

**AMMONIUM HEXAFLUOROSILICATE**

Safety Data Sheet SIA0705.0

Date of issue: 16/05/2016

Version: 1.0

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

Product form	: Substance
Physical state	: Solid
Substance name	: AMMONIUM HEXAFLUOROSILICATE
Product code	: SIA0705.0
Formula	: H ₈ F ₆ N ₂ Si
Synonyms	: AMMONIUM FLUOROSILICATE; AMMONIUM SILICOFLUORIDE; AMMONIUM HEXAFLUOROSILICATE; AMMONIUM SILICON FLUORIDE; DIAMMONIUM HEXAFLUOROSILICATE
Chemical family	: FLUOROSILICATE

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	: Chemical intermediate
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1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet**GELEST, INC.**11 East Steel Road
Morrisville, PA 19067**USA**

T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST

info@gelest.com - www.gelest.com**GELEST INC.**Fritz-Klatte-Strasse 8
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T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM

info@gelestde.com - www.gelestde.com**1.4. Emergency telephone number**

Emergency number	: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)
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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
Acute toxicity (dermal), Category 3	H311
Acute toxicity (inhalation:dust,mist) Category 3	H331
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms (CLP)

:



GHS06

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled

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Precautionary statements (CLP) : P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P261 - Avoid breathing dust.
P264 - Wash hands thoroughly after handling.
P330 - Rinse mouth.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER.
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : AMMONIUM HEXAFLUROSILICATE
CAS-No. : 16919-19-0
EC-No. : 240-968-3

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Ammonium fluorosilicate	(CAS-No.) 16919-19-0 (EC-No.) 240-968-3 (EC Index-No.) 009-012-00-0	95 - 100	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

First-aid measures after skin contact : Wash with plenty of water/.... Immediately call a POISON CENTER/doctor.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Immediately call a POISON CENTER/doctor.

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

Symptoms/effects after inhalation : Toxic if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. May cause respiratory irritation. Overexposure causes inflammation and edema of the larynx and bronchii. Symptoms of exposure are a burning sensation, coughing, wheezing and laryngitis.

Symptoms/effects after skin contact : Toxic in contact with skin. Causes skin irritation. Repeated exposure to this material can result in absorption through skin causing significant health hazard.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Chronic symptoms : May cause osteofluorosis.

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

Note to Physician: Calcium gluconate is often considered in topical exposures to hydrofluoric acid and may be appropriate for severe exposures to fluorosilicates.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Not flammable.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Irritating fumes vapors may develop when material is mixed with other materials and exposed to elevated temperatures or open flame.

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5.3. Advice for firefighters

- Firefighting instructions : Exercise caution when fighting any chemical fire.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Wear protective equipment as described in Section 8.
- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
- Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Use only outdoors or in a well-ventilated area.
- Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep container tightly closed. Store locked up.
- Incompatible materials : Compatible with most materials.
- Storage area : Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonium fluorosilicate (16919-19-0)		
Latvia	OEL TWA (mg/m ³)	0.2 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	2.5 mg/m ³ inorganic fluoride as F

8.2. Exposure controls

Appropriate engineering controls:

Handle in an enclosing hood with exhaust ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

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Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor/acid gas (yellow cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder.
Molecular mass	: 178.14 g/mol
Colour	: White.
Odour	: No data available
Odour threshold	: No data available
Refractive index	: No additional information available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not flammable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 2.01
Solubility	: Soluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Dissolves in strong acid or base.

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

Compatible with most materials.

10.6. Hazardous decomposition products

Fluoride. NOx.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled.

AMMONIUM HEXAFLUOROSILICATE (16919-19-0)

ATE CLP (oral)	100 mg/kg bodyweight
ATE CLP (dermal)	300 mg/kg bodyweight

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AMMONIUM HEXAFLUOROSILICATE (16919-19-0)

ATE CLP (dust,mist) 0.5 mg/l/4h

Ammonium fluorosilicate (16919-19-0)

LD50 oral mouse	70 mg/kg RTECS Number: VV7800000; PERIPHERAL NERVE AND SENSATION: Flaccid paralysis without anesthesia (usually neuromuscular blockage); BEHAVIORAL: Ataxia; BEHAVIORAL: Muscle contraction or spasticity
LDLo oral rat	100 mg/kg
LDLo oral guinea pig	150 mg/kg
ATE CLP (oral)	100 mg/kg bodyweight
ATE CLP (dermal)	300 mg/kg bodyweight
ATE CLP (dust,mist)	0.5 mg/l/4h

Skin corrosion/irritation	: Not classified.
Serious eye damage/irritation	: Not classified
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
Symptoms/effects after inhalation	: Toxic if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. May cause respiratory irritation. Overexposure causes inflammation and edema of the larynx and bronchii. Symptoms of exposure are a burning sensation, coughing, wheezing and laryngitis.
Symptoms/effects after skin contact	: Toxic in contact with skin. Causes skin irritation. Repeated exposure to this material can result in absorption through skin causing significant health hazard.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Chronic symptoms	: May cause osteofluorosis.
Reason for classification	: Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Harmful to aquatic life.
Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

Ammonium fluorosilicate (16919-19-0)

LC50 fish 1	25.8 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
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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. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations	: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations. Large quantities may be recycled by return to the Gelest, the manufacturer.
Ecology - waste materials	: Avoid release to the environment.

