammonium fluoride comp. with hydrogen fluoride (1:1)	Other
ammonium bifluoride ammonium hydrogen difluoride	C&L Inventory	Ammonium hydrofluoride	Other
ammonium bifluoride; ammonium hydrogen difluoride	CAD - Chemical Agents Directive, Art. 2(b)(i) - Hazardous Agents, Construction Product Regulation - Annex I (3) - Hazardous Substances, Construction Product Regulation - Art. 6(5) - SDS and Declaration, EU Ecolabels - Restrictions for Hazardous Substances/Mixtures, End-of-Life Vehicles Directive - Hazardous Substances, Active Implantable Medical Devices Directive - Hazardous Substances, In Vitro Diagnostic Medical Devices Directive - Hazardous Substances, In Vitro Diagnostic Medical Devices Regulation - Hazardous Substances, Marine Environmental Policy Framework Directive - Hazardous Substances, Medical Devices Directive - Hazardous Substances, Medical Devices Regulation - Hazardous Substances, General Product Safety Directive - Hazardous Substances, Workplace Signs - minimum requirements & signs on containers and pipes, Safety and Health of Workers at Work Directive - Hazardous Substances, Waste Framework Directive, Annex III - Waste - Hazardous Properties, Physical, Biological and Chemical Agents & Processes and Work	Ammonium hydrogen bifluoride	Other
		Ammonium hydrogen difluoride	Other
		Ammonium hydrogen fluoride	Other
		Ammonium hydrogendifluoride	EC Inventory, REACH pre-registration
		Ammonium hydrogendifluoride	REACH pre-registration, Other
		AMMONIUM HYDROGENDIFLUORIDE SOLUTION	Inland Transport of Dangerous Goods Directive, Annex III - ADN, Inland Transport of Dangerous Goods Directive, Annex I - ADR, Inland Transport of Dangerous Goods Directive, Annex II - RID
		AMMONIUM HYDROGENDIFLUORIDE, SOLID	Inland Transport of Dangerous Goods Directive, Annex III - ADN, Inland Transport of Dangerous Goods Directive, Annex I - ADR, Inland Transport of Dangerous Goods Directive, Annex II - RID
		Fluorure acide d'ammonium	Other

[Translated names](#)

Ammoniumbifluorid	C&L Inventory	bifluoreto de amónio hydrogenodifluoreto de amónio (pt)	C&L Inventory
Ammoniumhydrogendifluorid (de)		bifluorure d'ammonium;hydrogénodifluorure d'ammonium (fr)	C&L Inventory
Ammoniumbifluoridi (fi)	C&L Inventory	bifluoruro d'ammonio ammonio bifluoruro (it)	C&L Inventory
ammoniumhydrogenfluorid (da)	C&L Inventory	difluorid monoamónny hydrogendifluorid amónny (sk)	C&L Inventory
ammoniumhydrogenfluorid (no)	C&L Inventory	difluorura de amoniu difluorura acida de amoniu (ro)	C&L Inventory
ammoniumvätefluorid ammoniumbifluorid ammoniumvätedefluorid (sv)	C&L Inventory	difluoruro de amonio (es)	C&L Inventory
ammoniumwaterstofdifluoride (nl)	C&L Inventory	fluorek amonu-fluorowodór(1/1)	C&L Inventory
Ammoniumbifluorid	C&L Inventory	Wodorofluorek amonu kwaśny fluorek amonu (pl)	
Ammoniumvesinikdifluorid (et)		hydrogendifluorid amonný hydrogendifluorid amonný (cs)	C&L Inventory
ammónium-bifluorid ammónium-hidrogén-difluorid (hu)	C&L Inventory	διφθοριούχο αμμώνιο διφθοριούχο υδρογόνο αμμώνιο (el)	C&L Inventory
amonija difluorids amonija hidrogendifluorids (lv)	C&L Inventory	амониев бифлуорид амониев хидроген дифлуорид (bg)	C&L Inventory
amonijev bifluorid amonijev hidrogendifluorid (sl)	C&L Inventory		
amonio bifluoridas amonio vandenilio difluoridas (lt)	C&L Inventory		

## CAS names

[IUPAC names](#)

