Safety Data Sheet

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision date: 27.02.2016  Version: 6.00  Print date: 27.02.2016

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

<table>
<thead>
<tr>
<th>Trade name/designation:</th>
<th>Ammonium fluoride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product No.:</td>
<td>05474</td>
</tr>
<tr>
<td>Synonyms:</td>
<td>no data available</td>
</tr>
<tr>
<td>CAS No.:</td>
<td>12125-01-8</td>
</tr>
<tr>
<td>Other means of identification:</td>
<td></td>
</tr>
</tbody>
</table>

Relevant identified uses of the substance or mixture and uses advised against

<table>
<thead>
<tr>
<th>Recommended Use:</th>
<th>For Further Manufacturing Use Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses advised against:</td>
<td>Not for Human or Animal Drug Use</td>
</tr>
</tbody>
</table>

Details of the supplier of the safety data sheet

United States of America

Supplier

VWR International LLC

<table>
<thead>
<tr>
<th>Street</th>
<th>100 Matsonford Road Radnor Corporate Center, Building One, Suite 200 P. O. Box 6660</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postal code/city</td>
<td>Radnor, PA 19087</td>
</tr>
<tr>
<td>Telephone</td>
<td>+1-800-932-5000 toll-free within US/CA +1-610-386-1700</td>
</tr>
<tr>
<td>Telefax</td>
<td>+1-610-728-2103</td>
</tr>
</tbody>
</table>
SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910.1200 (OSHA HCS)

<table>
<thead>
<tr>
<th>Hazard classes and hazard categories</th>
<th>Hazard statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity, category 3, oral, dermal and inhalation</td>
<td>H301+H311+H331</td>
</tr>
</tbody>
</table>

2.2 Label elements
Labelling in accordance with 29 CFR 1910.1200 (OSHA HCS)

Hazard pictograms

Signal word: Danger

<table>
<thead>
<tr>
<th>Hazard statements</th>
<th>Precautionary statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>H301+H311+H331</td>
<td>Toxic if swallowed, in contact with skin or if inhaled.</td>
</tr>
</tbody>
</table>

Precautionary statements

<table>
<thead>
<tr>
<th>Precautionary statements</th>
<th>Precautionary measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>P280</td>
<td>Wear protective gloves/protective clothing/eye protection/face protection.</td>
</tr>
<tr>
<td>P302+P352</td>
<td>IF ON SKIN: Wash with plenty of water/...</td>
</tr>
<tr>
<td>P304+P340</td>
<td>IF INHALED: Remove person to fresh air and keep comfortable for breathing.</td>
</tr>
<tr>
<td>P308+P310</td>
<td>IF exposed or concerned: Immediately call a POISON CENTER/doctor.</td>
</tr>
</tbody>
</table>

Other hazards

Hazards not otherwise classified (HNOC)
no data available
SECTION 3: Composition / information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Ammonium fluoride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular formula</td>
<td>H4FN</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>37.04 g/mol</td>
</tr>
<tr>
<td>CAS No.</td>
<td>12125-01-8</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1 General information

IF exposed: Immediately call a POISON CENTER/doctor. If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

After inhalation

Immediately call a POISON CENTER/doctor. Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

In case of skin contact

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin reactions, consult a physician.

After eye contact

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

In case of ingestion

Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. Rinse mouth thoroughly with water. Give nothing to eat or drink.

4.2 Most important symptoms/effects, acute and delayed

no data available

4.3 Indication of any immediate medical attention and special treatment needed

no data available

4.4 Self-protection of the first aider

First aider: Pay attention to self-protection!

4.5 Information to physician

no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

The product itself does not burn.

Co-ordinate fire-fighting measures to the fire surroundings.
Extinguishing media which must not be used for safety reasons

no restriction

5.2 Specific hazards arising from the chemical
In case of fire may be liberated:
Hydrogen fluoride
Nitrogen oxides (NOx)
Sulphur oxides

5.3 Advice for firefighters
DO NOT fight fire when fire reaches explosives. In case of fire: Wear self-contained breathing apparatus.

5.4 Additional information
Do not allow run-off from fire-fighting to enter drains or water courses. Do not inhale explosion and combustion gases. Use caution when applying carbon dioxide in confined spaces. Carbon dioxide can displace oxygen. Use water spray/stream to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid generation of dust.

