

Safety Data Sheet (SDS) Hydrofluorosilicic Acid

SECTION 1 – Chemical Identification and Supplier's Information

Product ID: HFS
Use: Industrial Use
Chemical Formula: H₂SiF₆
Chemical Family: N/A
CAS #: 16961-83-4

Supplier's Name & Address:

Pencco, Inc.
P.O. Box 600
San Felipe, TX 77473

Emergency Phone:

Pencco (979) 885-0005
CHEMTREC (800) 424-9300 – 24 hours a day

SECTION 2 – Hazards Identification

GHS Information

Signal Word: **Danger**
Hazard Class: No Physical Hazards
Hazard Category: N/A
Hazard Statement: Harmful if Swallowed (H302)
Causes severe skin burns and eye damage (H314)
Causes serious eye damage (H318)
Harmful if Inhaled (H332)
Harmful to aquatic life (H402)

Appearance and Odor: Fuming colorless liquid with pungent odor.

Emergency Overview: A corrosive chemical. Harmful if swallowed. Harmful if inhaled. Causes severe skin burns and eye damage. Contact with liquid or vapor form of this chemical may cause severe injury. Avoid overexposure.

Pictograms:



Health Hazards

Acute Toxicity, Oral – Category 4. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.

Acute Toxicity, Dermal – Category 3. Prolonged contact may cause irritation and, possibly, burns.

Eye Contact – Irritation and, possibly, burns.

Inhalation – Category 4. May cause irritation of the upper respiratory tract, resulting in difficulty breathing.

Precautionary Statements

Prevention

- Do not breathe fumes, mist, vapors, or sprays. (P260)
- Wash skin thoroughly after handling. (P264)
- Do not eat, drink, or smoke when using this product. (P270)
- Use only outdoors or in a well-ventilated area. (P271)
- Avoid release to the environment. (P273)
- Wear eye protection, face protection, protective gloves, protective clothing. (P280)

Response

- If swallowed: Rinse mouth. (P301+P330)
 - Call a POISON CENTER/doctor/physician. (P312)
- Wash contaminated clothing before reuse. (P363)

Storage Considerations

- Store locked up. (P405)

Disposal Considerations

- Dispose of this material and its container to hazardous or special waste collection point in accordance with local, regional, national, and/or international regulation. (P501)

Carcinogenicity: None of the components of this material are listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Fire and Explosion Hazards: This product will not burn and is not flammable.

	NFPA Rating	HMIS Rating	4 = Extreme / Severe
Health	3	3	3 = High / Serious
Reactivity	0	0	2 = Moderate
Flammability	0	0	1 = Slight

SECTION 3 – Composition/Information on Ingredients

Chemical Identity: Hydrofluorosilicic Acid

Common Name and synonyms: HFSA, Fluorosilicic acid, Hexafluorosilicic acid, hydrosilicofluoric acid

Ingredient	CAS #	Weight Percentage
Hydrofluorosilicic Acid	16961-83-4	25%
Water/Inactive Ingredients	7732-18-5	75%

*All components are NSF compliant

SECTION 4 – First Aid Measures

Eye Contact First Aid: Immediately flush eyes for 15 minutes with large amounts of water while holding eyelids apart. Washing within one minute is essential to achieve maximum effectiveness. Obtain medical attention IMMEDIATELY after flushing.

Skin Contact First Aid: Flush skin with water for at least 15 minutes. Remove contaminated clothing; wash before reuse. If irritation is still present, seek medical attention IMMEDIATELY.

Inhalation First Aid: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention IMMEDIATELY.

Ingestion First Aid: DO NOT INDUCE VOMITING. Give 1 or 2 glasses of water or milk. Never give anything by mouth to an unconscious individual. **Obtain medical attention IMMEDIATELY.**

SECTION 5 – Fire Fighting Measures

Flash Point: Not applicable.

Upper/Lower Explosion Limits in Air: Not applicable.

Auto Ignition Temperature: Not applicable.

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.

Fire and Explosion Hazards: Not flammable. Under conditions of fire this material may produce: silicon oxides; hydrogen fluoride; tetrafluorosilane. Decomposes above 108 °C (227 °F)

Fire Fighting Instructions: 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 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 fire fighting to enter drains or water courses.

