

## Ammonium Bifluoride (5%)

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Ammonium Bifluoride (5%)

**Synonyms/Generic Names:** Neutral ammonium fluoride, ammonium acid fluoride, Ammonium hydrogen fluoride, ammonium hydrofluoride

**Product Number:** 8126

**Product Use:** Industrial, Manufacturing or Laboratory use

**Manufacturer:** Columbus Chemical Industries, Inc.  
N4335 Temkin Rd.  
Columbus, WI. 53925

**For More Information Call:** 920-623-2140 (Monday-Friday 8:00-4:30)  
[www.columbuschemical.com](http://www.columbuschemical.com)

**In Case of Emergency Call:** CHEMTREC - 800-424-9300 or 703-527-3887 (24 Hours/Day, 7 Days/Week)

### 2. HAZARDS IDENTIFICATION

**Signal Words:** Danger

**Pictograms:**



**GHS Classification:**

|                            |             |
|----------------------------|-------------|
| Acute toxicity, Oral       | Category 2  |
| Acute toxicity, Inhalation | Category 2  |
| Acute toxicity, Dermal     | Category 1  |
| Skin corrosion             | Category 1A |
| Serious eye damage         | Category 1  |

**GHS Label Elements, including precautionary statements:**

**Hazard Statements:**

|                |   |
|----------------|---|
| H300+H310+H330 | Fatal if swallowed, in contact with skin or if inhaled. |
| H314           | Causes severe skin burns and eye damage.                |

**Precautionary Statements:**

|      |   |
|------|---|
| P260 | Do not breathe dust/fume/gas/mist/vapors/spray. |
| P262 | Do not get in eyes, on skin, or on clothing.    |
| P264 | Wash hands thoroughly after handling.           |

|                |  |
|----------------|--|
| P270           | Do not eat, drink or smoke when using this product.  |
| P271           | Use only outdoors or in a well-ventilated area.  |
| P280           | Wear protective gloves/protective clothing/eye protection/face protection.   |
| P284           | In case of inadequate ventilation, wear respiratory protection.  |
| P301+P330+P331 | IF SWALLOWED: Rinse mouth. Do not induce vomiting.   |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.                              |
| P304+P340      | IF INHALED: Remove person to fresh air and keep comfortable for breathing.   |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310           | Immediately call a POISON CENTER/doctor/physician.   |
| P363           | Wash contaminated clothing before reuse.   |
| P405           | Store locked up.   |
| P501           | Dispose of contents/container in accordance with local regulations.  |

### Potential Health Effects

|                   |  |
|-------------------|--|
| <b>Eyes</b>       | Causes severe eye burns.   |
| <b>Inhalation</b> | Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. |
| <b>Skin</b>       | May be fatal if absorbed through skin. Causes skin burns.  |
| <b>Ingestion</b>  | May be fatal if swallowed.   |

### NFPA Ratings

|                        |               |
|------------------------|---------------|
| <b>Health</b>          | 3             |
| <b>Flammability</b>    | 0             |
| <b>Reactivity</b>      | 0             |
| <b>Specific hazard</b> | Not Available |

### HMIS Ratings

|                   |   |
|-------------------|---|
| <b>Health</b>     | 3 |
| <b>Fire</b>       | 0 |
| <b>Reactivity</b> | 0 |

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component         | Weight % | CAS #      | EINECS# / ELINCS# | Formula           | Molecular Weight |
|-------------------|----------|------------|-------------------|-------------------|------------------|
| Hydrofluoric Acid | <2       | 7664-39-3  | 231-634-8         | HF                | 20.0064 g/mol    |
| Ammonium Fluoride | 3-4      | 12125-01-8 | 235-185-9         | NH <sub>4</sub> F | 37.037 g/mol     |
| Water             | Balance  | 7732-18-5  | 231-791-2         | H <sub>2</sub> O  | 18.00 g/mol      |