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SECTION 14: Transport information

14.1. UN number

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

14.1. UN number

UN-No. (ADR)	: 2854
UN-No. (IMDG)	: 2854
UN-No. (IATA)	: 2854
UN-No. (ADN)	: 2854
UN-No. (RID)	: 2854

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: AMMONIUM FLUOROSILICATE
Proper Shipping Name (IMDG)	: AMMONIUM FLUOROSILICATE
Proper Shipping Name (IATA)	: Ammonium fluorosilicate
Proper Shipping Name (ADN)	: AMMONIUM FLUOROSILICATE
Proper Shipping Name (RID)	: AMMONIUM FLUOROSILICATE
Transport document description (ADR)	: UN 2854 AMMONIUM FLUOROSILICATE, 6.1, III, (E)
Transport document description (IMDG)	: UN 2854 AMMONIUM FLUOROSILICATE, 6.1, III
Transport document description (IATA)	: UN 2854 Ammonium fluorosilicate, 6.1, III
Transport document description (ADN)	: UN 2854 AMMONIUM FLUOROSILICATE, 6.1, III
Transport document description (RID)	: UN 2854 AMMONIUM FLUOROSILICATE, 6.1, III

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: 6.1
Danger labels (ADR)	: 6.1



IMDG

Transport hazard class(es) (IMDG)	: 6.1
Danger labels (IMDG)	: 6.1



IATA

Transport hazard class(es) (IATA)	: 6.1
Hazard labels (IATA)	: 6.1



ADN

Transport hazard class(es) (ADN)	: 6.1
Danger labels (ADN)	: 6.1

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RID

Transport hazard class(es) (RID) : 6.1
Danger labels (RID) : 6.1



14.4. Packing group

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

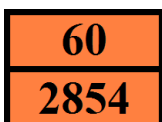
14.5. Environmental hazards

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) : T5
Limited quantities (ADR) : 5kg
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P002, IBC08, LP02, R001
Special packing provisions (ADR) : B3
Mixed packing provisions (ADR) : MP10
Portable tank and bulk container instructions (ADR) : T1
Portable tank and bulk container special provisions (ADR) : TP33
Tank code (ADR) : SGAH, L4BH
Tank special provisions (ADR) : TU15, TE19
Vehicle for tank carriage : AT
Transport category (ADR) : 2
Special provisions for carriage - Bulk (ADR) : VC1, VC2, AP7
Special provisions for carriage - Loading, unloading and handling (ADR) : CV13, CV28
Special provisions for carriage - Operation (ADR) : S9
Hazard identification number (Kemler No.) : 60
Orange plates :



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

- Transport by sea

Limited quantities (IMDG) : 5 kg
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : P002, LP02

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IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B3
Tank instructions (IMDG)	: T1
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-A
Stowage category (IMDG)	: A
Segregation (IMDG)	: SG35
Properties and observations (IMDG)	: Solids which react with acids, evolving hydrogen fluoride and silicon tetrafluoride, irritating and corrosive gases. Toxic if swallowed, by skin contact or by dust inhalation.

- Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y645
PCA limited quantity max net quantity (IATA)	: 10kg
PCA packing instructions (IATA)	: 670
PCA max net quantity (IATA)	: 100kg
CAO packing instructions (IATA)	: 677
CAO max net quantity (IATA)	: 200kg
ERG code (IATA)	: 6L

- Inland waterway transport

Classification code (ADN)	: T5
Special provisions (ADN)	: 802
Limited quantities (ADN)	: 5 kg
Excepted quantities (ADN)	: E1
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 0

- Rail transport

Classification code (RID)	: T5
Limited quantities (RID)	: 5kg
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P002, IBC08, LP02, R001
Special packing provisions (RID)	: B3
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T1
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAH, L4BH
Special provisions for RID tanks (RID)	: TU15
Transport category (RID)	: 2
Special provisions for carriage – Bulk (RID)	: VC1, VC2, AP7
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW28, CW31
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 60

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

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

No REACH Annex XVII restrictions

AMMONIUM HEXAFLUOROSILICATE is not on the REACH Candidate List

AMMONIUM HEXAFLUOROSILICATE is not on the REACH Annex XIV List

AMMONIUM HEXAFLUOROSILICATE is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

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AMMONIUM HEXAFLUOROSILICATE is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

15.1.2. National regulations

Germany

Reference to AwSV : Water hazard class (WGK) 2, Significantly hazardous to water (KBwS-Beschluss; ID No. 544)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.

SDS EU (REACH Annex II) - Custom

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