The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.



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Hydrofluoric Acid (10-48%)
6373CR Revised 14-MAY-2005

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## CHEMICAL PRODUCT/COMPANY IDENTIFICATION

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### Material Identification

CAS Number : 7664-39-3
Molecular Weight : 20.01
CAS Name : Hydrogen Fluoride

### Tradenames and Synonyms

Hydrogen Fluoride
HF
Fluorohydric Acid
Fluoric Acid
HF in Aqueous Solution

### Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont Fluoroproducts
1007 Market Street
Wilmington,
Delaware
19898

PHONE NUMBERS
Product Information : 1-(800)-441-7515
Transport Emergency : 1-(800)-424-9300
Medical Emergency : 1-(800)-441-3637

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## COMPOSITION/INFORMATION ON INGREDIENTS

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### Components

| Material | CAS Number | % |
|---|---|---|
| *Hydrogen Fluoride | 7664-39-3 | 10-48 |
| Water | 7732-18-5 | 52-90 |

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

## HAZARDS IDENTIFICATION

### Potential Health Effects

**SKIN**

Depending on the concentration and duration of exposure, skin contact may produce pain, redness of skin, and deep slow-healing burns. Acid concentrations of more than 50% in water (including anhydrous hydrogen fluoride) cause immediate severe, throbbing pain and a whitish discoloration of the skin. Burns may be excruciatingly painful, deep-seated and slow healing. Hydrogen Fluoride aqueous solutions from 20% to 50% may produce pain, swelling, and blisters which may be delayed up to 8 hours. Hydrogen Fluoride solutions of less than 20% cause almost no immediate pain on contact but may cause delayed serious injury 12 to 24 hours later; latent skin burns with necrosis can occur even at concentrations of at least 2%. Healing of skin burns caused by concentrated Hydrogen Fluoride may be prolonged, and extensive scarring may result.

In some forms, fluoride can readily penetrate the skin and deep tissue causing destruction of soft tissue and decalcification of bone. Tissue destruction and neutralization of HF may proceed for days. HF can be absorbed through the skin in toxic amounts.

**EYES**

Mild effects of Hydrogen Fluoride exposure include rapid onset of eye irritation with discomfort, tearing, or blurring of vision. More severe effects, which may result from even minor Hydrofluoric acid splashes, include sloughing of the surface of the eye, swelling of various structures of the eye, corrosion of the eye with corneal or conjunctival ulceration and cell death due to lack of blood supply. Potentially permanent clouding of the eye surface may develop immediately or after several days. Permanent loss of vision can occur.

**INGESTION**

Ingestion of Hydrogen Fluoride may cause corrosive injury to the mouth, throat and esophagus. Inflammation of the stomach with bleeding occurs commonly. Nausea, vomiting, diarrhea, and abdominal pain may occur. Systemic effects are likely. An acid-base imbalance can occur after acute ingestion. Pulmonary aspiration may lead to respiratory complications. Hydrogen Fluoride ingestion may cause progressive damage to the esophagus and stomach for weeks after ingestion. Persistent narrowing of the esophagus may result. Death may occur.

**INHALATION**

(HAZARDS IDENTIFICATION - Continued)

Inhaled Hydrogen Fluoride mist or vapor initially affects the nose, throat, and eyes. Mild clinical effects include mucous-membrane irritation and inflammation, cough, and narrowing of the bronchi. Severe clinical effects include an almost immediate narrowing and swelling of the throat, causing upper airway obstruction and lung injury that may evolve rapidly or may be delayed in onset for 12 to 36 hours. These severe effects can include choking and coughing; severe throat irritation followed by fever, chills, difficulty in breathing, cyanosis and pulmonary edema, accumulation of fluid in the lungs, constriction of the bronchi, and partial or complete lung collapse can occur. Death may occur. Pulmonary effects can result even from Hydrogen Fluoride splashes on the skin due to inhalation of fumes from the area splashed.

