

Hydrofluoric Acid 5% Krystal Pure

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Hydrofluoric Acid 5% Krystal Pure

Synonyms/Generic Names: Hydrogen fluoride; Fluoric acid; Fluorhydric acid; Fluorine hydride

Product Number: 2681

Product Use: Industrial, Manufacturing or Laboratory use

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

For More Information: 920-623-2140 (Monday-Friday 8:00-4:30)
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:

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

Precautionary Statements:

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| P260 | Do not breathe dust/gas/mist/fume/vapors/spray. |
| P264 | Wash hands thoroughly after handling. |
| P280 | Wear protective gloves/protective clothing/face protection/eye protection. |

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| P284 | Wear respiratory protection. |
| P302+P350 | IF ON SKIN: Gently wash with plenty of soap and water. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing. |
| P310 | Immediately call a POISON CENTER or doctor/physician. |

Potential Health Effects

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

NFPA Ratings

| | |
|------------------------|---------------|
| Health | 3 |
| Flammability | 0 |
| Reactivity | 0 |
| Specific hazard | Not Available |

HMIS Ratings

| | |
|-------------------|---|
| Health | 3 |
| Fire | 0 |
| Reactivity | 0 |

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | Weight % | CAS # | EINECS# / ELINCS# | Formula | Molecular Weight |
|-------------------|----------|-----------|-------------------|------------------|------------------|
| Hydrofluoric Acid | 4.5-5.4 | 7664-39-3 | 231-634-8 | HF | 20.01 g/mol |
| Water | Balance | 7732-18-5 | 231-791-2 | H ₂ O | 18.00 g/mol |

4. FIRST-AID MEASURES

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| Eyes | In case of eye contact, rinse with plenty of water for at least 15 minutes 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. |
| Inhalation | Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention. |
| Skin | 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. |
| Ingestion | Do Not Induce Vomiting! Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately. |

5. FIRE-FIGHTING MEASURES

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| Suitable (and unsuitable) extinguishing media | Product is not flammable. Use appropriate media for adjacent fire. Cool containers with water, keep away from common metals. |
| Special protective equipment and precautions for firefighters | Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots. Material can react violently with water (spattering and misting) and react with metals to produce flammable hydrogen gas. |
| Specific hazards arising from the chemical | Emits toxic fumes (hydrogen fluoride gas) under fire conditions. (See also Stability and Reactivity section). |

6. ACCIDENTAL RELEASE MEASURES

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| Personal precautions, protective equipment and emergency procedures | See section 8 for recommendations on the use of personal protective equipment. |
| Environmental precautions | Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements. |
| Methods and materials for containment and cleaning up | Neutralize spill with sodium bicarbonate or lime. Absorb spill with noncombustible absorbent material, then place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations. |

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

Store in cool, dry well ventilated area. 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 0.41 mg/m ³ | TLV | ACGIH |
| | 2 ppm 1.64 mg/m ³ | CEIL | ACGIH |
| | 3 ppm | PEL | OSHA |
| | 3 ppm 2.5 mg/m ³ | REL | NIOSH |
| | 6 ppm 5 mg/m ³ | CEIL | 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

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| Eyes | Wear chemical safety glasses with a face shield for splash protection. |
| Inhalation | Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator. |
| Skin | Wear neoprene or nitrile gloves, full body (synthetic) protective clothing appropriate to the risk of exposure. |
| Other | 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. HF antidote gel for skin burns or other solutions discussed in Section 4, First Aid.

9. PHYSICAL AND CHEMICAL PROPERTIES

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| Appearance (physical state, color, etc.) | Clear, colorless liquid |
| Odor | Acrid, suffocating odor |
| Odor threshold | 0.5 - 3 ppm |
| pH | Acidic. |
| 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 | 1.0200 (water = 1) |
| 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

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| Chemical Stability | Stable |
| Possibility of Hazardous Reactions | Will not occur. |
| Conditions to Avoid | Uncontrolled addition of water. |
| Incompatible Materials | Moisture, bases, organic material, metals, glass, ceramics, aluminum, stainless steel, carbonates, cyanides, sulfides. Reacts violently with acetic anhydride, ammonium hydroxide, arsenic trioxide, calcium oxide, potassium permanganate, sodium, sodium hydroxide, sulfuric acid. |
| Hazardous Decomposition Products | Hydrogen fluoride gas. |

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Hydrofluoric Acid

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|--------------------|----------------------------------|
| Skin | Not Available |
| Eyes | Not Available |
| Respiratory | LC50- rat- 1 hour: 2240-2340 ppm |
| Ingestion | LD100- guinea pig– 80 mg/kg |

Carcinogenicity

| | |
|--------------|--|
| IARC | 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. |
| ACGIH | 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. |
| NTP | 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. |
| OSHA | 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

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|-------------------|---|
| Eyes | Burns, pain, watering eyes. |
| Inhalation | Burning, choking, coughing, wheezing, laryngitis, shortness of breath, headache or nausea. |
| Skin | Burning, irritation. Effects may not be seen until 24 hours after exposure. |
| Ingestion | Severe and rapid corrosive burns of the mouth, gullet and gastrointestinal tract, burning, choking, nausea, vomiting and severe pain. |

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| Chronic Toxicity | May cause Fluorosis or hypocalcaemia |
| Teratogenicity | Not available |
| Mutagenicity | May cause genetic effects based on animal data. |
| Embryotoxicity | May cause fetal toxicity based on animal data. |
| Specific Target Organ Toxicity | Liver, Kidneys, Bone. |
| Reproductive Toxicity | Not Available |
| Respiratory/Skin Sensitization | Not Available |

12. ECOLOGICAL INFORMATION

Ecotoxicity

Hydrofluoric Acid

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|-----------------------------|---|
| Aquatic Vertebrate | Aquatic fish; EC50 (48 hours): 270 mg/l |
| Aquatic Invertebrate | Not Available |
| Terrestrial | Not Available |

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

13. DISPOSAL CONSIDERATIONS

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|---------------------------|---|
| Waste Residues | 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 or residue. |
| Product Containers | 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. TRANSPORTATION INFORMATION

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| US DOT | UN1790, Hydrofluoric Acid solution, 8 (6.1), pg II |
| TDG | UN1790, HYDROFLUORIC ACID SOLUTION, 8 (6.1), pg II |
| IMDG | UN1790, HYDROFLUORIC ACID SOLUTION, 8 (6.1), pg II |
| Marine Pollutant | No |
| IATA/ICAO | UN1790, Hydrofluoric Acid solution, 8 (6.1), pg II |

15. REGULATORY INFORMATION

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|---|--|
| TSCA Inventory Status | All ingredients are listed on the TSCA Active inventory. |
| DSL / NDSL | All ingredients are listed on the DSL inventory. |
| California Proposition 65 | Not Listed |
| Rhode Island: Hazardous Substance List | Listed: Hydrofluoric Acid |
| Massachusetts: Toxic or Hazardous Substance List, Right to Know | Listed: Hydrofluoric Acid |
| Pennsylvania: Hazardous Substance List | Listed: Hydrofluoric Acid |
| New Jersey: Right to Know Hazardous Substance List | Listed: 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. Class D2A: Poisonous and infectious material – Other effects – Very toxic. Class E: Corrosive material. |

16. OTHER INFORMATION

| Revision | Date |
|-----------------|-------------|
| Original | 01/27/2013 |
| Revision 1 | 08/16/2021 |
| | |

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