1. Product and Company Identification

Material name, synonym
AMMONIUM BIFLUORIDE (AMMONIUM HYDROGEN DIFLUORIDE)

CAS #
See section 3

Product use
Glass frosting, bactericide, Cleaning and Etching, Wood preservative, Stain
Removing, Metal pickling, Acidising oil, Aluminium Anodising.

None known.

Restrictions on use

Manufacturer/Supplier
CONNECTION CHEMICAL, LP
126 SOUTH STATE ST. STE 200
NEWTOWN, PA 18940
sales@connectionchemical.com
+1-215-493-4240
+1-215-493-3801
CHEMTREC 1-800-424-9300

Supplier (Distributor):
Address:
Contact person (E-mail):
Telephone:
Fax:
Emergency telephone Number:

2. Hazards identification

GHS classification
Not classified

Physical hazards
Acute toxicity, oral Category 3

Health hazards
Skin corrosion/irritation Category 1B

Environmental hazards

GHS label elements

Hazard Pictograms

Signal word
Danger

Hazard statement
Toxic if swallowed
Causes severe skin burns and eye damage.

Precautionary statement

Prevention
Do not breathe dust or mists.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.

Response
If swallowed: Immediately call a poison center/doctor.
If swallowed: Rinse mouth. Do NOT induce vomiting. Specific treatment see Section 4 of SDS. If on skin (or hair): Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. Rinse skin with water/shower. If inhaled:
Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor. If in eyes: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
Storage
Disposal
Hazards not otherwise classified

Store locked up.
Dispose of contents/container in accordance with local regulations.
None known

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS#</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMMONIUM BIFLUORIDE</td>
<td>1341-49-7</td>
<td>98%min</td>
</tr>
<tr>
<td>Synonym: AMMONIUM HYDROGEN DIFLUORIDE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. First Aid Measures

First aid procedures/most important symptoms acute and delayed

**Eye contact**
Immediate medical attention is required. Take victim immediately to hospital. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine). Calcium gluconate solution.

**Skin contact**
Call a physician immediately. Take victim immediately to hospital. Take off contaminated clothing and shoes immediately. Wash off with plenty of water. First treatment with calcium gluconate paste.

**Inhalation**
Remove casualty to fresh air and keep at rest. Oxygen or artificial respiration if needed. Victim to lie down in the recovery position, cover and keep him warm. Call a physician immediately. Take victim immediately to hospital.

**Ingestion**
Call a physician immediately. Take victim immediately to hospital. Rinse mouth with water. Give to drink a 1% aqueous calcium gluconate solution. Do NOT induce vomiting. Artificial respiration and/or oxygen may be necessary.

Treat symptoms as listed above

5. Fire Fighting Measure

**Flammable properties**
This product is non-flammable.

**Extinguishing media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Suitable extinguishing media**
Water may be ineffective.

**Unsuitable extinguishing media**
Use water spray to cool unopened containers. Wear self contained breathing apparatus for firefighting if necessary.

**Precautions for firefighters**

**Hazardous combustion products**
Hydrogen fluoride, Ammonia, nitrogen oxides (NOx).

6. Accidental Release Measures

**Personal precautions, protective equipment, emergency procedures**
Use personal protective equipment. Avoid breathing dust. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of dust accumulating to form explosive concentrations. Dust can accumulate in low areas. For personal protection see section 8.
Environmental precautions

Methods for containment and cleaning up

7. Handling and Storage

Precautions for safe handling

Conditions for safe storage, including incompatibilities

- Should not be released into the environment. If the product contaminates rivers and lakes or drains inform respective authorities.
- Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Keep in properly labelled containers. Keep in suitable, closed containers for disposal.

Avoid contact with skin and eyes. Avoid inhalation of dust. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

8. Exposure Controls / Personal Protection

Control parameters:

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA:

<table>
<thead>
<tr>
<th>Source</th>
<th>Ingredient</th>
<th>TWA</th>
<th>STEL</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>US OSHA Permissible</td>
<td>ammonium bifluoride</td>
<td>2.5 mg/m³</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Exposure Levels (PELS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Table Z1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US OSHA Permissible</td>
<td>ammonium bifluoride</td>
<td>2.5 mg/m³</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Exposure Levels (PELS)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Table Z2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EMERGENCY LIMITS:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>TEEL-1</th>
<th>TEEL-2</th>
<th>TEEL-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ammonium bifluoride</td>
<td>11 mg/m³</td>
<td>130 mg/m³</td>
<td>750 mg/m³</td>
</tr>
</tbody>
</table>

INGREDIENT DATA:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Original IDLH</th>
<th>Revised IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ammonium bifluoride</td>
<td>500 mg/m³</td>
<td>250 mg/m³</td>
</tr>
</tbody>
</table>

Exposure controls:

- Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Individual protective measures, such as personal protective equipment:

- Eye / face protection
  - Dust proof goggles obligatory.

- Skin protection
  - Impervious gloves. Suitable material: Neoprene, Fluorocelastomer. Impervious clothing.

- Respiratory protection
  - In the case of dust or aerosol formation use respirator with an approved filter. Respirator with a dust filter. Recommended Filter type: P2. In the case of hazardous fumes, wear self contained breathing apparatus.

