

Section 1: Product & Company Information

Product Identifier: Hydrofluorosilicic Acid Solution

Other Means of Identification

Product Number: 125019

Recommended Use and Restrictions on Use

Recommended Use: Laboratory chemicals, Manufacture of substances

Restrictions on Use: No data available.

Manufacturer / Importer / Supplier / Distributor Information

Company Name: CORECHEM Inc.

Address: 4320 Greenway Drive
Knoxville, TN 37918
USA

Information Telephone Number: 1-865-524-4239

Fax Number: 1-865-524-3375

Website: www.corecheminc.com

Contact Person: Regulatory Manager

E-mail: regulatory@corecheminc.com

Emergency Phone Number: Chemtrec® 1-800-424-9300 / Outside USA 1-703-527-3887 (monitored 24 hours/day)

Section 2: Hazards Identification

GHS Hazard Classification(s)

In accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 (HazCom 2012).

Physical Hazard(s)

Corrosive to Metals - 1

Health Hazard(s)

Acute Toxicity, Oral - 4

Acute Toxicity, Dermal - 3

Acute Toxicity, Inhalation - 4

Corrosion/Irritation, Skin - 1B

(Corrosion) Damage/Irritation, Eye - 1

Environmental Hazard(s)

Not classified.

Label Elements

Signal Word

DANGER

Hazard Symbol(s)



Hazard Statement(s)

H290: May be corrosive to metals.

H302: Harmful if swallowed.

H310: Fatal in contact with skin.

H311: Toxic in contact with skin.

H314: Causes severe skin burns and eye damage.

H332: Harmful if inhaled.

Precautionary Statements

General

Not applicable.

Prevention

P234: Keep only in original container.

P260: Do not breathe dust/fume/gas/mist/vapors/spray.
 P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
 P262: Do not get in eyes, on skin, or on clothing.
 P264: Wash face, hands and any exposed skin 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.

Response

P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P302 + P350: IF ON SKIN: Gently wash with plenty of soap and water.
 P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
 P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P304 + P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
 P310: Immediately call a POISON CENTER or doctor/physician.
 P312: Call a POISON CENTER or doctor/physician if you feel unwell.
 P321: Specific treatment (see supplemental first aid instructions on this label).
 P322: Specific measures (see supplemental first aid instructions on this label).
 P330: Rinse mouth.
 P361: Remove/Take off immediately all contaminated clothing.
 P363: Wash contaminated clothing before reuse.
 P390: Absorb spillage to prevent material damage.
 P406: Store in corrosive resistant container with a resistant inner liner.

Storage

P405: Store locked up.

Disposal

P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC)

None known.

Section 3: Composition/Information on Ingredients

Mixture

Chemical Identity ²	Common Name/Synonym(s)	CAS # ³	Weight %	Impurity or Stabilizing Additive
Hydro-fluorosilicic Acid	-	16961-83-4	25 %	No
Water / Inactive Ingredients	-	7732-18-5	75 %	No

- Information regarding the composition and the percent ranges of the mixtures ingredients are not presented as it Confidential Business Information (CBI). Where a medical emergency exists (as determined by medical professional), timely disclosure of CBI is assured. The information omitted pertains to only the names of the substances and the concentration in the mixture (product) and can only be requested by a doctor/physician or Local/State/Provincial or Federal Authority.
- Non-hazardous ingredients are not presented as to protect the proprietary formula of the product.
- "—"Indicates ingredient is a mixture and contains multiple ingredients or may have no identifying CAS number.

Section 4: First-Aid Measures

General Information

Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wash contaminated clothing before reuse.

Inhalation

Remove victim to fresh air. If breathing has stopped, perform artificial respiration. If breathing is difficult have qualified personnel administer oxygen. Get immediate medical attention. Lung effects may be delayed – medical observation is recommended.

Skin Contact

Immediately remove all contaminated clothing and shoes. Flush skin thoroughly with water for at least 15 minutes. Launder clothing before reuse. Discard contaminated items such as shoes, that cannot be decontaminated. Get immediate medical attention. Skin effects may be delayed.

Eye Contact

Flush the eyes immediately with large amounts of running water, lifting the upper and lower lids occasionally for at least 15 minutes. Get immediate medical attention.

Ingestion

If the victim is conscious, rinse mouth with water and give one glass of milk or water to drink. DO NOT induce vomiting. Do not give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

Most important symptoms/effects, acute and delayed

Symptoms

Corrosive. May cause burns to the eyes and the skin. Skin burns may not be apparent or painful for several hours. Inhalation of vapors or mists may cause severe mucous membrane and respiratory irritation with possible lung damage. May be harmful or fatal if swallowed. Effects of overexposure may be delayed. Chronic exposure may cause fluorosis with effects on the teeth or the bones.