AMBI	Registration dossier	Ammonium hydrogen fluoride	C&L Inventory
Ammonium Bifluoride	C&L Inventory	Ammonium hydrogendifluoride	C&L Inventory, Registration dossier
Ammonium bifluoride	C&L Inventory, Registration dossier	Ammonium hydrogendifluoride	C&L Inventory, Registration dossier
ammonium fluoride	C&L Inventory	Ammonium hydrogenfluoride	C&L Inventory
ammonium fluoride hydrofluoride	C&L Inventory, Registration dossier	ammonium-hydrogendifluoride-	C&L Inventory
ammonium fluoride hydrofluoride (1:1:1)	C&L Inventory	azanium fluoride hydrofluoride	C&L Inventory
ammonium hydrofluoride fluoride	C&L Inventory, Other	cadmium	C&L Inventory
Ammonium hydrogen difluoride	C&L Inventory		

[Trade names](#)

AMBI	Registration dossier	Nano grip	C&L Inventory
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[Other names](#)

ammonium bifluoride	REACH pre-registration
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Other identifiers						
009-009-00-4	Index number	C&L Inventory	135446-53-6	CAS number	Other	
120144-37-8	CAS number	Other	14055-61-9	CAS number	Other	
1257076-06-4	CAS number	Other	159431-44-4	CAS number	Other	
127026-25-9	CAS number	Other	1628788-89-5	CAS number	Other	
1341-49-7	CAS number	EC Inventory, C&L Inventory, Registration dossier, REACH pre-registration, Other, CAD - Chemical Agents Directive, Art. 2(b)(i) - Hazardous Agents, Construction Product Regulation - Annex I (3) - Hazardous Substances, Construction Product Regulation - Art. 6(5) - SDS and Declaration, EU Ecolabels - Restrictions for Hazardous Substances/Mixtures, End-of-Life Vehicles Directive - Hazardous Substances, Active Implantable Medical Devices Directive - Hazardous Substances, Inland Transport of Dangerous Goods Directive, Annex III - ADN, Inland Transport of Dangerous Goods Directive, Annex I - ADR, Inland Transport of Dangerous Goods Directive, Annex II - RID, In Vitro Diagnostic Medical Devices Directive - Hazardous Substances, In Vitro Diagnostic Medical Devices Regulation - Hazardous Substances, Marine Environmental Policy Framework Directive - Hazardous Substances, Medical Devices Directive - Hazardous Substances, Medical Devices Regulation - Hazardous Substances, General Product Safety Directive - Hazardous Substances, Workplace Signs - minimum requirements & signs on containers and pipes, Safety and Health of Workers at Work Directive - Hazardous Substances, Waste Framework Directive, Annex III - Waste - Hazardous Properties, Physical, Biological and Chemical Agents & Processes and Work	16941-26-7	CAS number	Other	
			19121-60-9	CAS number	Other	
			52697-21-9	CAS number	Other	
			7790-15-0	CAS number	Other	
			96740-33-9	CAS number	Other	

## Scientific properties

### Toxicological information

This section provides toxicological information compiled from all automatically processable data from REACH registration dossiers that is available to ECHA at the time of generation. The quality and correctness of the information remains the responsibility of the data submitter. The Agency thus cannot guarantee the correctness of the information displayed.

Derived No- or Minimal Effect Level (DN(M)EL)

M/C Summaries

1 summary submitted  
1 summary processed

The derived no- or minimum effect level (DN(M)EL) is the level of exposure above which a human should not be exposed to a substance. Please note that when more than one summary is provided, DN(M)EL values may refer to constituents of the substance and not to the substance as a whole. More detailed information is available in the dossiers.

