




# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	<b>TOXIC BY INHALATION</b> Toxic compound, do not ingest or inhale. Avoid all contact with this material. Corrosive to eyes and skin on contact. Moisture sensitive material.	

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Pyridinium Poly(hydrofluoride) [Fluorinating Reagent]</b>		
Catalog Number	P0999	Supplier	TCI America 9211 N. Harborage St. Portland OR 1-800-423-8616
Synonym	Hydrogen Fluoride-Pyridine, Pyridine Polyfluoride Hydrofluoride		
Chemical Formula	C <sub>5</sub> H <sub>5</sub> N • (HF) <sub>x</sub>		
CAS Number	62778-11-4	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Pyridinium Poly(hydrofluoride) [Fluorinating Reagent]	62778-11-4	Min. 65.0 (T)	Not available.	(Hydrogen fluoride) Rat LD <sub>50</sub> (inhalation) 1276 ppm/1H Mouse LD <sub>50</sub> (inhalation) 342 ppm/1H

## Section III. Hazards Identification

Acute Health Effects	Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Cytogenetic Analysis (Hydrogen fluoride) Rat (Inhalation) 1 mg/ m <sup>3</sup> /6 hours/ 24 Days <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> : Reproductive Effects: (Hydrogen Fluoride) Rat TCLo (Inhalation) 470 ug/m <sup>3</sup> /4 hours, Female 1-22 Days of pregnancy. Toxic Effects: Effects on Fertility - Pre-implantation mortality Effects on Fertility - Post-implantation mortality Rat TCTLo (Inhalation) 4980 ug/m <sup>3</sup> / 4 hours, Female 1-22 Days of pregnancy. Toxic Effects: Effects on Embryo or Fetus - Fetal death Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. Repeated or prolonged exposure is not known to aggravate existing medical conditions.

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform artificial respiration. <b>WARNING:</b> It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.
Ingestion	<b>DO NOT INDUCE VOMITING.</b> Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

**Section V. Fire and Explosion Data**

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO, NO <sub>2</sub> ), halogenated compounds. WARNING: Highly toxic HF gas is produced during combustion.		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.		


**Section VI. Accidental Release Measures**

Spill Cleanup Instructions	Corrosive material. Very toxic material. Moisture sensitive material. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.
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**Section VII. Handling and Storage**

Handling and Storage Information	CORROSIVE. VERY TOXIC. MOISTURE SENSITIVE. Keep locked up. Keep container dry. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do NOT use glassware. DO NOT ingest. Do NOT breathe gas/fumes/ vapor/spray. Never add water to this product. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as strong oxidizing agents, alkali metals, alkalis (bases), moisture.
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**Section VIII. Exposure Controls/Personal Protection**

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Face shield. Lab coat. Vapor respirator. Gloves. Boots. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. 
Exposure Limits	Not available.

**Section IX. Physical and Chemical Properties**

Physical state @ 20°C	Liquid. (Fuming. Yellowish-Red. Clear.)	Solubility	Not available.
Specific Gravity	1.14 (water=1)		
Molecular Weight	Not available.	Partition Coefficient	Not available.
Boiling Point	ca. 50 °C (122 °F) (dec.)	Vapor Pressure	103 kPa@20 °C (Hydrogen fluoride)
Melting Point	Not available.	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.



**Section X. Stability and Reactivity Data**

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents, alkali metals, strong alkalis (bases), moisture, glass, compound including silica.

<b>Section XI. Toxicological Information</b>	
RTECS Number	MW7875000 (Hydrogen fluoride)
Routes of Exposure	Eye Contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	(Hydrogen fluoride) Rat LD <sub>50</sub> (inhalation) 1276 ppm/1H Mouse LD <sub>50</sub> (inhalation) 342 ppm/1H
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Cytogenetic Analysis (Hydrogen fluoride) Rat (Inhalation) 1 mg/ m <sup>3</sup> /6 hours/ 24 Days <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> : Reproductive Effects: (Hydrogen Fluoride) Rat TCLo (Inhalation) 470 ug/m <sup>3</sup> /4 hours, Female 1-22 Days of pregnancy. Toxic Effects: Effects on Fertility - Pre-implantation mortality Effects on Fertility - Post-implantation mortality Rat TCTL (Inhalation) 4980 ug/m <sup>3</sup> / 4 hours, Female 1-22 Days of pregnancy. Toxic Effects: Effects on Embryo or Fetus - Fetal death Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. Repeated or prolonged exposure is not known to aggravate existing medical conditions.
Acute Toxic Effects	Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

<b>Section XII. Ecological Information</b>	
Ecotoxicity	Not available.
Environmental Fate	Not available.

<b>Section XIII. Disposal Considerations</b>	
Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

<b>Section XIV. Transport Information</b>	
DOT Classification	DOT CLASS 8: Corrosive material DOT CLASS 6.1: Toxic material.
PIN Number	UN1790
Proper Shipping Name	Hydrofluoric acid
Packing Group (PG)	I
DOT Pictograms	 

<b>Section XV. Other Regulatory Information and Pictograms</b>	
TSCA Chemical Inventory (EPA)	This product is <b>NOT</b> on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those products not on the inventory list: (i) These products are supplied solely for use in research and development by or under the supervision of a technically qualified individual as defined in 40 CFR 720.0 et sec. (ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on an MSDS sheet.
WHMIS Classification (Canada)	CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.
EINECS Number (EEC)	Not available.
EEC Risk Statements	R34- Causes burns. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.
Japanese Regulatory Data	Not available.

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Emergency phone number (800) 424-9300

**Section XVI. Other Information****Version 1.0****Validated on 11/13/2007.****Printed 11/13/2007.****Notice to Reader**

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.

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