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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 Atria Corporate Center Suite E490 3033 Campus Drive Plymouth, MN 55441 www.mosaicco.com For non-emergency questions, phone numbers are 8 AM to 5 PM Central Time US 800-918-8270 or 763-577-2700	
EMERGENCY TELEPHONE:	**EMERGENCY OVERVIEW** **24 Hour Emergency Telephone Number:** **For Chemical Emergencies:** **Spill, Leak, Fire or Accident** **Call CHEMTREC (CCN 201871)** **North America: (800) 424-9300** **Others: (703) 527-3887 (collect)**	
SECTION 2	**HAZARD IDENTIFICATION**	
EMERGENCY OVERVIEW :	Health Hazards:	Corrosive to the skin, eyes and mucous membranes through direct contact, inhalation or ingestion. May cause severe irritation and burns, which may not be immediately apparent. Handle with extreme care.
	Physical Hazards:	Not applicable
	Physical Form:	Liquid
	Appearance:	Water white to straw yellow liquid
	Odor:	Pungent

	NFPA HAZARD CLASS		**HMIS HAZARD CLASS**		**WHMIS HAZARD CLASS**		
	Health:	3	Health:	3	Symbol		
	Flammability:	0	Flammability:	0			
	Instability:	1	Physical Hazard:	0	Classification	E	
	Special Hazard:	Corrosive	PPE:	Section 8	Sub Class		

POTENTIAL HEALTH EFFECTS:	**Eye:**	Corrosive. Contact may cause severe irritation, eye burns, and permanent eye damage.
	Skin:	Corrosive. Contact may cause severe irritation, skin burns, and permanent skin damage.
	Inhalation (Breathing)	Corrosive. Harmful if inhaled. May cause severe irritation and burns of the nose, throat, and respiratory tract.
	Ingestion (Swallowing)	Corrosive. Harmful or fatal if swallowed. May cause severe irritation and burns of the mouth, throat and digestive tract.
	Signs and Symptoms:	Effects of overexposure may include severe irritation and burns of the mouth, nose, throat, respiratory and digestive tract. Symptoms of overexposure may include ulceration of the nose and throat, coughing, salivation, headache, fatigue, dizziness, nausea, shock, and pulmonary edema (accumulation of fluid around the lungs). May lead to coma or death. Onset of symptoms may be delayed.
	Cancer:	The ingredient(s) of this product is (are) not classified as carcinogenic by NTP, IARC, or OSHA
	Target Organs:	No data available for this material (see Other Comments below).
	Developmental:	No data available for this material

	Other Comments:	Prolonged or repeated overexposure to fluoride compounds may cause fluorosis. Fluorosis is characterized by skeletal changes, consisting of osteosclerosis (hardening or abnormal density of bone) and osteomalacia (softening of bones) and by mottled discoloration of the enamel of teeth (if exposure occurs during enamel formation). Symptoms may include bone and joint pain and limited range of motion. Conditions aggravated by exposure may include skin and respiratory (asthma-like) disorders.
	Pre-Existing Medical Conditions:	Conditions aggravated by exposure may include skin and respiratory (asthma-like) disorders.
POTENTIAL ENVIRONMENTAL EFFECTS:	May be hazardous to the environment and aquatic organisms.	

SECTION 3	**COMPOSITION INFORMATION ON INGREDIENTS**		
FORMULA:	H_2SiF_6		
COMPOSITION:	Hydrofluosilicic Acid	CAS No. 16961-83-4	20-25%
	Water		75-80%

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**	
Flammable Properties:	Flash Point:	Not applicable
	OSHA Flammability Class:	Not applicable
	LEL/UEL:	Not applicable
	Auto-Ignition Temperature:	Not applicable

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.	
SECTION 6	**ACCIDENTAL RELEASE MEASURES**	
RESPONSE TECHNIQUES:	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. Place in DOT-approved poly container and dispose of properly. 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. All waste to be collected in a DOT-approved poly drum for disposal.	
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:	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
*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.		

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).	
Flash Point:	Not applicable
Flammability/ Explosive Limits (%) :	Not applicable
Auto-Ignition Temperature:	Not applicable
Appearance:	Water white to straw yellow liquid
Physical State:	Liquid
Odor:	Pungent
Molecular Weight of Pure Material:	144.11
pH:	1.2
Vapor Pressure (mm Hg):	Not applicable
Vapor Density (air=1):	Not applicable
Boiling Point:	222 – 223 °F
Freezing/Melting Point:	Not applicable
Solubility in Water:	100% Soluble in water
Specific Gravity:	1.2
Volatility:	Not applicable
Bulk Density:	9.7 – 10.1 lbs./ft^3, 25% Sol. @ 77°F

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 Oral Toxicity	LD50 = 200 mg/Kg (guinea pig)
Acute Inhalation Toxicity	LC50 850 – 1070 ppm / 1 hour (Rat)
Acute Dermal Toxicity	140 mg/kg LDLo (Frog)
Mutagenesis	No data available
Target Organ	No data available
Developmental Toxicity	No data available
Carcinogenicity	No data available
SECTION 12	**ECOLOGICAL INFORMATION**
Ecotoxicology	May be hazardous to the environment and aquatic organisms.
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. (Refer to Section 6 and 7)
SECTION 14	**TRANSPORTATION INFORMATION**
Regulatory Status	Regulated by US DOT, Canada TDG, IATA, IMO/IMDG

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Proper Shipping Name	Fluorosilicic Acid				
Hazard Class	Class 8 (Corrosive)				
Packing Group	II				
Identification Number	UN1778				
Guide Number	154				
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				
CA Proposition 65: (Health & Safety Code Section 25249.5)	Not listed				
WHMIS:	Listed as Fluorosilicic Acid. Class E - Corrosive Material. This MSDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the MSDS contains all of the information required by the CPR				
CBSA:	N/A				

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SECTION 16	OTHER INFORMATION
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 MSDS was in accordance with ANSI Z400.1-2010.
Revision Date:	January 3, 2014
Sections Revised:	2, 12
MSDS Number	MOS200011.02
References:	OSHA 29CFR1910.1000, NFPA 704, ACGIH TLV, NIOSH ICSC1233