Data for WORKERS

INHALATION Exposure	Threshold	Most sensitive study
<i>Systemic Effects</i>		
Long-term:	(DNEL) 2.3 mg/m <sup>3</sup>	repeated dose toxicity
Acute /short term:	-	-
<i>Local Effects</i>		
Long-term:	-	-
Acute /short term:	(DNEL) 3.8 mg/m <sup>3</sup>	irritation (respiratory tract)
<i>DERMAL Exposure</i>		
<i>Systemic Effects</i>		
Long-term:	-	-
Acute /short term:	-	-
<i>Local Effects</i>		
Long-term:	-	-
Acute /short term:	-	-

Data for the GENERAL POPULATION

INHALATION Exposure	Threshold	Most sensitive study
<i>Systemic Effects</i>		
Long-term:	(DNEL) 45 µg/m <sup>3</sup>	repeated dose toxicity
Acute /short term:	-	-
<i>Local Effects</i>		
Long-term:	-	-
Acute /short term:	-	-
<i>DERMAL Exposure</i>		
<i>Systemic Effects</i>		
Long-term:	-	-
Acute /short term:	-	-
<i>Local Effects</i>		
Long-term:	-	-
Acute /short term:	-	-
<i>ORAL Exposure</i>		
<i>Systemic Effects</i>		
Long-term:	(DNEL) 15 µg/kg bw/day	repeated dose toxicity
Acute /short term:	(DNEL) 0.015 ng/kg bw/day	-
<i>EYE Exposure</i>		
-		

Toxicokinetics, metabolism, and distribution

Study results

Type of Study provided

Summaries

1 summary submitted  
0 summaries processed

Study data: basic toxicokinetics

2 studies submitted  
0 studies processed

Study data: basic toxicokinetics

⚠ No automatically processable data submitted

⚠ Study data not processed for brief profile

Studies with data Data waiving  
Weight of evidence 2 no waivers

Study data: dermal absorption

0 studies submitted  
0 studies processed

Study data: dermal absorption

⚠ Study data not processed for brief profile

Studies with data Data waiving  
no waivers



Acute toxicity		Type of Study provided		Summaries
<b>Study results</b>				1 summary submitted 0 summaries processed
oral	1 study submitted 1 study processed	oral	<b>Studies with data</b> <b>Data waiving</b> Key study 1 no waivers	⚠ No automatically processable data submitted
<b>P/R</b> Results LD50 130 mg/kg bw (rat) [1] LDLo 100 - 147 mg/kg bw (rat) [2]				
<b>M/C</b> Interpretations of results Toxic [1]				
inhalation	1 study submitted 0 studies processed	inhalation	<b>Studies with data</b> <b>Data waiving</b> Sci. unjustified 1	
⚠ No automatically processable data submitted				
dermal	1 study submitted 0 studies processed	dermal	<b>Studies with data</b> <b>Data waiving</b> Sci. unjustified 1	
⚠ No automatically processable data submitted				
other routes	0 studies submitted 0 studies processed	other routes	<b>Studies with data</b> <b>Data waiving</b> no waivers	
⚠ No data available				

Irritation / corrosion		Type of Study provided		<b>M/C</b> Summaries
<b>Study results</b>				1 summary submitted 1 summary processed
Study data: skin	1 study submitted 0 studies processed	Study data: skin	<b>Studies with data</b> <b>Data waiving</b> Sci. unjustified 1	<b>Skin</b> Adverse effect observed (corrosive)
⚠ Study data not processed for brief profile				<b>Eye</b> Adverse effect observed (irritating)
Study data: eye	1 study submitted 0 studies processed	Study data: eye	<b>Studies with data</b> <b>Data waiving</b> Sci. unjustified 1	
⚠ Study data not processed for brief profile				

Sensitisation		Type of Study provided		<b>M/C</b> Summaries
<b>Study results</b>				1 summary submitted 1 summary processed
Study data: skin	1 study submitted 0 studies processed	Study data: skin	<b>Studies with data</b> <b>Data waiving</b> Sci. unjustified 1	<b>Skin sensitisation</b> No adverse effect observed (not sensitising)
⚠ Study data not processed for brief profile				<b>Respiratory sensitisation</b> No adverse effect observed (not sensitising)
Study data: respiratory	0 studies submitted 0 studies processed	Study data: respiratory	<b>Studies with data</b> <b>Data waiving</b> no waivers	
⚠ Study data not processed for brief profile				

