Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product identifier: **Hydrofluorosilicic Acid**
Synonyms: HFS Acid, Fluorosilicic Acid, Hexafluorosilicic Acid, Fluosilicic Acid
Intended use: Water treatment, chemical intermediate
Uses Advised Against: None known.

Company Identification
DPC Industries, Inc.
DPC Enterprises, LP
DXI Industries, Inc.
DX Terminals
PO Box 24600
Houston , TX 77229-4600

Emergency
CHEMTREC (USA) (800) 424-9300
24 hour Emergency Telephone No. (281) 457-4888
www.dxgroup.com

2. Hazard identification of the product

Physical hazards	Corrosive to metals.	Category 1
Health hazards	Harmful if swallowed. Skin corrosion/irritation. Causes severe skin burns and eye damage. Causes serious eye damage.	Category 4 Category 1 Category 1B Category 1
Environmental hazards	Harmful to the aquatic life.	Category 3

Label elements
Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

Signal Word	**Danger**
Hazard Statements	Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. Harmful to aquatic life.
Precautionary Statements	
Prevention	Do not breathe mist / vapors / spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves / eye protection / face protection.
Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor / physician. IF ON SKIN: Remove / Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor / physician if you feel unwell. IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. Immediately call a POISON CENTER or doctor / physician.
Storage	Store locked up. Keep container tightly closed when not in use.
Disposal	Dispose of contents / container in accordance with local / national regulations.

3. Composition/information on ingredients

Substance classified with a health or environmental hazard
Synonyms: HFS Acid, Fluorosilicic Acid, Hexafluorosilicic Acid, Fluosilicic Acid

Ingredient	CAS Number:	Weight %	
Hydrofluorosilicic Acid	16961-83-4	20 - 25	Substance classified with a health or environmental hazard
Hydrogen Fluoride	7664-39-3	< 1	

4. First Aid Measures

General	Move victim to fresh air. Call 911 or emergency medical service. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Remove and isolate contaminated clothing and shoes. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. For minor skin contact, avoid spreading material on unaffected skin. Keep victim warm and quiet. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Inhalation	Move to fresh air. Call emergency medical care immediately. If not breathing, give artificial respiration. Administer oxygen if breathing is difficult.
Eyes	Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart. Remove contact lenses if present and easy to do - continue rinsing. Seek immediate medical attention.
Skin	Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.
Ingestion	If accidentally swallowed, obtain IMMEDIATE MEDICAL ATTENTION. Keep at rest. Do NOT induce vomiting.
Most important symptoms and effects, both acute and delayed	
Overview	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. Treat symptomatically. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
Indication of immediate medical attention and special treatment needed	Treat symptomatically. Material is corrosive. Can cause corneal burns. Can cause pulmonary edema. Effects may be delayed.

5. Fire-fighting measures

Recommended Extinguishing media	Alcohol resistant foam, CO2, powder, water spray.
Unsuitable extinguishing media	Do not use water jet.
Special hazards arising from the substance or mixture	When heated, emits highly toxic and corrosive fumes of hydrogen compounds and hydrogen gas. Do not breathe mist / vapors / spray.
Advice for fire-fighters	Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Containers may explode when heated. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. **ERG Guide No. 154**

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Evacuate area personnel. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Absorb with inert material or cover with dry earth, sand or other non-combustible material and transfer to containers. DO NOT GET WATER INSIDE CONTAINERS.
Environmental precautions	Dike far ahead of liquid spill for later disposal. Do not allow spills to enter drains or watercourses. After cleaning, flush away traces with water.
Methods and material for containment and cleaning up	CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed in Section 1. As an immediate precautionary measure, isolate spill or leak area in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate enclosed areas.

7. Handling and storage

Precautions for safe handling	Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.
Conditions for safe storage, including any incompatibilities	Handle containers carefully to prevent damage and spillage. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

8. Exposure controls and personal protection

Exposure Control parameters

CAS No.	Material	Source	Value
16961-83-4	Fluorosilicic Acid	OSHA	No Established Limit
		ACGIH	2.5 mg/m3 as F
		NIOSH	No Established Limit

Individual protection measures, such as personal protective equipment

Respiratory	Use NIOSH/MSHA approved respirator, following manufacturer's recommendations when concentrations exceed permissible exposure limits.
Eyes	Wear safety goggles or safety glasses with side shields to protect the eyes. An eye wash station is suggested as a good workplace practice.
Skin	Chemical resistant clothing such as coveralls/apron boots should be worn. Chemical impervious gloves. Emergency eyewash station should be in close proximity.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

9. Physical and chemical properties

Appearance:	Water-White to Straw Yellow Liquid
Odor:	Pungent
Odor threshold:	Not Measured
pH:	1
Melting point / freezing point:	Not Established
Initial boiling point and boiling range:	222 °F
Flash Point:	Not Applicable
Evaporation rate (Ether = 1):	Not Established
Flammability (solid, gas):	Not Applicable
Upper/lower flammability or explosive limits:	**Lower Explosive Limit:** Not Applicable **Upper Explosive Limit:** Not Applicable
Vapor pressure (mmHg):	24 (@ 77 °F)
Vapor Density:	> 1

9. Physical and chemical properties (Cont.)

Specific Gravity:	1.25
Solubility in Water:	Complete
Partition coefficient n-octanol/water (Log Kow):	Not Measured
Auto-ignition temperature (°C):	Not Measured
Decomposition temperature:	Not Measured
Viscosity (cSt):	Not Measured
VOC %:	Not Measured
Other information:	No other relevant information.

