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SAFETY DATA SHEET

SECTION 1	PRODUCT AND COMPANY IDENTIFICATION
Trade Name:	Hydrofluosilicic Acid
Chemical Name:	Hydrofluosilicic Acid
CAS Number:	16961-83-4
Chemical Family:	Inorganic Fluorides
Synonyms:	Fluorosilicic Acid, Hexafluosilicic Acid, HFS, FSA
Primary Use:	Industrial Chemical
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 Telephone:	EMERGENCY OVERVIEW 24 Hour Emergency Telephone Number: For Chemical Emergencies: Spill, Leak, Fire or Accident Call CHEMTREC North America: (800) 424-9300 (reference CCN201871) Others: (703) 527-3887 (collect)

SECTION 2	HAZARD IDENTIFICATION	
GHS Classification:	Acute Tox Category 4 (Oral) Skin Corrosion/Irritation: Category 1C Serious Eye Damage/Eye Irritation: Category 1	Hazard Statement H302 Hazard Statement H314 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:		
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	IF INHALED: Remove person to fresh air and keep comfortable for breathing
	P310	Immediately call a doctor



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	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 ₂ SiF ₆			
Composition:	Hydrofluosilicic Acid Water	CAS 16961-83-4 CAS 7789-20-0	20-25% 75-80%	Acute Tox Category 4 (Oral) Skin Corrosion/Irritation: Category 1C Serious Eye Damage/Eye Irritation: Category 1

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:	Immediately flush with plenty of water. Remove contaminated clothing. Discard contaminated clothing properly. Get medical attention if irritation occurs or persists.	
	Inhaled:	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.	
Note to Physician:	None		

SECTION 5	FIRE FIGHTING MEASURES	
Extinguishing Media:	Small fires: Water spray, foam, dry chemical or CO ₂ . Large fires: Water spray, fog or foam.	
Protection of Firefighters:	Wear self-contained breathing apparatus with full protective clothing. Fluorosilicic Acid is not flammable, however when heated to decomposition, highly toxic and corrosive fumes of fluorides are emitted. May generate flammable and explosive hydrogen gas in contact with some metals.	



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SECTION 6	ACCIDENTAL RELEASE MEASURES
Response Techniques:	<p>Small spills: Contain spill and stop leak if it can be done without risk. Use sodium carbonate or a mixture of soda ash and slaked lime, sand or noncombustible absorbent material to soak up material.</p> <p>Large spills: Use same procedure as above. Isolate spill area and deny entry. Prevent discharge into waterways and sewers. Material may be neutralized with sodium carbonate or a mixture of soda ash and slaked lime. Contact proper local, state, or federal regulatory agencies to ascertain proper disposal techniques and procedures.</p> <p>All waste to be collected in a DOT- approved PE drum for disposal.</p> <p>Do not breathe fumes, gases, mists</p>

SECTION 7	HANDLING AND STORAGE
Handling:	Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Maintain proper hygiene practices when handling this product.
Storage:	Store in tightly closed containers, in a well ventilated area. Keep away from heat, combustible materials, strong bases and metals. Large storage tanks should be bermed. Avoid using glass, metal or ceramic containers.

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:	A NIOSH approved air purifying respirator with a type acid gas filter may be used under conditions where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is potential for uncontrolled release, exposure levels are not known or any other circumstances where air purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed if workplace conditions warrant a respirator.
	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



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	ACGIH Threshold Limit Value (TLV):	1.64 mg/m ³ as Fluoride (Ceiling) 0.41 mg/m ³ TWA
*A biological threshold limit of 2 mg of Fluoride/l in urine collected at the end of the work shift is recommended to prevent development of fluorosis. An increase of 1 mg Fluoride/l in urine over an 8-hour shift reportedly corresponds to a time-weighted average exposure of 0.5 mg Fluoride/m ³ . Danger of cutaneous absorption.		

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).			
Appearance:	Water white to straw yellow liquid	Vapor Pressure (mm Hg):	Not applicable
Odor:	Pungent	Vapor Density (air=1):	Not applicable
Odor Threshold:	No data available	Specific Gravity or Relative Density:	1.2
Physical state:	Liquid	Bulk Density:	9.7 – 10.1 lbs./ft ³ . 25% Sol. @ 77°F
pH:	1.2	Solubility in Water:	100% Soluble in water
Melting Point/ Freezing Point:	Not applicable	Partition coefficient:	No data available
Boiling Point:	222 – 223 °F	Auto-Ignition Temperature:	Not applicable
Flash Point:	Not applicable	Decomposition Temperature:	No data available
Evaporation Rate:	No data available	Viscosity:	6.5 cps
Flammability:	No data available	Volatility:	Not applicable
Upper/lower Flammability or explosive limits	Not applicable		

SECTION 10		STABILITY AND REACTIVITY	
Chemical Stability:	Stable under recommended conditions of storage, handling and proper use.		
Conditions to Avoid:	Avoid all heat sources.		
Incompatible Materials:	Avoid contact with metals, stoneware, strong acids and alkalis, explosives, toxicants, readily oxidizable materials, alkali metals, combustible solids, and organic peroxides.		
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. Hydrogen gas may be formed at temperatures above 227°F.		
Corrosiveness:	Attacks silica bearing materials, metals, and stoneware		
Hazardous Polymerization:	Will not occur.		