### Repeated dose toxicity

Study results	Type of Study provided	Summaries				
<p>Study data: oral</p> <p>6 studies submitted 4 studies processed</p> <p><b>P/R</b> Results NOAEL (rat): 100 ppm [2] NOEL (rat): 30 - 200 ppm [4] NOEL (mouse): 50 - 400 ppm [4] LOEL (mouse): 50 ppm [1]</p>	<p>Study data: oral</p> <p><b>Studies with data</b></p> <table border="1"> <tr> <td>Weight of evidence</td> <td>6</td> <td><b>Data waiving</b></td> <td>no waivers</td> </tr> </table>	Weight of evidence	6	<b>Data waiving</b>	no waivers	<p>1 summary submitted 0 summaries processed</p> <p>⚠ No automatically processable data submitted</p>
Weight of evidence	6	<b>Data waiving</b>	no waivers			
<p>Study data: inhalation</p> <p>8 studies submitted 7 studies processed</p> <p><b>P/R</b> Results NOAEL (rat): 0.88 - 1 ppm [2] LOAEL (rat): 105 - 175 mg/m<sup>3</sup> air [2] NOEL (pig): 61 ppm [1] LOEL (guinea pig): 119 mg/m<sup>3</sup> air [1] LOEL (pig): 103 ppm [1]</p>	<p>Study data: inhalation</p> <p><b>Studies with data</b></p> <table border="1"> <tr> <td>Weight of evidence</td> <td>8</td> <td><b>Data waiving</b></td> <td>no waivers</td> </tr> </table>	Weight of evidence	8	<b>Data waiving</b>	no waivers	
Weight of evidence	8	<b>Data waiving</b>	no waivers			
<p>Study data: dermal</p> <p>1 study submitted 0 studies processed</p> <p>⚠ No automatically processable data submitted</p>	<p>Study data: dermal</p> <p><b>Studies with data</b></p> <table border="1"> <tr> <td>Weight of evidence</td> <td>1</td> <td><b>Data waiving</b></td> <td>Sci. unjustified</td> </tr> </table>	Weight of evidence	1	<b>Data waiving</b>	Sci. unjustified	
Weight of evidence	1	<b>Data waiving</b>	Sci. unjustified			

### Genetic toxicity

Study results	Type of Study provided	Summaries															
<p>Study data: in vitro</p> <p>8 studies submitted 0 studies processed</p> <p>⚠ Study data not processed for brief profile</p>	<p>Study data: in vitro</p> <p><b>Studies with data</b></p> <table border="1"> <tr> <td>Key study</td> <td>1</td> <td>1</td> <td><b>Data waiving</b></td> <td>no waivers</td> </tr> <tr> <td>Supporting study</td> <td></td> <td>1</td> <td></td> <td></td> </tr> <tr> <td>Weight of evidence</td> <td></td> <td>5</td> <td></td> <td></td> </tr> </table>	Key study	1	1	<b>Data waiving</b>	no waivers	Supporting study		1			Weight of evidence		5			<p>1 summary submitted 0 summaries processed</p> <p>⚠ No automatically processable data submitted</p>
Key study	1	1	<b>Data waiving</b>	no waivers													
Supporting study		1															
Weight of evidence		5															
<p>Study data: in vivo</p> <p>5 studies submitted 0 studies processed</p> <p>⚠ Study data not processed for brief profile</p>	<p>Study data: in vivo</p> <p><b>Studies with data</b></p> <table border="1"> <tr> <td>Supporting study</td> <td></td> <td>3</td> <td><b>Data waiving</b></td> <td>no waivers</td> </tr> <tr> <td>Weight of evidence</td> <td></td> <td>2</td> <td></td> <td></td> </tr> </table>	Supporting study		3	<b>Data waiving</b>	no waivers	Weight of evidence		2								
Supporting study		3	<b>Data waiving</b>	no waivers													
Weight of evidence		2															

### Carcinogenicity

Study results	Type of Study provided	Summaries															
<p>Study results</p> <p>4 studies submitted 0 studies processed</p> <p>⚠ Study data not processed for brief profile</p>	<p>Study data: in vivo</p> <p><b>Studies with data</b></p> <table border="1"> <tr> <td>Supporting study</td> <td></td> <td>1</td> <td><b>Data waiving</b></td> <td>no waivers</td> </tr> <tr> <td>Weight of evidence</td> <td></td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td>1</td> <td></td> <td></td> </tr> </table>	Supporting study		1	<b>Data waiving</b>	no waivers	Weight of evidence		2			Other		1			<p>1 summary submitted 0 summaries processed</p> <p>⚠ No automatically processable data submitted</p>
Supporting study		1	<b>Data waiving</b>	no waivers													
Weight of evidence		2															
Other		1															