Indication of immediate medical attention and special treatment needed

Hazards

Harmful if swallowed, toxic in contact with skin. Causes severe skin burns and eye damage.

Treatment

If any contact occurs, Get immediate medical attention.

Section 5: Fire-Fighting Measures

General Fire Hazards

This product is a water solution and is not flammable. Thermal decomposition may yield flammable, corrosive and toxic gasses. This product may react with metals to form flammable and explosive hydrogen gas.

Suitable (and Unsuitable) Extinguishing Media

Suitable Extinguishing Media

Will not burn; use materials appropriate for surrounding fire. Do not get water inside containers. Do not apply water stream directly at source of leak. Do not use a heavy water stream. A direct water stream will cause violent splattering and generation of heat.

Unsuitable Extinguishing Media

Water jets are not recommended in fires involving chemicals.

Specific Hazards Arising from the Chemical

Hydrogen fluoride silicon oxides Not combustible. Ambient fire may liberate hazardous vapours.

Special Protective Equipment and Precautions for Firefighters

Special Fire-Fighting Equipment Procedures

No data available.

Special Protective Equipment for Fire-Fighters

Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face-piece operated in a positive pressure mode. Move exposed containers from the fire area if it can be done without risk. Use water to keep fire-exposed containers and tanks cool. Do not allow run-off from firefighting to enter drains or water courses.

Section 6: Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Evacuate spill area. Isolate hazard area and deny entry to unnecessary or unprotected personnel. Stay upwind and keep out of low area. Remove all possible sources of ignition in the surrounding area. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment. Ventilate contaminated area thoroughly shut off leaks if possible without personal risk.

Methods and Materials for Containment and Clean-Up

Ventilate area. Contain spill and collect with absorbent material and place in appropriate container for disposal. Flush spill area with water.

Notification Procedures

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Environmental Precautions

Report spills and releases as required to appropriate authorities. Prevent material from entering waterways, sewers or confined spaces. Notify local health and wildlife officials. Notify operators of nearby water intakes.

Section 7: Handling and Storage

Precautions for Safe Handling

Avoid creating and breathing mists. Avoid breathing vapors. Prevent eye, skin and clothing contact. Wash thoroughly with soap and water after handling. Use only with adequate ventilation. Maintain and use proper, clean protective equipment. Launder contaminated clothing before reuse. WARN and TRAIN employees in accordance with state and federal regulations.

Conditions for Safe Storage, including any Incompatibilities

Reacts with many metals to produce flammable and explosive hydrogen gas. Keep away from strong acids and bases, chlorites, organic peroxides, combustible materials, and metals. Store in dry, cool area. Store in a well-ventilated place away from heat and sources of ignition. Large tanks should be bermed and electrically grounded. Avoid using glass, metal, or stoneware containers. Empty containers may contain hazardous residues. Protect label and keep it visible. Do not transfer to metal containers.

Section 8: Exposure Controls/Personal Protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Value	Source
Hydrofluorosilicic Acid	TWA	2.50 mg/m ³	US OSHA Table Z-1
	TWA	2.50 mg/m ³	US OSHA Table Z-2
	TWA	2.50 mg/m ³	US. ACGIH Threshold Limit Values

Biological Limit Values

Chemical Identity	CAS #	Parameter	Value	Biological Specimen	Source
Hydrofluorosilicic Acid	16961-83-4	Fluoride	3.00 mg/g	Urine	ACGIH – Biological Exposure Indices (BEI)
	Remarks: Prior to shift (16 hours after exposure ceases)				
	16961-83-4	Fluoride	10.0 mg/g	Urine	ACGIH – Biological Exposure Indices (BEI)
	Remarks: End of shift (As soon as possible after exposure ceases)				

Appropriate Engineering Controls

Use local exhaust as required to maintain exposures below applicable occupational exposure limits. See also ACGIH "Industrial ventilation – A manual for recommended practice. (Current edition) Control of exposure must be accomplished as far as feasible by accepted engineering control measures. (For example, enclosure or confinement of the operation, general or local exhaust ventilation and substitution of less toxic materials.)

Ventilation Requirements: Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.

Other: An emergency shower and eyewash station should be available, tested, and be in close proximity to the product being handled in accordance with provincial regulations.

Individual protection measures, such as personal protective equipment (PPE)

General Information

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Eye/Face Protection

Wear safety glasses with side shields (or goggles) and a face shield. Wear a full-face respirator, if needed.

Skin Protection

Hand Protection

Wear appropriate chemical resistant gloves.

Other

Chemical resistant clothing and boots as needed to prevent skin contact. A safety shower and eye wash should be available in the work area.