## 4. FIRST-AID MEASURES

|                   |  |
|-------------------|--|
| <b>Eyes</b>       | In case of eye contact, rinse with plenty of water and seek medical attention immediately. Cold water may be used. Keep the eyelids apart and away from the eyeballs during irrigation. Do not use oily drops or ointment or HF skin burn treatments on the eyes. Get medical attention immediately, preferably an eye specialist. Place ice pack on eyes until reaching emergency room. |
| <b>Inhalation</b> | Move casualty to fresh air and keep at rest. Get medical attention.  |
| <b>Skin</b>       | In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cold water may be used. Material is absorbed through the skin. Get medical attention immediately. While waiting for medical attention, it has been shown that flushing the affected area with water for one minute and then massaging HF         |

|                  |   |
|------------------|---|
|                  | Antidote Gel into the wound until there is a cessation of pain is a most effective first aid treatment. HF Antidote Gel contains Calcium Gluconate which combines with HF for insoluble Calcium Fluoride, thus preventing the extraction of calcium from the body tissue and bones. Another alternative first aid treatment, after thorough washing of the burned area, is to immerse the burned area in a solution of 0.2% iced aqueous Hyamine 1622 or 0.13% iced aqueous Zephiran Chloride. If immersion is impractical, towels could be soaked with one of the above solutions and used as compresses for the burn area. Hyamine 1622 is a trade name for Tetracaine Benzethonium Chloride. Zephiran is a trade name for Benzalkonium Chloride. |
| <b>Ingestion</b> | <b>Do Not Induce Vomiting!</b> Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.   |

---

## 5. FIREFIGHTING MEASURES

---

|  |   |
|--|---|
| <b>Suitable (and unsuitable) extinguishing media</b>                 | Product is not flammable. Use appropriate media for adjacent fire. Use water to keep containers cool.   |
| <b>Special protective equipment and precautions for firefighters</b> | Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.   |
| <b>Specific hazards arising from the chemical</b>                    | May release toxic hydrogen fluoride. Contact with reactive metals may result in the generation of flammable hydrogen gas. Container explosion may occur. (See also Stability and Reactivity section). |

---

## 6. ACCIDENTAL RELEASE MEASURES

---

|  |   |
|--|---|
| <b>Personal precautions, protective equipment and emergency procedures</b> | See section 8 for recommendations on the use of personal protective equipment.  |
| <b>Environmental precautions</b>   | Prevent spillage from entering drains. Any release to the environment may be subject to a federal/national or local reporting requirements.   |
| <b>Methods and materials for containment and cleaning up</b>               | Cleanup personnel need personal protection from inhalation and skin/eye contact. Evacuate and ventilate the area. Neutralize diluted spill with soda ash or lime. Absorb neutralized spill with vermiculite or other inert absorbent material, then place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste or cleanup materials in accordance with local regulations. Containers, even when empty, will retain residue and vapors. |

---

## 7. HANDLING AND STORAGE

---

### Precautions for safe handling

See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use.

### Conditions for safe storage, including any incompatibilities

Corrosive Material! Store in cool, dry well ventilated area. Keep out of direct sunlight. Keep containers tightly closed. Keep away from incompatible materials (see section 10 for incompatibilities).

---

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

---

### Occupational Exposure Controls:

| Component         | Exposure Limits                   | Basis | Entity |
|-------------------|-----------------------------------|-------|--------|
| Hydrofluoric Acid | 0.5 ppm<br>0.41 mg/m <sup>3</sup> | TLV   | ACGIH  |
|                   | 2 ppm<br>1.64 mg/m <sup>3</sup>   | STEL  | ACGIH  |
|                   | 3 ppm                             | PEL   | OSHA   |
|                   | 3 ppm<br>2.5 mg/m <sup>3</sup>    | REL   | NIOSH  |
|                   | 6 ppm<br>5 mg/m <sup>3</sup>      | STEL  | NIOSH  |

TWA: Time Weighted Average over 8 hours of work.

TLV: Threshold Limit Value over 8 hours of work.