Toxicity to reproduction																											
Study results		Type of Study provided	Summaries																								
			1 summary submitted 0 summaries processed																								
Study data: reproduction	12 studies submitted 0 studies processed	Study data: reproduction	⚠ No automatically processable data submitted																								
⚠ Study data not processed for brief profile		<table border="1"> <thead> <tr> <th>Studies with data</th> <th></th> <th></th> <th></th> <th></th> <th>Data waiving</th> </tr> </thead> <tbody> <tr> <td>Key study</td> <td></td> <td></td> <td></td> <td>2</td> <td>no waivers</td> </tr> <tr> <td>Supporting study</td> <td>1</td> <td></td> <td></td> <td>4</td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td>5</td> <td></td> </tr> </tbody> </table>	Studies with data					Data waiving	Key study				2	no waivers	Supporting study	1			4		Other				5		
Studies with data					Data waiving																						
Key study				2	no waivers																						
Supporting study	1			4																							
Other				5																							
Study data: developmental	8 studies submitted 0 studies processed	Study data: developmental																									
⚠ Study data not processed for brief profile		<table border="1"> <thead> <tr> <th>Studies with data</th> <th></th> <th></th> <th></th> <th></th> <th>Data waiving</th> </tr> </thead> <tbody> <tr> <td>Weight of evidence</td> <td></td> <td></td> <td></td> <td>8</td> <td>no waivers</td> </tr> </tbody> </table>	Studies with data					Data waiving	Weight of evidence				8	no waivers													
Studies with data					Data waiving																						
Weight of evidence				8	no waivers																						
Study data: other studies	0 studies submitted 0 studies processed	Study data: other studies																									
⚠ Study data not processed for brief profile		<table border="1"> <thead> <tr> <th>Studies with data</th> <th></th> <th></th> <th></th> <th></th> <th>Data waiving</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>no waivers</td> </tr> </tbody> </table>	Studies with data					Data waiving						no waivers													
Studies with data					Data waiving																						
					no waivers																						

Neurotoxicity															
Study results	1 study submitted 0 studies processed	Type of Study provided	Summaries												
			1 summary submitted 0 summaries processed												
⚠ Study data not processed for brief profile		<table border="1"> <thead> <tr> <th>Studies with data</th> <th></th> <th></th> <th></th> <th></th> <th>Data waiving</th> </tr> </thead> <tbody> <tr> <td>Key study</td> <td></td> <td></td> <td></td> <td>1</td> <td>no waivers</td> </tr> </tbody> </table>	Studies with data					Data waiving	Key study				1	no waivers	⚠ No automatically processable data submitted
Studies with data					Data waiving										
Key study				1	no waivers										

Immunotoxicity ⚠ Data not provided by the registrant

Endocrine disrupter mammalian screening - in vivo ⚠ Data not provided by the registrant

Legend	Type of study	Type of aggregation
	Experimental results	Concatenated distinct values
	Read across based on grouping of substance (category approach) or Read-across from supporting substance (structural analogue or surrogate)	Range of values
	Estimated by calculation or (Q)SAR	Prioritisation (Eco)Toxicology AND Range of values
	Experimental study planned, other or unspecified	Most Conservative of values