ADDITIONAL EFFECTS

Overexposure by inhalation or skin contact may lead to systemic effects. These effects are due to Hydrogen Fluoride's penetration of cells and its rapid dissociation into hydrogen and fluoride ions. The dissociated fluoride can penetrate and migrate into tissue and bind with calcium primarily, but also magnesium, sodium, and potassium. Local bone demineralization, systemic deficiency of calcium (hypocalcemia) and magnesium, and excess potassium can occur. Hypocalcemia can lead to life-threatening cardiac arrhythmias. The adverse effect of the fluoride ion may progress for several days after exposure.

Prolonged exposure to Hydrogen Fluoride vapor can cause fluorosis which may also result in weight loss, brittle bones, anemia, weakness and stiffness of joints, and discoloration of the teeth when exposure occurs during tooth formation.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

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## FIRST AID MEASURES

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Compound-Specific First Aid & Notes to Physicians

Speed in removing exposed personnel from contaminated area and in removing HF from skin or eyes is of primary importance. First aid must be started immediately, within seconds, in all cases of contact with hydrofluoric acid in any form. All potentially exposed personnel should be trained in first aid care for HF burns. First aid actions should be planned before beginning work with HF. Calcium gluconate gel should be readily accessible in areas where HF exposure potential exists.

(FIRST AID MEASURES - Continued)

Medical assistance should be obtained promptly for all affected persons. The doctor should be informed in detail of the accident.

HF differs from other acids in that the fluoride ion readily penetrates skin, causing destruction of deep tissue layers including bone. Unlike the action of other acids, which are rapidly neutralized, this process may continue for days.

HF contaminated oils and tars may require additional first aid steps because water washing may not completely remove the oil or tar. Sites that have potential for HF contaminated oils or tars should develop appropriate procedures to remove the oil/tar from the skin to allow treatment.

The following are DuPont's first aid recommendation for HF exposures, however, modifications may be required to comply with local or state medical board regulatory requirements.

SKIN CONTACT:

IMMEDIATELY shower with large quantities of water, within seconds after contact or suspected contact, and completely remove all clothing while in shower (remove goggles last). FLUSH SKIN THOROUGHLY WITH WATER FOR 5 MINUTES. Flushing with water thoroughly for 5 minutes is sufficient to effectively remove HF from skin. Additional flushing time is unnecessary and will delay further treatment.

Apply calcium gluconate (2.5%) gel at burn site or area of contamination by rubbing in continuously. Wear impervious gloves. Examination and treatment by a physician is recommended as quickly as feasible. It may be necessary to transport patient to nearest hospital emergency room. Remember that concentrated HF causes immediate pain, BUT DILUTE HF SOLUTIONS MAY NOT CAUSE REDNESS, BURNING OR PAIN UNTIL SEVERAL MINUTES OR EVEN HOURS HAVE ELAPSED.

EYE CONTACT:

IMMEDIATELY flush eyes with large quantities of water for 5 MINUTES while holding the eyelids apart. Trained personnel should apply calcium gluconate 1% (no stronger) by continuous drip. If skills are available at the scene, a Morgan Theraupeutic Lens can be used to irrigate the eyes with a calcium gluconate 1% solution. THE EYES WILL REQUIRE FURTHER TREATMENT-- SEE NOTES TO PHYSICIAN--"EYE CONTACT".

VAPOR INHALATION:

IMMEDIATELY remove the patient to an uncontaminated atmosphere. Call a physician. Administer oxygen as soon as possible. Trained personnel should provide calcium gluconate, 2.5% solution, by nebulizer with patient in sitting position. Keep patient warm.

(FIRST AID MEASURES - Continued)

Patients not breathing
If exposed person is not breathing, do not give mouth to mouth resuscitation; instead use an Ambu-bag. Do not administer any liquids or solids to an unconscious person.

INGESTION:

DO NOT induce vomiting. If patient is conscious, give water orally to dilute followed by antacid or milk. Seek medical assistance immediately. Call a physician. Throat burns may cause severe swelling and require a tracheotomy (opening the windpipe). The patient should be admitted to the hospital and carefully attended.