Respiratory Protection

When effective engineering controls are not feasible, or while they are being implemented, appropriate respiratory protection must be used. Use appropriate respiratory protection for respirable particulates based on consideration of airborne workplace concentrations and duration of exposure arising from intended end use. Refer to the most recent government and local standards.

Hygiene Measures

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated footwear that cannot be cleaned. Wash hands before breaks and immediately after handling the product. Wash contaminated clothing before reuse. Avoid contact with eyes, skin, and clothing.

Section 9: Physical and Chemical Properties

Appearance:

Physical State: Liquid
Color: White to Light Yellow

Odor:

Slightly acrid

Odor Threshold:

No data available.

pH:

1.5 – 2.0

Melting Point/Freezing Point:

-18°C - -20 °C / 25 – 41 °F

Initial Boiling Point and Boiling Range:

136°C - 163 °C / 222 °F

Flash Point:

Not Flammable

Evaporation Rate (butyl acetate=1):

No data available.

Flammability (solid, gas):

No data available.

Upper/Lower Limit on Flammability or Explosive Limits

Flammability Limit – Upper:

No data available.

Flammability Limit – Lower:

No data available.

Explosive Limit – Upper:

No data available.

Explosive Limit – Lower:	No data available.
Vapor Pressure:	24 mmHg @ (25 °C)
Vapor Density (air =1):	No data available.
Relative Density (water=1):	1.22 g/cm ³ at 25 °C (77 °F)
Solubility(ies):	
Solubility in water:	Completely Soluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-Ignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Viscosity:	No data available.
Other Information:	
Molecular Weight:	144 g/mol
Formula:	H ₂ F ₆ Si

Section 10: Stability and Reactivity

Reactivity

Reacts with metals to form flammable hydrogen gas.

Chemical Stability

Material is stable under normal conditions.

Possibility of Hazardous Reactions

Contact with metals may form flammable hydrogen gas.

Conditions to Avoid

No data available.

Incompatible Materials

Metals, glass, stoneware, alkali, strong concentrated acids.

Hazardous Decomposition Products

Thermal decomposition yields hydrogen silica tetrafluoride and hydrogen fluoride gas.

Section 11: Toxicological Information

Information on routes of exposure

Ingestion: May cause irritation of the nose, throat and respiratory passages.

Inhalation: May cause irritation and burns to the mouth, throat and gastrointestinal tract.

Skin Contact: May cause severe irritation and chemical burns.

Eye Contact: May cause severe irritation.

Information on Toxicological Effects

Acute Toxicity (List all possible routes of exposure)

Oral

Fluorosilicic Acid: LD50: (Rat) 125 mg/kg

Dermal

No data available.

Inhalation

Hydrochloric Acid: LC50: (Rat) 3124 ppm/ 1 hr.

Hydrofluoric Acid LC50: (Rat) 1276 ppm/1 hr.

Repeated Dose Toxicity

No data available.

Skin Corrosion/Irritation

May cause severe irritation and chemical burns. Burns may not be apparent for several hours.

Serious Eye Damage/Eye Irritation

Contact may cause severe irritation or chemical burns with possible permanent damage.

Respiratory/Skin Sensitization

Inhalation of vapors or mists may cause severe irritation of the nose, throat and respiratory passages. High concentrations may cause lung damage (edema) with symptoms of chest pain and difficulty breathing. The effects may be delayed for several hours and are aggravated by physical exertion.

Carcinogenicity

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

Group 3, Not classifiable as to its carcinogenicity to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Germ Cell Mutagenicity

In Vitro

No data available.

In Vivo

No data available.

Reproductive Toxicity

No data available.

Specific Target Organ Toxicity – Single Exposure

No data available.

Specific Target Organ Toxicity – Repeated Exposure

Prolonged absorption of fluorides may result in fluorosis. Symptoms include changes in bone density, ossification of ligaments and mottling of the dental enamel.

Aspiration Hazard

No data available.

Other Effects

No data available.

Section 12: Ecological Information

Ecotoxicity

Acute Hazards to the Aquatic Environment

Fish

No data available.

Aquatic Invertebrates

Fluorosilicic Acid: LC50: (Lepomis Macrochirus) 50 Mg/l

Fluorosilicic Acid: EC50: (Daphnia Magna) 270 Mg/l

Hydrofluoric Acid: LC50: (Oncorhynchus mykiss) 51 Mg/l

Hydrofluoric Acid: EC50: (Daphnia Magna) 26-48 Mg/l

Toxicity to Aquatic Plants

No data available.

Chronic Hazards to the Aquatic Environment

Fish

No data available.

Aquatic Invertebrates

No data available.

Toxicity to Aquatic Plants

No data available.

Persistence and Degradability

Biodegradation

Not expected to bioaccumulate.