10. Stability and reactivity

Reactivity	Hazardous polymerization will not occur.
Chemical stability	Stable under normal circumstances.
Possibility of hazardous reactions	None expected under normal processing.
Conditions to avoid	Excessive heat and open flame.
Incompatible materials	Strong acids and bases, oxidizing agents, metal, glass, and stoneware.
Hazardous decomposition products	When heated, emits highly toxic and corrosive fumes of hydrogen compounds and hydrogen gas.

11. Toxicological information

Acute toxicity

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L	Inhalation Gas LC50, ppm
Hydrofluorosilicic acid (16961-83-4)	125.00, Rat	140.00, Frog	210.00, Rat	No data available	No data available

Item	Hazard
Eye contact:	Causes serious eye damage.
Skin contact:	Causes severe skin burns and eye damage.
Inhalation:	May cause irritation.
Ingestion:	Toxic if swallowed.
Signs and symptoms of exposure:	Sore throat, nose bleed, redness, swelling of tissue, abdominal pain, diarrhea, cough, severe shortness of breath.
Information on toxicological effects	
Acute toxicity:	May be harmful if swallowed.
Carcinogenicity:	Not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.
Reproductive Toxicity:	No data available.
Specific target organ systemic toxicity (single exposure):	Corrosive.
Specific target organ systemic Toxicity (repeated exposure):	Can cause bone fluorosis. May entail dental or skeletal fluorosis. Liver and kidney injuries may occur.
Aspiration hazard:	Not Applicable

12. Ecological information

Toxicity Toxic to aquatic life with long lasting effects.

Aquatic Ecotoxicity

Ingredient	LC50/96hr fish, mg/l	EC50/48hr crustacea, mg/l	EC50/96hr algae, mg/l
Hydrofluorosilicic acid (16961-83-4)	28.70 Pimephales promelas	97.00 Daphnia magna	43.00 Scenedesmus acutus

Persistence and degradability:	There is no data available on the preparation itself.
Bioaccumulative potential:	Not Measured.
Mobility in soil:	No data available.
Results of PBT and vPvB assessment:	This product contains no PBT/vPvB chemicals.
Other adverse effects:	No other effects are expected.

13. Disposal considerations

Waste treatment methods:	Do not allow into drains or water courses. Wastes and emptied containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act. Using information provided in this data sheet, advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.
Waste from material:	The waste determination should be made in discussion between the user and the waste disposal company**.**
Container Management:	Empty containers or liners may retain some product residues.

14. Transport information

UN number:	UN1778
UN proper shipping name:	Fluorosilicic acid
Transport hazard class(es)	
DOT (Domestic Surface Transportation)	
DOT Proper Shipping Name:	Fluorosilicic acid
DOT Hazard Class **DOT Label:**	8 8
UN / NA Number:	UN1778
DOT Packing Group:	II
CERCLA/DOT RQ:	Not Applicable
Environmental hazards:	IMDG Marine Pollutant: No
Special precautions for user:	Not Applicable

15. Regulatory information

Regulatory Overview:	The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented. All ingredients of this product are listed on the TSCA (Toxic Substance Control Act) Inventory.			
WHMIS Classification:	D2B E			
OSHA REGULATORY STATUS:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)			
US EPA Tier II Hazards:	**Fire:**	No	**Immediate (Acute):**	Yes
	Sudden Release of Pressure:	No	**Delayed (Chronic):**	No
	Reactive:	No		
SARA 302 Extremely Hazardous Substance / RQs (lbs) :		No		
SARA 311/312 Chemicals and RQs (lbs) (>0.1%) :		No		
SARA 313 (TRI)		No		
OSHA PSM (29 cfr 1910.119):		No		
TSCA:		Fluorosilicic Acid		

State Regulations:	**N.J. RTK Substances (>1%)**	Listed	**Penn RTK Substances (>1%)**	No	**California Prop 65**	Not Listed

16. Other information

NSF Maximum Use Level (STD 60): Check BOL for facility Data. (6 mg/L)

Revision Information: This is the first revision of this SDS format, changes from previous revision not applicable.

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THE USER IS CAUTIONED TO PERFORM HIS OWN HAZARD EVALUATION AND TO RELY ON HIS OWN DETERMINATIONS.