MEDICAL SUPPLIES:
The following materials have been found to be useful and effective in the treatment of hydrogen fluoride burns, and should be on hand at the First Aid Station:

o Calcium gluconate gel - 2.5%. This gel is prepared by mixing 1 standard ampule (10 mL, 10%) of USP calcium gluconate with 1-ounce of water soluble lubricant (e.g., K-Y Lubricating Jelly, Johnson & Johnson).
The shelf life of the gel has not been determined. A periodic replacement period should be specified (ie., annually). Storage of gel has limitations and refrigeration may help. Avoid freezing the gel as calcium may precipitate out and reduce its effectiveness.
o Calcium gluconate 10% (standard ampules).
o One percent calcium gluconate in normal, sterile saline solution. Make by mixing 1 standard ampule per 90 mL of saline solution.
o 2.5% calcium gluconate in normal, sterile saline solution. Make by mixing 1 standard ampule per 30 mL of saline solution.
Solution (both 1% and 2.5%) shelf-life has not been determined. A periodic replacement period should be specified (ie., every 6 months).
o Milk of magnesia or other liquid antacid.
o 99% pure USP medical oxygen with regulator and mask.
o Impervious gloves.
o Nebulizer.
o Blanket.
o Shower facilities.
o Ambu bag.
o Nasal cannula units and Morgan Therapeutic Lens (for eye irrigation).

NOTES TO PHYSICIANS:

Choice of therapy following first aid measures is at the discretion of attending physician. Selection of the best treatment will depend on the following factors:

(FIRST AID MEASURES - Continued)

- o Concentration and temperature of the HF.
- o Degree and extent of the burn.
- o Duration of exposure.
- o Areas of the body affected.
- o Elapsed time since exposure.
- o First aid measures taken before physician's arrival.
- o Age and clinical history of patient.
- o General condition of the patient.

The following methods, using materials listed under MEDICAL SUPPLIES, have been effective in treatment of HF burns. Methods are broken down by routes of exposure. Minor exposures are limited exposures to HF liquid and vapor. Major exposures are extensive exposures to HF liquid and vapor and all cases of combined routes of exposure, e.g., skin and inhalation exposures. Patients suffering suspected face or chest skin exposure should be assumed to have incurred inhalation exposure also. Be certain that the patient has been properly decontaminated.

In all cases of major exposure by HF, hypocalcemia may be present, therefore, calcium levels must be determined immediately upon arrival at the hospital. During hospitalization calcium levels should be monitored frequently. If possible, blood should be drawn for serum calcium in site medical facility and sent to the hospital with the patient.

Cardiac monitoring (EKG) is necessary (hypocalcemia causes prolonged Q-T interval and may cause cardiac rhythm abnormalities). Renal and liver function should be monitored.

In major inhalation exposure, pulmonary edema or edema of upper airway may occur. Blood gases should be monitored accordingly.

SKIN CONTACT: Care should be taken to see that personnel who apply the gel, especially on the initial application, wear medical gloves to prevent skin contamination with HF and the development of hand burns.

Topically applied Calcium Gluconate Gel (2.5%) must be rubbed into all burn areas continuously until pain has completely subsided, but not longer than 30 minutes. Calcium gluconate gel should not be used until after thorough and complete washing of the skin with water for 5 minutes. If some relief of pain is not obtained within 20-30 minutes, consider calcium gluconate topical injections using stainless steel needle.

(FIRST AID MEASURES - Continued)

**Severe Skin Burns:**
When there is evidence of skin penetration as in second or third degree burns or for large burns, a 5% calcium gluconate solution may be injected using a small gauge needle (no. 30) by infiltrating the skin and subcutaneous tissues in the same manner as injection of any local anesthetic. The standard ampoule of 10% calcium gluconate for intravenous use must be diluted to 5% by mixing with an equal amount of normal sterile saline. Care should be taken to avoid overdosing with calcium. Do not inject more than 0.5 mL per square centimeter of affected skin surface. No local infiltration of anesthetic should be used, but in the case of severe burns, regional or general anesthesia may be considered. DO NOT INJECT CALCIUM CHLORIDE to treat skin burns.