SECTION 11		TOXICOLOGICAL INFORMATION	
Acute Toxicity Oral	Category 4: ATE _{mx} (oral) = 1,720 mg/Kg Oral : LD ₅₀ (oral, rat) 430 mg/kg		
Acute Toxicity Dermal	No data available		
Acute Toxicity Inhalation	No data available.		
Skin Corrosion Irritation	Causes severe skin burns and eye irritation. Acid with extreme pH ≤ 2.		



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Serious eye damage/irritation	Causes serious eye damage. Acid with extreme pH ≤ 2.
Respiratory or Skin sensitization	No data available.
Germ Cell Mutagenesis	No data available.
Carcinogenicity	No data available.
Reproductive Toxicity	No data available.
Specific Target Organ Toxicity – Single Exposure	No data available.
Specific Target Organ Toxicity – Repeated Exposure	No data available.
Aspiration Hazard	No data available.
Additional information	The Registry of Toxic Effects of Chemical Substances (RTECS) VV8225000

SECTION 12	ECOLOGICAL INFORMATION
Ecotoxicology	No data available

SECTION 13	DISPOSAL CONSIDERATIONS
	It is the responsibility of the waste generator to properly characterize all waste materials for treatment and/or disposal according to applicable regulatory entities. Consult Federal, State, Provincial Local regulation regarding disposal of waste material that may incorporate some amount of this product. If the undiluted material is spilled to soil or water, it is recommended to characterize the waste material according to 40CFR 261.20-24 (USA). Keep material in labeled, covered DOT-approved container pending disposal.


SECTION 14	TRANSPORT INFORMATION
Regulatory Status:	Regulated by US DOT, Canada TDG, IATA, IMO/IMDG
Identification Number:	UN1778
Hazard Class:	Class 8 (Corrosive)
Proper Shipping Name	Fluorosilicic Acid
Packing Group	II
DOT Emergency Response Guide Number:	154
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not applicable
MARPOL Annex V:	Non-HME
IMO/IMDG:	UN1778 Fluorosilicic Acid



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SECTION 15	REGULATORY INFORMATION				
CERCLA:	Not Regulated. Product is not listed with an RQ (Reportable Quantity)				
RCRA 261.33:	Not Regulated				
SARA TITLE III: (Exemptions at 40 CFR, Part 370 may apply for agricultural use, or for quantities of less than 10,000 pounds on-site.)	Section 302/304: Not Regulated		RQ: No	TPQ: No	
	Section 311/312:				
	Acute: Yes	Chronic: Yes	Fire: No	Pressure: No	Reactivity: No
	Section 313: Not Regulated				
NTP, IARC, OSHA:	The ingredient(s) of this product is (are) not classified as carcinogenic by NTP, IARC, or OSHA				
Canada DSL and NDSL:	On Inventory				
TSCA:	TSCA 8 (b): On Inventory, TSCA 8 (d):				
CA Proposition 65: (Health & Safety Code Section 25249.5)	Not listed				
WHMIS:	Listed as Fluorosilicic Acid. Class E - Corrosive 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				
CBSA:	N/A				

SECTION 16	OTHER INFORMATION
Disclaimer:	The information in this document is believed to be correct as of the date issued. HOWEVER, MOSAIC MAKES NO GUARANTEE, REPRESENTATION, OR WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE 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 THE USE OF THIS PRODUCT. User is responsible for determining whether this product is fit for a particular purpose and suitable for user's method of use or application and assumes the risk of 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 product. Each user should review the recommended industrial hygiene and safe handling procedures in the specific context of the intended use and determine whether they are appropriate.
Preparation:	The preparation of this MSDS was in accordance with ANSI Z400.1-2010.
Revision Date:	April 24, 2019
Sect Revised:	11
SDS Number:	MOS 200011
References:	Globally Harmonized System of Classification and Labelling of Chemicals (GHS) – 4th Edition 2011 OSHA Hazard Communication Standard, 2012

Other Hazard Classifications:	NFPA HAZARD CLASS		HMIS HAZARD CLASS	
	Health:	3	Health:	3
	Flammability:	0	Flammability:	0
	Instability:	1	Physical Hazard:	0
	Special Hazard:	Corrosive	PPE:	Section 8
	WHMIS 2015 (HPR) HAZARD CLASS			
	Signal Word	DANGER		
	Symbol			
	Classification	Acute Tox Category 4 (Oral) Skin Corrosion/Irritation: Category 1C Serious Eye Damage/Eye Irritation: Category 1		
	Hazard Statements	H302 Harmful if swallowed H314 Causes severe skin burns and eye damage H318 Causes serious eye damage		