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Index No	International Chemical Identification	EC No	CAS No	Classification		Pictogram, Signal Word Code(s)	Labelling		Specific Conc. Limits, M-factors	Notes
				Hazard Class and Category Code(s)	Hazard statement Code(s)		Hazard statement Code(s)	Suppl. Hazard statement Code(s)		
009-004-00-7	sodium fluoride	231-667-8	7681-49-4	Acute Tox. 3 * Eye Irrit. 2 Skin Irrit. 2	H301 H319 H315	GHS06 Dgr	H301 H319 H315	EUH032		
009-005-00-2	potassium fluoride	232-151-5	7789-23-3	Acute Tox. 3 * Acute Tox. 3 * Acute Tox. 3 *	H331 H311 H301	GHS06 Dgr	H331 H311 H301			
009-006-00-8	ammonium fluoride	235-185-9	12125-01-8	Acute Tox. 3 * Acute Tox. 3 * Acute Tox. 3 *	H331 H311 H301	GHS06 Dgr	H331 H311 H301			
009-007-00-3	sodium bifluoride; sodium hydrogen difluoride	215-608-3	1333-83-1	Acute Tox. 3 * Skin Corr. 1B	H301 H314	GHS06 GHS05 Dgr	H301 H314		* Skin Corr. 1B; H314: C ≥ 1 % Skin Irrit. 2; H315: 0,1 % ≤ C < 1 % Eye Irrit. 2; H319; 0,1 % ≤ C < 1 %	
009-008-00-9	potassium bifluoride; potassium hydrogen difluoride	232-156-2	7789-29-9	Acute Tox. 3 * Skin Corr. 1B	H301 H314	GHS06 GHS05 Dgr	H301 H314		* Skin Corr. 1B; H314: C ≥ 1 % Skin Irrit. 2; H315: 0,1 % ≤ C < 1 % Eye Irrit. 2; H319; 0,1 % ≤ C < 1 %	
009-009-00-4	ammonium bifluoride; ammonium hydrogen difluoride	215-676-4	1341-49-7	Acute Tox. 3 * Skin Corr. 1B	H301 H314	GHS06 GHS05 Dgr	H301 H314		* Skin Corr. 1B; H314: C ≥ 1 % Skin Irrit. 2; H315: 0,1 % ≤ C < 1 % Eye Irrit. 2; H319; 0,1 % ≤ C < 1 %	

## Summary of Classification and Labelling

## Harmonised classification - Annex VI of Regulation (EC) No 1272/2008 (CLP Regulation)



## General Information

Index Number	EC / List no.	CAS Number	International Chemical Identification
009-009-00-4	215-676-4	1341-49-7	ammonium bifluoride ammonium hydrogen difluoride

ATP Inserted / Updated: CLP00

CLP Classification (Table 3)

Classification		Labelling			Specific Concentration limits, M-Factors, Acute Toxicity Estimates (ATE)	Notes
Hazard Class and Category Code(s)	Hazard Statement Code(s)	Hazard Statement Code(s)	Supplementary Hazard Statement Code(s)	Pictograms, Signal Word Code(s)		
Acute Tox. 3 *	H301	H301		GHS05 GHS06 Dgr	Eye Irrit. 2; H319: 0,1 % ≤ C < 1 % Skin Corr. 1B; H314: C ≥ 1 % Skin Irrit. 2; H315: 0,1 % ≤ C < 1 %	
Skin Corr. 1B	H314	H314				

Signal Words	Pictograms
Danger	 <p>Corrosion</p>  <p>Skull and crossbones</p>

## Seveso III Data

**Disclaimer:** Please note that some of the substances covered by the Seveso Directive can belong to more than one Seveso categories. It will be up to the users to decide whether their substance or mixture fall in one or in more of these classification categories depending on the tonnage bands and the concentrations.

Please also note that ECHA is not an authority for the Seveso Directive and that the Seveso categorisation below is provided for information only. The Seveso III Directive (Directive 2012/18/EU repealing Directive 96/82/EC (Seveso II) from 1 June 2015) is the only authentic legal reference and that the information in this inventory does not constitute legal advice. For further information on Seveso, please ask your national authority.

Seveso Data	
Seveso Substance	Seveso Categories
Nej	

## Notified classification and labelling

## General Information

EC / List no.	Name	CAS Number
215-676-4	Ammonium hydrogendifluoride	1341-49-7

Notified classification and labelling according to CLP criteria

Classification		Labelling			Specific Concentration limits, M-Factors	Notes	Classification affected by Impurities / Additives	Additional Notified Information	Number of Notifiers	Joint Entries	
Hazard Class and Category Code(s)	Hazard Statement Code(s)	Hazard Statement Code(s)	Supplementary Hazard Statement Code(s)	Pictograms, Signal Word Code(s)							
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Eye Irrit. 2; : .1 % ≤ C < 1 % Skin Irrit. 2; : .1 % ≤ C < 1 % Skin Corr. 1B; : C ≥ 1 %			State/Form	442	✓	View details
Skin Corr. 1B	H314	H314									
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr		Note P			2037		View details
Skin Corr. 1B	H314	H314									