In cases of overexposure due to HF, as in skin burns of greater than approximately 2 square inches (13 cm2) in area, hypocalcemia may be present. Therefore, systemic administration of calcium gluconate may be necessary. Infusions can be repeated until serum calcium, EKG or symptoms improve. Frequent monitoring of serum calcium, cardiac, renal, and hepatic functions is necessary. Treat hypomagnesemia with 1-2 grams of magnesium.

**HAND BURNS:** The treatment for hand burns require expert assistance; consult a hand surgeon. Intra arterial calcium infusions have been successfully used to treat HF hand exposures. Calcium gluconate in very small doses can be injected into the fingers. In some cases, burr holes must be drilled in the nail or the nail must be split or removed to permit adequate contact with the sequestering agent. Local anesthesia may be required, but be aware that it may interfere with determining the adequacy of treatment. Care must be used because multiple injections into the fingers can lead to pressure necrosis. Patients whose skin has compromised integrity may have an increased risk of infection after multiple injections of calcium gluconate. Consider the use of antibiotic creams such as Silvadene or Garamycin in these cases.

**EYE CONTACT:** Immediate washing of the eyes with large quantities of water for 5 minutes should be followed by continuous drip of 1% calcium gluconate (no stronger) in normal, sterile saline using a nasal prong or Morgan Lens. Up to 500 mL over 1-2 hours may be used. A topical anesthetic can minimize the tendency of the eyelid to close and facilitate inserting an irrigation lens. If exposure was minor, perform visual acuity testing and examine the eyes for corneal damage using fluorescein and a slit lamp. An eye specialist (ophthalmologist) should be consulted immediately.

(FIRST AID MEASURES - Continued)

VAPOR INHALATION: Persons suspected of having had HF exposure by inhalation should immediately be given 100% oxygen by mask or catheter. As soon as possible (as precautionary treatment), they should be administered (in the sitting position and utilizing a nebulizer) 2.5% calcium gluconate solution by inhalation for 20 minutes. All those suspected of HF exposure and who experience signs and/or symptoms of respiratory irritation should be considered as strong candidates for admission to an intensive care unit for careful observation during the first 24-48 hours. Delayed pulmonary edema is likely in patients with burns of the skin of face or neck.

Patient should be carefully watched for edema of the upper airway with respiratory obstruction and the airway maintained by tracheotomy or endotracheal intubation if necessary. The administration of respiratory care should be very closely supervised and most likely includes continued administration of 2.5% calcium gluconate by inhalation. Toxicity from pulmonary absorption of fluoride ion may rapidly develop in the liver and kidneys and may require more energetic measures of control, up to and including hemodialysis, particularly if the blood urea nitrogen and potassium levels rise. Supportive care is necessary for all organ systems.

INGESTION: THIS SITUATION IS LIFE THREATENING. DO NOT INDUCE VOMITING AND DO NOT USE ACTIVATED CHARCOAL. Refer to first aid measures as described. Extreme throat swelling may cause airway obstruction, which may require endotracheal intubation or cricothyroidotomy.

## FIRE FIGHTING MEASURES

### Flammable Properties

Will not burn.

HF (particularly in dilute aqueous solutions) will attack most metals, releasing potentially explosive hydrogen gas. Follow appropriate National Fire Protection Association (NFPA) codes.

### Extinguishing Media

Water Fog, Dry Chemical, CO2.

### Fire Fighting Instructions

Keep upwind. If there is any possibility of direct contact, wear full acid suit with hood, boots and self-contained breathing apparatus. Run-off from fire control may cause pollution; neutralize with lime.

## ACCIDENTAL RELEASE MEASURES

**Safeguards (Personnel)**

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

**Accidental Release Measures**

Evacuate area and keep upwind until gas has dispersed. Enter contaminated area only with full protective equipment and self-contained breathing apparatus. Dike spill. Dilute with water fog (direct addition of water or alkali causes heat and violent spattering). Neutralize with lime. Do not flush to sewer. Comply with Federal, State, and Local regulations on reporting releases.

