CERTIFIED TO NSF / ANSI 60

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Trade Name:	Hydrofluosilicic Acid
Chemical Name:	Silicate(2-), hexafluoro-,dihydrogen
CAS Number:	16961-83-4
Chemical Family:	Inorganic Fluorides
Synonyms:	Fluorosilicic Acid, Fluosilicic Acid, Hexafluosilicic Acid, HFS, FSA
Primary Use:	Industrial Chemical, Water treatment
Company Information:	THE MOSAIC COMPANY 3033 Campus Drive Plymouth, MN 55441 www.mosaicco.com (800) 918-8270 or (763) 577-2700 8 AM to 5 PM Central Time US
Emergency Phone:	24 Hour Emergency Telephone Number: **For Chemical Emergencies:** Spill, Leak, Fire or Accident Call CHEMTREC North America: (800) 424-9300 CCN 201871 Others: (703) 527-3887 (collect)

SECTION 2 HAZARD IDENTIFICATION

GHS Classification

Acute Tox Category 4 (Oral)	Hazard Statement H302
Skin Corrosion/Irritation: Category 1B	Hazard Statement H314
Serious Eye Damage/Eye Irritation: Category 1	Hazard Statement H318

Signal Word: DANGER

Hazard Statement(s)

H302 Harmful if swallowed
H314 Causes severe skin burns and eye damage
H318 Causes serious eye damage

Label Elements: Precautionary Statements

Prevention:

P260 Do not breath fumes/gas/mist/vapors/spray
P264 Wash skin thoroughly after handling
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing / Wear eye protection/face protection
P284 In case of inadequate ventilation/ wear respiratory protection

Response:	P301+ P312	IF SWALLOWED: Call a Poison Center/Doctor if you feel unwell.
	P301+P330+P331	IF SWALLOWED: Rinse mouth, Do NOT induce vomiting.
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes; Remove contact lenses, if present and easy to do. Continue rinsing.
	P303+P361+P353	IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water.
	P304+P340	IFINHALED: Remove person to fresh air and keep comfortable for breathing
	P310	Immediately call a doctor
	P363	Wash contaminated clothing before reuse.
	P390	Absorb Spillage to prevent material damage.
Storage:	P405	Store locked up
Disposal:	P501	Disposal of content/containers to be in accordance with local/regional/national regulations.

SECTION 3 COMPOSITION INFORMATION ON INGREDIENTS

Formula: H_2SiF_6

	Hazardous Component	CAS Number	Percentage
Composition:	Hydrofluosilicic Acid	16961-83-4	23-25%

SECTION 4 FIRST AID MEASURES

First Aid Procedures:

Eyes: Immediately flush with plenty of water for at least 15 minutes. Get medical attention immediately.

Skin: If on skin, promptly wash the contaminated area with soap and plenty of water. Immediately flush with plenty of water. Discard clothes if contaminated. Get medical attention if irritation occurs

Inhalation: Move to fresh air. Administer oxygen. Treat symptomatically. Get medical attention promptly. Observe for possible delayed reaction.

Ingestion: Do Not induce vomiting. Give large quantities of milk or water to patient if conscious. Seek medical attention promptly.

Most important symptoms and effects, both acute and delayed: Refer to Section 11 – Toxicological Information

Note to Physician: None

SECTION 5 FIRE FIGHTING MEASURES

Extinguishing Media: Suitable extinguishing media:

Small fires: Use water spray, dry chemical or carbon dioxide (CO_2).

Large fires: Use water spray, foam, dry chemical or carbon dioxide (CO_2).

Move containers from fire area if you can do it without risk. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out.

Unsuitable extinguishing media: None known

Unusual Fire and Explosion Hazards	Flash Point:	Not Applicable
	Flammable Properties	OSHA Flammability Class: Not applicable
		LEL/UEL: Not Applicable
	Auto-Ignition Temperature: Not Applicable.	
Protection of Fire-fighters	Wear self-contained breathing apparatus with full protective clothing. Fluorosilicic Acid is a non-combustible; substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.	