Classification		Labelling			Specific Concentration limits, M-Factors	Notes	Classification affected by Impurities / Additives	Additional Notified Information	Number of Notifiers	Joint Entries	
Hazard Class and Category Code(s)	Hazard Statement Code(s)	Hazard Statement Code(s)	Supplementary Hazard Statement Code(s)	Pictograms, Signal Word Code(s)							
Acute Tox. 3	H301	H301									
Acute Tox. 1	H310	H310									
Skin Corr. 1B	H314	H314		GHS05 GHS06 Dgr	Skin Corr. 1B; : C ≥ 1 % Skin Irrit. 2; : .1 % ≤ C < 1 % Eye Irrit. 2; : .1 % ≤ C < 1 %			446			View details
Eye Dam. 1	H318	H318									
Acute Tox. 3	H331	H331									
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr			State/Form	60			View details
Skin Corr. 1B	H314	H314									
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Eye Irrit. 2; : .1 % ≤ C < 1 % Skin Irrit. 2; : .1 % ≤ C < 1 % Skin Corr. 1B; : C ≥ 1 %		State/Form	60			View details
Skin Corr. 1B	H314	H314									
Eye Dam. 1	H318										
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Skin Corr. 1B; : C ≥ 1 % Skin Irrit. 2; : .1 % < C < 1 % Eye Irrit. 2; : .1 % < C < 1 % Eye Dam. 1; : C ≥ 1 %			55			View details
Skin Corr. 1B	H314	H314									
Eye Dam. 1	H318	H318									
Acute Tox. 3	H301	H301		GHS07 GHS05 GHS06 Dgr	Skin Corr. 1B; : C ≥ 1 % Eye Irrit. 2; : .1 % ≤ C < 1 % Skin Irrit. 2; : .1 % ≤ C < 1 %			13			View details
Skin Corr. 1B	H314	H314									
Eye Irrit. 2	H319	H319									
Acute Tox. 3	H301	H301 (H301)		GHS05 GHS06 Dgr				5			View details
Skin Corr. 1B	H314	H314 (H314)									
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Skin Corr. 1B; : C ≥ 1 % Eye Irrit. 2; : C ≥ .1 % Skin Irrit. 2; : C ≥ .1 %		State/Form	3			View details
Skin Corr. 1B	H314	H314									
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Eye Irrit. 2; : .1 % ≤ C < 1 % Skin Irrit. 2; : .1 % ≤ C < 1 % Skin Corr. 1; : 1 % ≤ C < 100 % Skin Corr. 1C; : 1 % ≤ C < 100 % Skin Corr. 1B; : 1 % ≤ C < 100 % Eye Dam. 1; : 1 % ≤ C < 100 %			3			View details
Skin Corr. 1	H314	H314									
Eye Dam. 1	H318										
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Skin Irrit. 2; : .1 % ≤ C < 1 % Eye Irrit. 2; : .1 % ≤ C < 1 % Skin Corr. 1B; : 1 % ≤ C < 100 % Skin Corr. 1; : 1 % ≤ C < 100 % Eye Dam. 1; : 1 % ≤ C < 100 % Skin Corr. 1C; : 1 % ≤ C < 100 %			3			View details
Skin Corr. 1B	H314	H314									
Eye Dam. 1	H318										
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Skin Corr. 1C; : 1 % ≤ C < 100 % Skin Corr. 1; : 1 % ≤ C < 100 % Skin Corr. 1B; : C ≥ 1 % Skin Irrit. 2; : .1 % ≤ C < 1 % Eye Irrit. 2; : .1 % ≤ C < 1 % Eye Dam. 1; : 1 % ≤ C < 100 %			2			View details
Skin Corr. 1B	H314	H314									
Eye Dam. 1	H318										
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Skin Corr. 1B; : C ≥ 1 % Skin Irrit. 2; : .1 % ≤ C < 1 % Eye Irrit. 2; : .1 % ≤ C < 1 %		State/Form	1			View details
Skin Corr. 1B	H314	H314									
Acute Tox. 3	H301			Dgr				1			View details
Skin Corr. 1B	H314										
		NA									
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Skin Irrit. 2; : C ≤ 1 % Skin Corr. 1B; : C > 1 % Eye Irrit. 2; : C ≤ 1 %		State/Form	1			View details
Skin Corr. 1B	H314	H314									
Acute Tox. 3	H301	H301		GHS08 GHS05 GHS06 Dgr	Skin Irrit. 2; : .1 % < C < 1 % Eye Irrit. 2; : .1 % < C < 1 % Skin Corr. 1B; : C ≥ 1 %		State/Form	1			View details
Skin Corr. 1B	H314	H314									
Eye Dam. 1	H318										
		H373									
Acute Tox. 3	H301	H301		GHS06 Dgr	Skin Corr. 1B; : C ≥ 1 % Eye Irrit. 2; : .1 % ≤ C < 1 % Skin Irrit. 2; : .1 % ≤ C < 1 %		State/Form	1			View details

