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SECTION I	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:	MOSAIC 8813 U.S. Highway 41 South Riverview, Florida 33569 www.mosaicco.com 306-345-8400, 8 AM to 5 PM Central Time US.																					
EMERGENCY TELEPHONE:	CHEMTREC 1-800-424-9300																					
SECTION II	HAZARD IDENTIFICATION																					
EMERGENCY OVERVIEW :	Health Hazards:	Hydrofluosilicic acid is corrosive to the skin, eyes, and mucous membranes through direct contact, inhalation and ingestion. Large doses can cause nausea, vomiting, diarrhea, abdominal burning, and cramp-like pains. Circulatory, respiratory, nervous complaints, and skin rashes may occur. Liquid or vapor also causes severe irritation and burns, which may not be immediately apparent. It also causes severe irritation to the lungs, nose and throat. If swallowed, it can cause severe damage to throat and stomach. Handle with extreme caution.																				
	Physical Hazards:	Not applicable																				
	Physical Form:	Liquid																				
	Appearance:	Water white to straw yellow liquid																				
	Odor:	Pungent																				
	<table border="1"> <thead> <tr> <th colspan="2">NFPA HAZARD CLASS</th> <th colspan="2">HMIS HAZARD CLASS</th> </tr> </thead> <tbody> <tr> <td>Health:</td> <td>3</td> <td>Health:</td> <td>3</td> </tr> <tr> <td>Flammability:</td> <td>0</td> <td>Flammability:</td> <td>0</td> </tr> <tr> <td>Instability:</td> <td>1</td> <td>Physical Hazard:</td> <td>2</td> </tr> <tr> <td>Special Hazard:</td> <td>Corrosive</td> <td>PPE</td> <td>Section 8</td> </tr> </tbody> </table>		NFPA HAZARD CLASS		HMIS HAZARD CLASS		Health:	3	Health:	3	Flammability:	0	Flammability:	0	Instability:	1	Physical Hazard:	2	Special Hazard:	Corrosive	PPE	Section 8
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POTENTIAL HEALTH EFFECTS:	Eye:	Corrosive. Contact may cause severe irritation, eye burns, and permanent eye damage.																				
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	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:		
SECTION III	COMPOSITION INFORMATION ON INGREDIENTS	
FORMULA:	H ₂ SiF ₆	
COMPOSITION:	Hydrofluosilicic Acid	20-25%
	Fluoride	19%
	Water	75-80%
SECTION IV	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.



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	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 V	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. Dangerous when heated to decomposition, highly toxic and corrosive fumes of fluorides are emitted. Will react with water or steam to produce toxic and corrosive fumes. May generate flammable and explosive hydrogen gas in contact with some metals	
SECTION VI	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 VII	HANDLING AND STORAGE	
HANDLING:	Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Maintain proper hygiene practices when handling this product.	
STORAGE:	Use DOT-approved poly drum for storage. Keep away from combustible materials, strong bases and metals.	
SECTION VIII	EXPOSURE CONTROLS / PERSONAL PROTECTION	
ENGINEERING CONTROLS:	Assure that ventilation is adequate to control airborne levels.	
PERSONAL PROTECTIVE	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.



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EQUIPMENT (PPE):	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
<p>*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/m³.</p>		
SECTION IX	PHYSICAL AND CHEMICAL PROPERTIES	
<p>Note: Unless otherwise stated, values in this section are determined at 20°C (68°F) and 760 mm Hg (1 atm).</p>		
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 X	STABILITY AND REACTIVITY	
Chemical Stability:	Stable under recommended conditions of storage, handling and proper use.	
Conditions to Avoid:	Avoid all heat sources.	



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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 XI	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 XII	ECOLOGICAL INFORMATION
ECOTOXICOLOGY:	No data available
SECTION XIII	DISPOSAL CONSIDERATIONS
	Keep in covered DOT-approved poly drums pending disposal. Handle and dispose in full compliance with all applicable International, Federal, State and Local regulations.
SECTION XIV	TRANSPORT INFO
Regulatory Status	None established
Proper Shipping Name	Hydrofluosilicic Acid
Hazard Class	Class 8 (corrosive)
Packing Group	II
Identification Number	UN1778
Guide Number	154
SECTION XV	REGULATORY INFORMATION
CERCLA:	Not Regulated



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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: Not Regulated
	Section 304: Not Regulated
	Section 311/312: Acute and Chronic Section 313: Not Regulated
NTP, IARC, OSHA:	Recommended for Study. IARC group 3. Not regulated by OSHA (PSM).
Canada DSL and NDSL:	On Inventory
TSCA:	On Inventory
CA Proposition 65: (Health & Safety Code Section 25249.5)	Not listed
WHMIS:	Listed as Fluorosilicic Acid
CBSA:	N/A
SECTION XVI	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 the 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 Z400.1-2004.
Note to _____ (if applicable):	