SECTION 6 ACCIDENTAL RELEASE MEASURES

Advice for non-emergency personnel:	Prevent further leakage or spillage if safe to do so. Keep away from incompatible materials.
Advice for emergency responders:	Wear suitable protective clothing, gloves and eye/face protection. Use recommended respiratory protection. Stop leak if you can do it without risk. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Ventilate area.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not let product get into drains; do not flush into surface water or sanitary sewer system.
Response Techniques:	Pick up mechanically. Use neutralizing agent. Absorb with liquid-binding material (dry earth, sand, vermiculite, acid binders). Ensure adequate ventilation. Dispose spilled/contaminated material as described in Section 13 "Disposal Considerations".

SECTION 7 HANDLING AND STORAGE

Handling:	Use only in well-ventilated areas. Use only equipment and materials which are compatible with the product. Preferably transfer by pump or gravity. Keep away from incompatible products. For precautions see Section 2.
Storage:	Do not use packing made of metal. Store only in the original container. Do not store together with strong bases or very alkaline substances. Do not store together with substances which can be oxidized. Do not store together with flammable substances/solutions. Do not store near sources of heat or ignition, or reactive materials. Must be stored in a room with spill collection facilities. Keep containers tightly closed in a cool, well-ventilated place and away from heat. Keep in a contained area. Keep away from Incompatible products.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:	Assure that ventilation is adequate to control airborne levels.	
Personal Protective Equipment (PPE):	Eye/Face:	Splash proof goggles and full-face shield should be worn at all times.
	Skin:	Acid proof gloves, headgear, protective shoes and clothing should be worn to prevent contact.
	Respiratory:	Wear NIOSH approved respiratory protective equipment when vapor or mists may exceed applicable concentration limits.
	Other:	Facilities utilizing or storing this material should be equipped with an eyewash station and a safety shower.
General Hygiene Considerations:	Avoid breathing fumes. Avoid ingestion. Wash thoroughly after handling. Avoid contact with eyes or skin Use with adequate ventilation	

Exposure Guidelines:	OSHA Permissible Exposure Limits (PEL):	2.5 mg/m^3 as Fluoride
	ACGIH Threshold Limit Value (TLV):	2.5 mg/m^3 as Fluoride

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values in this section are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Material Description

Appearance/Description:	Colorless to amber liquid with a pungent odor
Color:	Colorless to amber
Physical State:	Liquid
Odor:	Pungent
Odor Threshold:	Not data available.

General Properties

Boiling Point:	105°C (221°F) @ 23%-25%
Freezing/Melting Point:	-18° to -20°C (-1° to -4°F)
Thermal Decomposition:	>105°C (>221°F) @ 23%-25%
pH (1 % Solution):	1.2
Specific Gravity:	1.2. Water = 1
Bulk Density:	10.2 lb./gallon
Solubility in water:	100% soluble in water
Viscosity:	6.5 cps
Molecular Weight of Pure Material:	144.11 g/mol

Volatility

Volatility:	No data available.
Vapor Pressure (mm Hg):	22.5 @ 25°C (77°F)
Vapor Density (air = 1):	No data available.
Evaporation Rate:	No data available.

Flammability

Flash Point:	Not applicable.
Flammability/Explosive Limits (%):	Not applicable.
Auto-ignition Temperature:	Not applicable.

Environmental

Octanol/Water Partition Coefficient	No data available.

SECTION 10 STABILITY AND REACTIVITY

Reactivity	No data available
Chemical Stability:	Stable under recommended conditions of storage, handling and proper use.
Possibility of Hazardous Reactions	Corrosive in contact with metals, It may give off hydrogen gas by reaction with metals.
Conditions to Avoid:	Avoid thermal decomposition, do not overheat.
Incompatible Materials:	Bases, acids, strong oxidizing agents, metals, stoneware and glass.
Hazardous Decomposition Products:	Extreme temperatures such as a fire cause formation of highly toxic and corrosive fumes of fluorides such as SiF_4 and HF.
Hazardous Polymerization:	Will not occur.
Corrosiveness:	Attacks silica bearing materials, metals, and stoneware

SECTION 11 TOXICOLOGICAL INFORMATION

GHS Properties	**Classification**	
Acute Toxicity:	Oral 4: ATEmx (oral) = 1,720 mg/Kg	Oral : LD_{50} (oral, rat) 430 mg/kg
	Inhalation: No data available.	
	Dermal: No data available	
Aspiration Hazard	No data available.	
Carcinogenicity:	No data available.	
Germ Cell Mutagenesis	No data available.	
Skin Corrosion Irritation	Causes severe skin burns and eye irritation. Acid with extreme pH ≤ 2.	
Serious eye damage/irritation	Causes serious eye damage. Acid with extreme pH ≤ 2.	
Skin sensitization	No data available.	
Specific Target Organ Toxicity - Single Exposure:	No data available.	
Specific Target Organ Toxicity - Repeated Exposure	No data available.	
Reproductive Toxicity	No data available.	
Respiratory Sensitization	No data available.	
Additional information:	The Registry of Toxic Effects of Chemical Substances (RTECS) VV8225000	