Classification		Labelling			Specific Concentration limits, M-Factors	Notes	Classification affected by Impurities / Additives	Additional Notified Information	Number of Notifiers	Joint Entries	
Hazard Class and Category Code(s)	Hazard Statement Code(s)	Hazard Statement Code(s)	Supplementary Hazard Statement Code(s)	Pictograms, Signal Word Code(s)							
Acute Tox. 3	H301	H301									
Skin Corr. 1B	H314	H314									
Eye Dam. 1	H318	H318									
STOT SE 3	H335 (RTI)	H335									
STOT SE 3	H335 (other:RTI)	H335		GHS07 GHS05 GHS06 Dgr					1		View details
STOT RE 1	H372 (other:Skeletal ...)	H372									
STOT RE 1	H372 (Skeletal system)	H372									
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Skin Irrit. 2; : .1 % ≤ C < 1 % Skin Corr. 1B; : 1 % ≤ C ≤ 100 % Eye Irrit. 2; : .1 % ≤ C < 1 %			State/Form	1		View details
Skin Corr. 1B	H314	H314									
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Skin Irrit. 2; : .1 % ≤ C < 1 % Skin Corr. 1B; : C ≥ 1 % Eye Irrit. 2; : .1 % ≤ C < 1 %				1		View details
Skin Corr. 1B	H314	H314									
Eye Irrit. 2	H319										
Acute Tox. 3	H301	H301		GHS05 GHS06 Dgr	Skin Corr. 1B; : C ≥ 1 % Eye Irrit. 2; : .1 % ≤ C < 1 % Skin Irrit. 2; : .1 % ≤ C < 1 %				1		View details
Skin Corr. 1B	H314	H314									
Eye Dam. 1	H318	H318									

Number of Aggregated Notifications: 21

Close Window

## A1.18 Acute toxicity (see chapter 3.1 for classification criteria)

Classification			Labelling				GHS hazard statement codes		
GHS hazard class	GHS hazard category	UN Model Regulations class or division <sup>a</sup>	GHS pictogram	UN Model Regulations pictogram <sup>a</sup>	GHS signal word	GHS hazard statement			
Acute toxicity	1, 2	Oral			<b>Danger</b>	Fatal if swallowed	H300		
		Dermal				Fatal in contact with skin	H310		
		Inhalation				Fatal if inhaled	H330		
	3	Oral		or		<b>Danger</b>	Toxic if swallowed	H301	
		Dermal					Toxic in contact with skin	H311	
		Inhalation					Toxic if inhaled	H331	
	4	Oral	Not applicable		Not applicable	<b>Warning</b>	Harmful if swallowed	H302	
		Dermal					Harmful in contact with skin	H312	
		Inhalation					Harmful if inhaled	H332	
	5	Oral		No pictogram			<b>Warning</b>	May be harmful if swallowed	H303
		Dermal						May be harmful in contact with skin	H313
		Inhalation						May be harmful if inhaled	H333

<sup>a</sup> Under the UN Model Regulations, toxic gases are classified in Division 2.3 and toxic substances (as defined in the UN Model Regulations) are classified in Division 6.1.

## A1.19 Skin corrosion/irritation (see chapter 3.2 for classification criteria)