6.2 Environmental precautions
Do not allow to enter into surface water or drains.

6.3 Methods and material for containment and cleaning up
Spilled product must never be returned to the original container for recycling. Clean contaminated objects and areas thoroughly observing environmental regulations. Collect in closed and suitable containers for disposal.

6.4 Additional information
Clear spills immediately.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid: Inhalation Avoid contact with skin and eyes. Use extractor hood (laboratory). If handled uncovered, arrangements with local exhaust ventilation have to be used. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means. Usual measures for fire prevention.

7.2 Conditions for safe storage, including any incompatibilities
storage temperature: Ambient temperature
Storage class: 6.1B
Keep container tightly closed in a cool, well-ventilated place.

7.3 Specific end use(s)
no data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Does not contain substances above concentration limits fixing an occupational exposure limit.
8.2 Engineering controls

**Appropriate engineering controls**
Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.

**Personal protection equipment (PPE)**
Wear suitable protective clothing. When handling with chemical substances, protective clothing must be worn.

*Eye/face protection*
Eye glasses with side protection

*Skin protection*
When handling with chemical substances, protective gloves must be worn. In the case of wanting to use the gloves again, clean them before taking off and air them well. Recommended glove articles

**By short-term hand contact**
Suitable material: NBR (Nitrile rubber)
Thickness of the glove material: 0,12 mm
Breakthrough time (maximum wearing time): > 480 min

**By long-term hand contact**
Suitable material: NBR (Nitrile rubber)
Thickness of the glove material: 0,38 mm
Breakthrough time (maximum wearing time): > 480 min

*Respiratory protection*
Respiratory protection necessary at: aerosol or mist formation If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

*Additional information*
Wash hands before breaks and after work. Avoid contact with skin and eyes. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

*Environmental exposure controls*
no data available
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

(a) Appearance
   Physical state: solid
   Color: white

(b) Odour:
   Odour: no data available
   Odour threshold: no data available

Safety relevant basic data

(d) pH:
   pH: 6 (50 g/l; H₂O; 20 °C)

(e) Melting point/freezing point:
   Melting point: 160 °C

(f) Initial boiling point and boiling range:
   Boiling point: no data available

(g) Flash point:
   Flash point: no data available

(h) Evaporation rate:
   Evaporation rate: no data available

(i) Flammability (solid, gas):
   Flammability: not applicable

(j) Flammability or explosive limits
   Lower explosion limit: no data available
   Upper explosion limit: no data available

(k) Vapour pressure:
   Vapour pressure: no data available

(l) Vapour density:
   Vapour density: no data available

(m) Relative density:
   Relative density: 1.0088-1.0096g/cm³ (25 °C)

(n) Solubility(ies)
   Water solubility (g/L):
   Water solubility: 820 g/l (20 °C)
   Soluble (g/L) in Ethanol:
   Soluble in Ethanol: no data available

(o) Partition coefficient: n-octanol/water:
   Partition coefficient: -4.37 (20 °C; calculated)

(p) Auto-ignition temperature:
   Auto-ignition temperature: no data available

(q) Decomposition temperature:
   Decomposition temperature: no data available

(r) Viscosity
   Kinematic viscosity:
   Kinematic viscosity: no data available
   Dynamic viscosity:
   Dynamic viscosity: no data available

(s) Explosive properties:
   Explosive properties: not applicable

(t) Oxidising properties:
   Oxidising properties: not applicable

9.2 Other information

Bulk density:
   Bulk density: 1.0088-1.0096g/cm³ (25 °C)

Refraction index:
   Refraction index: no data available

Dissociation constant:
   Dissociation constant: no data available

Surface tension:
   Surface tension: no data available

Henry constant:
   Henry constant: no data available

SECTION 10: Stability and reactivity

10.1 Reactivity
   Reactivity: no data available
10.2 Chemical stability
no data available

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
no data available

10.6 Hazardous decomposition products
no data available

10.7 Additional information
no data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute effects
Acute oral toxicity:
no data available

Acute dermal toxicity:
no data available

Acute inhalation toxicity:
no data available

Irritant and corrosive effects
Primary irritation to the skin:
not applicable

Irritation to eyes:
not applicable

Irritation to respiratory tract:
not applicable

Respiratory or skin sensitization
In case of skin contact: not sensitising
After inhalation: not sensitising

STOT-single exposure
not applicable

STOT-repeated exposure
not applicable
CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>no data available</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Germ cell mutagenicity**
No indications of human germ cell mutagenicity exist.