Potential Health Effects

Eye	Acute (immediate): Causes serious eye damage. Chronic (Delayed): Repeated or prolonged exposure to corrosive materials may cause conjunctivitis.
Skin	Acute (immediate): Causes severe skin burns and eye damage. Chronic (Delayed): Repeated or prolonged exposure to corrosive materials will cause dermatitis.
Inhalation	Acute (immediate): May cause corrosive burns Chronic (Delayed): Repeated or prolonged exposure to corrosive fume may cause bronchial irritation with chronic cough.
Ingestion	Acute (immediate): Harmful if swallowed. Chronic (Delayed): Repeated or prolonged exposure to corrosive materials or fumes may cause gastrointestinal disturbances.

SECTION 12 ECOLOGICAL INFORMATION

Toxicity	No data available.		
Persistence and degradability	Not relevant. (Inorganic substance).		
Bio accumulative potential	Log Pow: Not applicable	Log Kow: Not applicable	Bio accumulative potential low
Mobility in soil	No data available.		
Results of PBT and vPvB assessment	PBT /vPvB assessment not available as chemical safety assessment not required/not conducted.		
Other adverse effects	No data available.		

SECTION 13 DISPOSAL CONSIDERATIONS

Recover or recycle if possible. Keep material in a closed DOT- approved container pending disposal in accordance with all applicable regulations.

Disposal should be in accordance with applicable, regional, national, and local laws and regulations.

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste disposal and disposal methods in accordance with applicable regulations.

SECTION 14 TRANSPORT INFO

Regulatory Status:	USDOT	Canada TDG	IATA	IMO/IMDG
Proper Shipping Name:	Fluorosilicic Acid	Fluorosilicic Acid	Fluorosilicic Acid	Fluorosilicic Acid
Hazard Class:	Class 8 (Corrosive)	8	8	8
Packing Group	II	II	II	II
Identification Number:	UN 1778	UN 1778	UN 1778	UN 1778
Emergency Guide No.	154	154	8L	EMS-No: F-A, S-B
US DOT	Poison Inhalation Hazard: No	Marine Pollutant: No	Reportable Quantity: No	

CERTIFIED TO NSF / ANSI 60

SECTION 15 REGULATORY INFORMATION

CERCLA:	Not Regulated. Product is not listed with an RQ (Reportable Quantity)
RCRA 261.33:	Not Regulated
SARA TITLE III:	Section 302/304: Not Regulated Reportable Quantity: No TPQ: No
	Section 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No Reactivity: No
	Section 313: Not Regulated
TSCA:	Listed on TSCA Inventory
Canada	DSL: Yes NDSL: No
WHMIS 1988:	Fluorosilicic Acid is listed as Class E (Corrosive) and D1B (Toxic material). This SDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the SDS contains all of the information required by the CPR.
CA Proposition 65:	(Health & Safety Code Section 25249.5) Not listed

SECTION 16 OTHER INFORMATION

NFPA	Health: 3	Flammability: 0	Instability: 1	Special Hazard: None
HMIS	Health: 3	Flammability: 0	Physical Hazard: 0	PPE: Determined by user. See Section 8

Disclaimer: The information in this document is believed to be correct as of the date issued. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. This information and product are furnished on the condition that the person receiving them shall make their own determination as to suitability of the product for their particular purpose and on the condition that they assume the risk of their use thereof. The conditions and use of this product are beyond the control of Mosaic, and Mosaic disclaims any liability for loss or damage incurred in connection with the use or misuse of this substance.

Preparation:	The preparation of this SDS was in accordance with ANSI Z400.1-2010.
Revision Date:	July 13, 2015
Sections Revised:	All
SDS Number:	MOS 200011.01
References:	Globally Harmonized System of Classification and Labelling of Chemicals (GHS) – 4th Edition 2011 OSHA Hazard Communication Standard, 2012