Hazardous Product of Decomposition or Combustion: Unknown.

SECTION 6 – Accidental Release Measures

Review safety precautions before proceeding with cleanup. Use appropriate personal protection equipment. Do not touch spilled material. Neutralize spill with limestone (calcium carbonate), or sodium bicarbonate. Restrict access to area until completion of clean up.

Caution: Ventilation should be provided in enclosed areas. Dike area around spill to prevent spreading, and use absorbent material to pick up spill.

Steps to Be Taken in Case Material Is Released or Spilled: Notify the appropriate environmental authorities. Note that spills may need to be reported to the National Response Center ((800) 424-8802)

SECTION 7 – Handling and Storage

Handling: Avoid all eyes and skin contact, and do not create or breathe vapor and mist. Wear recommended personal protective equipment. Ensure there is adequate ventilation. Keep away from heat and open flame. Employ good maintenance practices to prevent leaks. Use good process control measures to prevent releases.

Storage: 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.

SECTION 8 – Exposure Controls and Personal Protection

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits. Use respirator approved for acid fumes and mist.

Eye Protection: Use chemical safety goggles and face shield. Do not wear contact lenses.

Skin Protection: Where there is possibility of skin contact, use the following as appropriate, to avoid skin contact: gloves impervious to material, apron, boots, hood, pants, and jacket. Maintain a safety shower with quick opening valves. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

SECTION 9 – Physical and Chemical Properties

Boiling Point:	136 - 163°C (277 - 326°F)	pH:	1.5 - 2.0
Melting Point:	-18 - -20 °C (-1 - 4 °F)	Solubility in Water:	Complete
Specific Gravity:	1.2 at 24°C	Vapor Pressure:	24 mm Hg at 25°C
% Volatile:	Unknown	Evaporation Rate:	N/A
Vapor Density (Air = 1):	N/A	Molecular Weight:	144 g/mol
Appearance:	Water white to straw yellow	Odor:	Pungent

SECTION 10 – Stability and Reactivity

Reactivity: Reacts with metals to form flammable hydrogen gas.

Stability: Stable at normal conditions.

Decomposition: Thermal decomposition yields hydrogen silica tetrafluoride and hydrogen fluoride gas.

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

SECTION 11 – Toxicological Information

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



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Toxicological Data: LD50 oral rat = 125 mg/kg.

Carcinogenicity: None of the components of this material are listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Effects: No reproductive effects are known.

Target Organs: No data available.

SECTION 12 – Ecological Information

Ecotoxicological Information: Acute toxicity to aquatic invertebrates: LD50 = 140 mg/kg.

SECTION 13 – Disposal Considerations

This material is hazardous to the aquatic environment. Keep out of sewers and waterways. Place in an appropriate container. Dispose of contaminated material at a licensed site. Dispose of waste in accordance with applicable federal, state, and local laws.

SECTION 14 – Transportation Information

DOT Shipping Name: Fluorosilicic acid

Hazard Class: 8 – Corrosive Material

UN Number: UN 1778

Packing Group: II

Reportable Quantity: 10000 lbs (4540 kg)

SECTION 15 – Regulatory Information

OSHA: Hazardous Corrosive Liquid – 29 CFR 1920.1200

OSHA Process Safety (29 CFR 1910.119): No

CERCLA: Hazardous Substance – Reportable Quantity (RQ) = 10,000 lbs (4540 kg)

SARA Regulations: 313 and 40 CFR 372: No

SARA Hazard Categories, SARA Sections 311/312 (40 CFR 370.21):

Acute: Yes; Chronic: Yes; Fire: No; Reactive: No; Sudden Release: No

Clean Water Act: 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.



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TSCA Inventory Status: Yes

California Proposition 65: No

Right-To-Know Lists: Massachusetts, New Jersey. This substance does not contain nor is manufactured with ozone-depleting substances.

Canadian Regulations: CPR: Very toxic, Class D; Corrosive, Class E; DSL: Listed

SECTION 16 – Other Information

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