WATER MITAGATION: The use of water sprays on HF vapors from a release have been found to be effective in removing HF from the air, and thus lowering the amount leaving the spill area. HF removal efficiencies of 25% - 90% have been demonstrated at water to HF ratios of 6:1 to 60:1. Do NOT spray water directly on the leak source as increased corrosion may occur making the leak larger.

DuPont Emergency Exposure Limits (EEL) are established to facilitate site or plant emergency evacuation, and specify airborne concentrations of brief durations which should not result in permanent adverse health effects or interfere with escape. These limits are used in conjunction with engineering controls/monitoring and as a aid in planning for episodic releases and spills. For more information on the applicability of EEL's, contact DuPont.

The DuPont Emergency Exposure Limit (EEL) for Hydrofluoric Acid are:

100 ppm ceiling for 1 minute
50 ppm for up to 10 minutes
20 ppm for up to 60 minutes

AMERICAN INDUSTRIAL HYGIENE ASSOCIATION (AIHA) EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG):

The off-site exposure limits (sixty minutes) for hydrofluoric acid as specified by the AIHA are:

ERPG 1,2 ppm - The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing other than mild, transient adverse health effects or without perceiving a clearly defined objectionable odor.

ERPG 2, 20 ppm - The maximum airborne concentration below

(ACCIDENTAL RELEASE MEASURES - Continued)

which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.

ERPG 3, 50 ppm - The maximum airborne concentration below which it is believed that nearly all indivudals could be exposed for up to one hour without experiencing or developing life-threatening health effects.

## HANDLING AND STORAGE

### Handling (Personnel)

Do not breathe vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.

Keep containers closed.

### Storage

Keep away from heat, sparks, and flame. Keep container tightly closed. Drainage facilities should be constructed for containment of small spills.

NOTE:

HF may react with steel, forming iron fluorides. During storage tank cleaning, iron fluoride particles may be released which, if inhaled, may cause lung damage. Iron fluoride scale reacts with water to produce HF, which may cause delayed burns when skin or eye contact occurs.

## EXPOSURE CONTROLS/PERSONAL PROTECTION

### Engineering Controls

Use only with ventilation sufficient to keep vapor concentrations below the exposure limit. Use forced draft ventilation and scrubbers for fume control.

### Personal Protective Equipment

EYE/FACE:

Wear chemical splash goggles. In addition, where the possibility exists for face contact due to splashing or spraying of the material, wear a full-length face shield/ chemical splash goggle combination or an acid hood.

RESPIRATORS:

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

If exposure limits may be exceeded, wear NIOSH approved respiratory protection.

PROTECTIVE CLOTHING:

Where there is potential for skin contact, have available and wear as appropriate: acid resistant rubber gauntlet gloves, boots, and acid resistant jacket and pants. If there is any possibility of direct contact, wear a full acid suit of acid resistant material with hood, gloves, boots, and full-face air supplied respirator. The highest degree of protection, used for large leaks or in an emergency situation, is provided by a fully encapsulating acid resistant suit (one piece construction) with a self-contained breathing apparatus.

Protective clothing and equipment should not be worn or carried outside of the operating area. Wash protective clothing and equipment under a safety shower after exposure, or suspected exposure, to hydrofluoric acid.

Note: In an emergency leak situation, avoid contacting fully encapsulating suits with a liquid stream of HF because permature suit failure may occur.

# Exposure Guidelines

Exposure Limits
Hydrofluoric Acid (10-48%)

| | | |
|---|---|---|
| PEL | (OSHA) | : 3 ppm, 8 Hr. TWA, as F |
| TLV | (ACGIH) | : 0.5 ppm, 8 Hr. TWA, as F<br>Ceiling 2 ppm, as F |
| AEL * | (DuPont) | : 3 ppm, 15 minute TWA |

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

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PHYSICAL AND CHEMICAL PROPERTIES

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Physical Data

| | |
|---|---|
| Boiling Point | : 104-108 C (219-226 F) |
| Melting Point | : -11 to -36 C (12 to -33 F) |
| Solubility in Water | : Infinitely soluble |
| Odor | : Acrid |
| Form | : Fuming, liquid |
| Color | : Clear, colorless |
| Specific Gravity | : 1.17-1.18 |
| pH | : ~2 2% aqueous solution |

## STABILITY AND REACTIVITY

### Chemical Stability

Stable, if stored in proper (steel) container.