REL: Recommended Exposure Limit

PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit during x minutes.

IDLH: Immediately Dangerous to Life or Health

WEEL: Workplace Environmental Exposure Levels

CEIL: Ceiling

### Personal Protection

|                   |   |
|-------------------|---|
| <b>Eyes</b>       | Wear chemical safety glasses with a face shield for splash protection.                                      |
| <b>Inhalation</b> | Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator. |
| <b>Skin</b>       | Wear neoprene or rubber gloves, apron and other protective clothing appropriate to the risk of exposure.    |
| <b>Other</b>      | Not Available   |

### Other Recommendations

Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling. Have supplies and equipment for neutralization and running water available.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|   |                                       |
|---|---------------------------------------|
| Appearance (physical state, color, etc.)    | Colorless fluid which may fume in air |
| Odor  | Sharp irritating odor                 |
| Odor threshold                              | Not Available                         |
| pH  | Not Available                         |
| Melting point/freezing point                | Not Available                         |
| Initial boiling point and boiling range     | Not Available                         |
| Flash point                                 | Not Flammable                         |
| Evaporation rate                            | Not Available                         |
| Flammability (solid, gas)                   | Not Flammable                         |
| Upper/lower flammability or explosive limit | Not Explosive                         |
| Vapor pressure                              | Not Available                         |
| Vapor density                               | Not Available                         |
| Relative density                            | 1.0112                                |
| Solubility (ies)                            | Completely soluble in water           |
| Partition coefficient: n-octanol/water      | Not Available                         |
| Auto-ignition temperature                   | Not Available                         |
| Decomposition temperature                   | Not Available                         |

## 10. STABILITY AND REACTIVITY

|   |  |
|---|--|
| <b>Chemical Stability</b>                 | Stable   |
| <b>Possibility of Hazardous Reactions</b> | Will not occur.  |
| <b>Conditions to Avoid</b>                | HEAT, incompatibles  |
| <b>Incompatible Materials</b>             | Acids, Alkalis, 2-Aminoethanol, Chlorosulfuric acid, glass, metals, Nitrogen compounds, oleum                                      |
| <b>Hazardous Decomposition Products</b>   | Hydrofluoric acid, ammonia. Will yield hydrogen gas from contact with metals; SiF <sub>4</sub> from reaction with silica or glass. |

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity

#### Hydrofluoric Acid

|                    |                                   |
|--------------------|-----------------------------------|
| <b>Skin</b>        | Not Available                     |
| <b>Eyes</b>        | Not Available                     |
| <b>Respiratory</b> | LC50 – mouse – 342 mg/kg – 1 hour |
| <b>Ingestion</b>   | Not Available                     |

#### Ammonium Fluoride

|                    |                                       |
|--------------------|---------------------------------------|
| <b>Skin</b>        | Not Available                         |
| <b>Eyes</b>        | Not Available                         |
| <b>Respiratory</b> | Not Available                         |
| <b>Ingestion</b>   | LD50 Intraperitoneal – rat – 31 mg/kg |

### Carcinogenicity

|              |  |
|--------------|--|
| <b>IARC</b>  | No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. |
| <b>ACGIH</b> | No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.            |
| <b>NTP</b>   | No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.                 |
| <b>OSHA</b>  | No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.             |

### Signs & Symptoms of Exposure

|                    |  |
|--------------------|--|
| <b>Skin</b>        | Severe skin burns/ulceration, cyanosis, jaundice,                            |
| <b>Eyes</b>        | Conjunctivitis, corneal burns,   |
| <b>Respiratory</b> | Chest pain, shortness of breath, bronchopneumonia, nausea vomiting, diarrhea |
| <b>Ingestion</b>   | Spitting blood, shock, muscle spasm, convulsions, hematuria, abdominal pain, |

|                                       |               |
|---------------------------------------|---------------|
| <b>Chronic Toxicity</b>               | Not Available |
| <b>Teratogenicity</b>                 | Not Available |
| <b>Mutagenicity</b>                   | Not Available |
| <b>Embryotoxicity</b>                 | Not Available |
| <b>Specific Target Organ Toxicity</b> | Not Available |
| <b>Reproductive Toxicity</b>          | Not Available |
| <b>Respiratory/Skin Sensitization</b> | Not Available |