BOD/COD Ratio

No data available.

Bioaccumulative Potential

Bioconcentration Factor (BCF)

No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

No data available.

Mobility in Soil

No data available.

Other Adverse Effects

No data available.

Section 13: Disposal Considerations

Disposal Instructions

This product as produced, is classified as a hazardous waste under US EPA RCRA regulations- characteristic corrosive (D002) Dispose in accordance with all applicable local, state/provincial and federal regulations. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

Contaminated Packaging

Handle contaminated packages in the same way as the substance itself. Emptied containers may retain hazardous residue and explosive vapors. Keep away from heat, sparks, and flames. Do not cut, puncture, or weld on or near this container. Follow label warnings until container is thoroughly cleaned or destroyed.

Section 14: Transportation Information

US Department of Transportation (DOT)

UN Number: UN1778
UN Proper Shipping Name: Fluorosilicic Acid
Technical Name: -
Hazard Class: 8
Subsidiary Hazard Risk: -
Packing Group: II
DOT Label/Placard Exemptions: Not determined
Special Provisions: A6, A7, B2, B15, IB2, N3, N34, T8, TP2
Packaging Exceptions: None
Packaging Non-Bulk: 49CFR 173.202
Packaging Bulk: 49CFR 173.242
Reportable Quantity (RQ): 10,000
Marine Pollutant: No
Poison Inhalation Hazard: No
Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Emergency Response Guidebook (ERG) #: 154

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

Section 15: Regulatory Information

US Federal Regulations

Toxic Substance Control Act (TSCA), Chemical Substance Inventory, Section 8(b)

This product or ingredient(s) are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substance List (40 CFR 302.4)

No chemical(s) in this material are subject to the reporting requirements of CERCLA.

Clean Air Act (CAA), Section 112(r)

Designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act; Ingredients are regulated by the Clean Water Act Amendments of 1977 and 1978. This chemical is subject to regulations regarding its discharge.

Emergency Planning and Community Right-To-Know Act (EPCRA)

EPCRA 302 Extremely Hazardous Substance

The following chemical(s) in this material are subject to reporting levels established by SARA Title III, Section 302:
Hydrofluoric Acid (CAS# 7664-39-3)

EPCRA 304 Emergency Response Notification

No chemical(s) in this material are subject to the reporting requirements of SARA Title III, Section 304.

EPCRA 311/312 Emergency and Hazardous Materials Reporting

Fire Hazard: No
Sudden Release of Pressure: No
Reactive: No
Acute (Immediate) Health Hazard: Yes
Chronic (Delayed) Health Hazard: Yes

EPCRA 313 Toxic Chemical Release Inventory (TRI) Reporting

This material does not contain any chemical(s) with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Important Note: Due to the changing nature of regulatory requirements, the information in this document should NOT be considered all-inclusive or authoritative. Users should make their own investigations to determine the suitability of the information for their particular purposes. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.

Section 16: Other Information

Hazardous Materials Identification System (HMIS®) Classification

Health Hazard: 3

Chronic Health Hazard: *

Flammability: 0

Physical Hazard: 0

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

National Fire Protection Association (NFPA 704) Rating

Health Hazard: 3

Fire Hazard: 0

Reactivity Hazard: 0

Special: N/A

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

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Sections Revised: 2-9, 11, 14-15

Key to Abbreviations and Acronyms

ATE - Acute Toxicity Estimate

BCF - Bioconcentration Factor

EC50 - Effective concentration, 50%

IDHL - Immediately Dangerous to Life and Health

Kg - Kilogram

l - Liter

lb - Pound

LC50 - Lethal Concentration, 50%

LD50 - Lethal Dose, 50%

mg - milligram

ml - milliliter

N/A - Not Applicable

N/D - Not Determined

PEL - Permissible Exposure Limit

REL - Recommended Exposure Limit

STEL - Short-term Exposure Limit

TWA - Time weighted average

ACGIH - American Conference of Industrial Hygienists

AIHA - American Industrial Hygiene Association

BEI - Biological Exposure Indices

CAS - Chemical Abstracts Service

DOT - US Department of Transportation

EPA - US Environmental Protection Agency

GHS - Globally Harmonized System of Classification and Labelling of Chemicals

IARC - International Agency for Research on Cancer

IATA - International Air Transport Association

IBC - Intermediate Bulk Container

IMDG - International Maritime Dangerous Goods

NIOSH - National Institute for Occupational Safety and Health

NTP - National Toxicology Program

OSHA - US Occupational Health and Safety Administration

SARA - US EPA Superfund Amendments and Reauthorization Act

TSCA - US EPA Toxic Substances Control Act

UN - United Nations

References

HSDB® - Hazardous Substances Data Bank

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