General hygiene considerations

- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.
Physical state: Solid
Form: Crystalline
Color: Colorless or white
Odor: Not available
Odor threshold: Not available
pH: Not available
Vapor pressure: 1.08 Pa (20 °C)
Vapor density: Not available
Boiling point: Not available
Melting point/Freezing point: 125.6 °C
Solubility (water): 602000 mg/L (20 °C)
Specific gravity: Not available
Relative density: Not available
Density: Not available
Flash point: Not available
Flammability limits in air, upper, % by volume: Not available
Flammability limits in air, lower, % by volume: Not available
Auto-ignition temperature: Not available
VOC: Not available
Percent volatile: Not available
Other data: Not available
Viscosity: Not available

10. Stability & Reactivity

Reactivity:
Material is stable under normal conditions.
Incompatible materials, Extremes of temperature and direct sunlight. Exposure to air or moisture over prolonged periods.
Strong acids and strong bases, Silicate containing materials (glass, cement.). Metals.
Hydrogen fluoride, Ammonia, nitrogen oxides (NOx).
May be corrosive to metals. Gives off hydrogen by reaction with metals.

11. Toxicological Information

Toxicokinetics, metabolism and distribution:
Non-human toxicological data: Not available

Information on toxicological effects:
Acute toxicity:
LD50(Oral, Rat): 130 mg/kg bw
LD50(Dermal, Rabbit): Not available
LC50(Inhalation, Rat): Not available
Skin corrosion/irritation: Causes severe skin burns and eye damage.
Serious eye damage/irritation: Not classified
Respiratory or skin sensitization: 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

12. Ecological Information

Toxicity:

<table>
<thead>
<tr>
<th>Acute toxicity</th>
<th>Time</th>
<th>Species</th>
<th>Method</th>
<th>Evaluation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50</td>
<td>96h</td>
<td>Fish</td>
<td>OECD 203</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>EC50</td>
<td>48h</td>
<td>Daphnia</td>
<td>OECD 202</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>EC50</td>
<td>72h</td>
<td>Algae</td>
<td>OECD 201</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Persistence and degradability: Not available.
Bioaccumulative potential: Not available.
Mobility in soil: Not available.
Results of PBT & vPvB assessment: The substance is not PBT / vPvB
Other adverse effects: No known significant effects or critical hazards.

13. Disposal Considerations

Disposal instructions
Dispose of contents/container in accordance with local/regional/national/international regulations.
Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT
Basic shipping requirements:
UN number
Proper shipping name
Hazard class
Packing group
RQ

UN1727
AMMONIUM HYDROGENDIFLUORIDE, SOLID
8
II
100 Lbs.

IATA
UN number
UN proper shipping name
Transport hazard class(es)
Packing group
Environmental hazards

UN1727
AMMONIUM HYDROGENDIFLUORIDE, SOLID
8
II
No

IMDG
UN number
UN proper shipping name
Transport hazard class(es)
Packing group
Environmental hazards

UN1727
AMMONIUM HYDROGENDIFLUORIDE, SOLID
8
II
No
15. Regulatory Information
US Federal Regulations

A: General Product Information
Ammonium Bifluoride (CAS # 1341-49-7) and Ammonium Fluoride (CAS # 12125-01-8) are designated as hazardous substances under section 311(b)(2)(A) of the Federal Water Pollution Control Act and are further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of these substances.

B: Component Analysis
This product contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Ammonium Bifluoride (1341-49-7):
CERCLA: Final RQ = 100 pounds (45.4 kg)
SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Ammonium Bifluoride. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR 370.20

Ammonium Fluoride (12125-01-8):
CERCLA: Final RQ = 100 pounds (45.4 kg)
SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Ammonium Fluoride. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR 370.20

US Federal Regulations (continued)

C: Sara 311/312 Tier II Hazard Ratings:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Fire Hazard</th>
<th>Reactivity Hazard</th>
<th>Pressure Hazard</th>
<th>Immediate Health Hazard</th>
<th>Chronic Health Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Bifluoride</td>
<td>1341-49-7</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ammonium Fluoride</td>
<td>12125-01-8</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

State Regulations
A: General Product Information
California Proposition 65
Ammonium Bifluoride is not on the California Proposition 65 chemical lists.

B: Component Analysis - State
The following components appear on one or more of the following state hazardous substance lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>CA</th>
<th>FL</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Bifluoride</td>
<td>1341-49-7</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ammonium Fluoride</td>
<td>12125-01-8</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Other Regulations
A: General Product Information
U.S. Export Administration Regulations (EAR) (15 CFR Parts 736, 738, 740, 742, 745, 770 and 774): Under the Chemical Weapons Convention (CWC) Ammonium Bifluoride (Ammonium hydrogen fluoride, CAS # 1341-49-7) is on the list of Other Australia Group-controlled precursor chemicals not also identified as Schedule 1, 2 or 3 chemicals.

B: Component Analysis - Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>TSCA</th>
<th>DSL</th>
<th>EINECS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Bifluoride</td>
<td>1341-49-7</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Ammonium Fluoride</td>
<td>12125-01-8</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

C: Component Analysis - WHMIS IDL
This product is listed under the Canadian Hazardous Products Act Ingredient Disclosure List:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Minimum Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoride Inorganic Compounds, n.o.s.</td>
<td>N/A (general class)</td>
<td>1%</td>
</tr>
</tbody>
</table>
16. Other Information

**HMIS® ratings**
- Health: 3
- Flammability: 1
- Physical hazard: 0

**NFPA ratings**
- Health: 3
- Flammability: 1
- Instability: 0

**Disclaimer**
The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Connection Chemical, LP be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Connection Chemical, LP has been advised of the possibility of such damages.

**Issue date**
06/23/16