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

|                             |               |
|-----------------------------|---------------|
| <b>Aquatic Vertebrate</b>   | Not Available |
| <b>Aquatic Invertebrate</b> | Not Available |
| <b>Terrestrial</b>          | Not Available |

|                                      |               |
|--------------------------------------|---------------|
| <b>Persistence and Degradability</b> | Not Available |
| <b>Bioaccumulative Potential</b>     | Not Available |
| <b>Mobility in Soil</b>              | Not Available |
| <b>PBT and vPvB Assessment</b>       | Not Available |
| <b>Other Adverse Effects</b>         | Not Available |

## 13. DISPOSAL CONSIDERATIONS

|                           |  |
|---------------------------|--|
| <b>Waste Residues</b>     | Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container. |
| <b>Product Containers</b> | Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container. |

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

## 14. TRANSPORT INFORMATION

|                  |   |
|------------------|---|
| US DOT           | UN2817, Ammonium hydrogendifluoride, solution, 8, (6.1), PG III |
| TDG              | UN2817, AMMONIUM HYDROGENDIFLUORIDE, SOLUTION, 8, (6.1), PG III |
| IMDG             | UN2817, AMMONIUM HYDROGENDIFLUORIDE, SOLUTION, 8, (6.1), PG III |
| Marine Pollutant | No.   |
| IATA/ICAO        | UN2817, Ammonium hydrogendifluoride, solution, 8, (6.1), PG III |

## 15. REGULATORY INFORMATION

|   |  |
|---|--|
| TSCA Inventory Status   | All ingredients are listed on the TSCA Active inventory. |
| DSL / DSCL  | All ingredients are listed on the DSL inventory.         |
| California Proposition 65                                       | Not Listed.  |
| Massachusetts: Toxic or Hazardous Substance List, Right to Know | Listed: Ammonium fluoride, Hydrofluoric acid             |
| New Jersey: Right to Know Hazardous Substance List              | Listed: Ammonium fluoride, Hydrogen fluoride             |
| Pennsylvania: Hazardous Substance List                          | Listed: Ammonium fluoride, Hydrofluoric acid             |
| Rhode Island: Hazardous Substance List                          | Listed: Ammonium fluoride, Hydrofluoric acid             |
| SARA 302  | Listed: Hydrofluoric acid                                |
| SARA 304  | Listed: Hydrofluoric acid                                |
| SARA 311  | Acute Health Hazard                                      |

|              |  |
|--------------|--|
| SARA 312     | Acute Health Hazard  |
| SARA 313     | Listed: Hydrofluoric acid  |
| WHMIS Canada | Class D1A: Poisonous and infectious material – immediate and serious effects – Very toxic<br>Class D2A: Poisonous and infectious material – other effects – Very toxic<br>Class E: Corrosive material. |

---

## 16. OTHER INFORMATION

---

| Revision   | Date       |
|------------|------------|
| Revision 1 | 07/01/2011 |
| Revision 2 | 04/01/2015 |
| Revision 3 | 07/29/2021 |

Disclaimer: The information provided in this Safety Data Sheet (“SDS”) is correct to the best of our knowledge, information and belief at the date of publication. The information in this SDS relates only to the specific Product identified under Section 1, and does not relate to its use in combination with other materials or products, or its use as to any particular process. Those handling, storing or using the Product should satisfy themselves that they have current information regarding the particular way the Product is handled, stored or used and that the same is done in accordance with federal, state and local law. WE DO NOT MAKE ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING (WITHOUT LIMITATION) WARRANTIES WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN OR WITH RESPECT TO FITNESS FOR ANY PARTICULAR USE. WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, INJURY, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THIS PRODUCT.