**Reproductive toxicity**
No indications of human reproductive toxicity exist.

**Aspiration hazard**
not applicable

**Other adverse effects**
no data available

**Additional information**
no data available

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**SECTION 12: Ecological information**

**12.1 Ecotoxicity**

**Fish toxicity:**
no data available

**Daphnia toxicity:**
no data available

**Algae toxicity:**
no data available

**Bacteria toxicity:**
no data available

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**
Partition coefficient: n-octanol/water: -4.37 (20 °C; berechnet)

**12.4 Mobility in soil:**
no data available

**12.5 Results of PBT/vPvB assessment**
no data available
12.6 Other adverse effects
no data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Appropriate disposal / Product
Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal. Send to a hazardous waste incinerator facility under observation of official regulations.

Waste code product: 061002

Appropriate disposal / Package
Dispose according to legislation. Handle contaminated packages in the same way as the substance itself.

Additional information
no data available

SECTION 14: Transport information

Land transport (DOT)

<table>
<thead>
<tr>
<th>UN-No.:</th>
<th>2505</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name:</td>
<td>AMMONIUM FLUORIDE</td>
</tr>
<tr>
<td>Class(es):</td>
<td>6.1</td>
</tr>
<tr>
<td>Classification code:</td>
<td>T5</td>
</tr>
<tr>
<td>Hazard label(s):</td>
<td>6.1</td>
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<tr>
<td>Packing group:</td>
<td>III</td>
</tr>
<tr>
<td>Environmental hazards:</td>
<td>No</td>
</tr>
<tr>
<td>Marine pollutant:</td>
<td>No</td>
</tr>
<tr>
<td>Special precautions for user:</td>
<td></td>
</tr>
</tbody>
</table>

Sea transport (IMDG)

<table>
<thead>
<tr>
<th>UN-No.:</th>
<th>2505</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name:</td>
<td>AMMONIUM FLUORIDE</td>
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<tr>
<td>Class(es):</td>
<td>6.1</td>
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<td>Classification code:</td>
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<tr>
<td>Hazard label(s):</td>
<td>6.1</td>
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<td>Packing group:</td>
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</tr>
<tr>
<td>Environmental hazards:</td>
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<tr>
<td>MARINE POLLUTANT:</td>
<td>no data available</td>
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<tr>
<td>Special precautions for user:</td>
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<tr>
<td>Segregation group:</td>
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<tr>
<td>EmS-No.</td>
<td>F-A 5-A</td>
</tr>
<tr>
<td>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</td>
<td>not relevant</td>
</tr>
</tbody>
</table>
Air transport (ICAO-TI / IATA-DGR)

UN-No.: 2505  
Proper Shipping Name: AMMONIUM FLUORIDE  
Class(es): 6.1  
Classification code: 6.1  
Hazard label(s): 6.1  
Packing group: III  
Special precautions for user:

SECTION 15: Regulatory information

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

SARA 313 Components
no data available

Pennsylvania Right To Know Components
no data available

New Jersey Right To Know Components
no data available

California Prop. 65 Components
no data available

SECTION 16: Other information

Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygienists  
DOT - Department of Transportation  
IARC - International Agency for Research on Cancer  
IATA-DGR - International Air Transport Association-Dangerous Goods Regulations  
ICAO-TI - International Civil Aviation Organization-Technical Instructions  
IMDG - International Maritime Code for Dangerous Goods  
LTV - Long Term Value  
NIOSH - National Institute for Occupational Safety and Health  
NTP - National Toxicology Program  
OSHA - Occupational Safety & Health Administration  
PBT - Persistent, Bioaccumulative and Toxic  
PEL - Permissible Exposure Limit  
STV - Short Term Value  
SVHC - Substances of Very High Concern  
TLV - Threshold Limit Value
vPvB - very Persistent, very Bioaccumulative
ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
AGS - Committee on Hazardous Substances (Ausschuss für Gefahrrstoffe)
CLP - Regulation on Classification, Labelling and Packaging of Substances and Mixtures
DFG - German Research Foundation (Deutsche Forschungsgemeinschaft)
Gestis - Information system on hazardous substances of the German Social Accident Insurance (Gefahrstoffinformationssystem der Deutschen Gesetzlichen Unfallversicherung)
RID - Regulation concerning the International Carriage of Dangerous Goods by Rail

**Additional information**

Indication of changes: general update

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guidance. The information in this document is based on the present state knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. VWR International and his Affiliates shall not be held liable for any damage resulting from handling.