### Incompatibility with Other Materials

Incompatible with arsenic trioxide, phosphorous pentoxide, ammonia, calcium oxide, sodium hydroxide, sulfuric acid, vinyl acetate, ethylenediamine, acetic anhydride.

### Decomposition

Decomposes by reaction with metals, liberates hydrogen gas. On heating to decomposition, could yield toxic fumes of fluorides. Attacks glass and other silicon containing compounds. Reacts with silica to reduce silicon tetrafluoride, a hazardous colorless gas. Evaporation would produce hydrogen fluoride gas.

### Polymerization

Polymerization will not occur.

## TOXICOLOGICAL INFORMATION

### Animal Data

Hydrogen Fluoride
Inhalation 1 hour LC50: 2300 ppm in rats
Skin absorption 1-2 minute ALD: 500 mg/kg in mice

Hydrogen Fluoride is corrosive to skin and eyes in tests on animals.

Animal inhalation studies at very high concentrations resulted in eye, mucous membrane and skin irritation, corneal opacities, respiratory distress, pulmonary congestion, and hemorrhage. Other short term studies show lung, heart, liver, kidney, spleen, and brain damage. Repeated exposure caused an uptake of fluoride into bones and teeth, corneal opacities, irritation or ulceration of skin, respiratory irritation and edema, anemia, weight loss, and pathological changes in the liver, lungs and kidneys. Long-term exposure to low concentrations by inhalation resulted in fatty deposits in the liver, high plasma concentrations of cholesterol, kidney damage and disturbances in the process involved in calcification. Fluoride was taken up by bones and teeth.

Single dermal exposure to low concentrations resulted in severe burns. Other studies show increased fluoride content in the serum, lungs, liver and kidneys, and mortality.

(TOXICOLOGICAL INFORMATION - Continued)

An 18 month study in animals demonstrated no carcinogenic activity. Studies show that Hydrogen Fluoride causes heritable genetic damage in insects, but no test data are available for mammals. No acceptable animal test reports are available to define developmental or reproductive toxicity.

## ECOLOGICAL INFORMATION

### Ecotoxicological Information

Aquatic Toxicity

96 hour LC50 in fish (species not specfied): 1-50 ppm

## DISPOSAL CONSIDERATIONS

### Waste Disposal

Comply with Federal, State, and Local regulations. If approved, may be flushed to sewer to waste treatment plant, or transferred to a disposal contractor.

## TRANSPORTATION INFORMATION

### Shipping Information

DOT/IMO

| | |
|---|---|
| Proper Shipping Name | : Hydrofluoric Acid, with not more than 60 percent strength |
| Hazard Class | : 8 |
| UN No. | : UN 1790 |
| Subsidiary Hazard Class | : 6.1 (Poison) |
| Packing Group | : II |
| Reportable Quantity | : 100 lb |

## REGULATORY INFORMATION

### U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

| | |
|---|---|
| Acute | : Yes |
| Chronic | : Yes |
| Fire | : No |
| Reactivity | : Yes |
| Pressure | : No |

(REGULATORY INFORMATION - Continued)

LISTS:

SARA Extremely Hazardous Substance -Yes
CERCLA Hazardous Substance -Yes
Toxic Chemical -Yes

CANADIAN WHMIS CLASSIFICATION
D-1A; E

Country_specific Regulations

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## OTHER INFORMATION

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NFPA, NPCA-HMIS

NFPA Rating
Health : 4
Flammability : 0
Reactivity : 0

NPCA-HMIS Rating
Health : 3
Flammability : 0
Reactivity : 2

Personal Protection rating to be supplied by user depending on use conditions.

Additional Information

For further information, see DuPont’s Hydrofluoric Acid "Data Sheet" and Properties, Uses, Storage, and Handling Bulletin.

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The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : MSDS Coordinator
> : DuPont Fluoroproducts
Address : Wilmington, DE 19898
Telephone : (800) 441-7515

# Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS