

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION**Product Identifier****Product Name:** Fluorosilicic Acid**Synonyms:** Hydrofluorosilicic Acid, Hexafluorosilicic Acid, Hydrosilicofluoric Acid**Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:****Product Use:** Various commercial and industrial uses**Manufacturer:****UNIMIN CORPORATION**

258 Elm Street

New Canaan, CT 06840

Emergency Telephone Number

(203) 966-8880

Telephone Number for Information

(203) 966-8880

SDS Date of Preparation/Revision: April 2014**SECTION 2: HAZARDS IDENTIFICATION****GHS/ Hazcom 2012 Classification:**

Physical:	Health:	Environmental
Not Hazardous	Acute Toxicity Category 3 (Dermal) Acute Toxicity Category 4 (Oral, Inhalation) Skin Corrosion Category 1	Not Hazardous

GHS/Hazcom 2012 Label:

**DANGER!****Statements of Hazard**

Harmful if swallowed.

Toxic in contact with skin.

Harmful if inhaled

Causes severe skin burns and eye damage.

Response:

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with soap and water.

Wash contaminated clothing before reuse.

Immediately call a POISON CENTER or doctor.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Immediately call a POISON CENTER or doctor.

Call a POISON CENTER or doctor.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Immediately call a POISON CENTER or doctor.

Storage:

Store locked up.

Disposal:

Dispose of contents/containers in accordance with local regulation

Prevention:

Do not breathe mist, vapors, or spray.

Wash exposed skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves, protective clothing, eye protection, and face protection.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CAS#	Component	Percentage
7732-18-5	Water	74%
16961-83-4	Fluorosilicic Acid	10-30%
7647-01-0	Hydrochloric Acid	<3%
7664-39-3	Hydrofluoric Acid	<1%

SECTION 4: FIRST AID MEASURES

Gross Inhalation: Remove victim to fresh air. If breathing has stopped, perform artificial respiration. If breathing is difficult have qualified personnel administer oxygen. Get immediate medical attention. Lung effects may be delayed – medical observation is recommended.

Skin Contact: Immediately remove all contaminated clothing and shoes. Flush skin thoroughly with water for at least 15 minutes. Launder clothing before reuse. Discard contaminated items, such as shoes, that cannot be decontaminated. Get immediate medical attention. Skin effects may be delayed.

Eye Contact: Flush the eyes immediately with large amounts of running water, lifting the upper and lower lids occasionally for at least 15 minutes. Get immediate medical attention.

Ingestion: If the victim is conscious, rinse mouth with water and give one glass of water or milk to drink. Do not induce vomiting. Do not give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

Most Important Symptoms and Effects, Both Acute and Delayed: Corrosive. May cause burns to the eyes and skin. Skin burns may not be apparent or painful for several hours. Inhalation of vapors or mists may cause severe mucous membrane and respiratory irritation with possible lung damage. May be harmful or fatal if swallowed. Effects of overexposure may be delayed. Chronic exposure may cause fluorosis with effects on the teeth and bones.

Indication of immediate medical attention and Special Treatment Needed: If any contact occurs, get immediate medical attention.

SECTION 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media: This product will not burn but is compatible with all extinguishing media. Use any media that is appropriate for the surrounding fire.

Specific Hazards Arising from the Chemical:

Unusual Fire and Explosion Hazards: This product is a water solution and is not flammable. Thermal decomposition may yield flammable, corrosive and toxic gases. This product may react with metals to form flammable and explosive hydrogen gas.

Hazardous Combustion Products: Thermal decomposition yields hydrogen silica tetrafluoride and hydrogen fluoride gas.

Special Protective Equipment and Precautions for Fire-Fighters: Prevent contact with eyes, skin and clothing. Firefighters should wear self-contained breathing apparatus and full protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective equipment.

Environmental Precautions: Report spills and releases as required to appropriate authorities.

Methods and Material for Containment/Cleanup: Ventilate area. Contain spill and collect with absorbent material and place in appropriate container for disposal. Flush spill area with water.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: Avoid creating and breathing mists. Avoid breathing vapors. Prevent eye, skin and clothing contact. Wash thoroughly with soap and water after handling.

Use only with adequate ventilation. Maintain and use proper, clean protective equipment (See Section 8). Launder contaminated clothing before reuse. **WARN and TRAIN** employees in accordance with state and federal regulations.

WARN YOUR EMPLOYEES (AND YOUR CUSTOMERS AND USERS IN CASE OF RESALE) BY POSTING, AND OTHER MEANS, OF THE HAZARDS AND OSHA PRECAUTIONS AND ANY OTHER APPLICABLE REGULATORY PRECAUTIONS TO BE USED. PROVIDE TRAINING FOR YOUR EMPLOYEES ABOUT OSHA PRECAUTIONS.

Conditions for Safe Storage, Including any Incompatibilities: Store in a cool, dry, well-ventilated area. Keep away from metals. Reaction with metals will generate flammable hydrogen gas.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Definitions:

MSHA means Mine Safety and Health Administration.

NIOSH means National Institute for Occupational Safety and Health.

OSHA means Occupational Safety and Health Administration.

PEL means OSHA Permissible Exposure Limit.

REL means the NIOSH Recommended Exposure Limit.

TLV means American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value.

TWA means time-weighted average.

Fluorosilicic Acid: PEL – 2.5 mg/m³ TWA (as Fluorides)
 TLV- 2.5 mg/m³ TWA (as Fluorides)
 MSHA - 2.5 mg/m³ TWA (as Fluorides)

Hydrochloric Acid: PEL - 5 ppm Ceiling
 TLV- 2 ppm Ceiling
 MSHA - 5 ppm Ceiling

Hydrofluoric Acid: PEL – 3 ppm TWA
 TLV- 0.5 ppm TWA, 2 ppm Ceiling skin (as F)
 MSHA - 3 ppm TWA

Appropriate Engineering Controls: Use local exhaust as required to maintain exposures below applicable occupational exposure limits. See also ACGIH "Industrial Ventilation - A Manual for Recommended Practice" (current edition). Control of exposure must be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general or local exhaust ventilation and substitution of less toxic materials).

Personal Protective Equipment:

Respiratory Protection: When effective engineering controls are not feasible, or while they are being implemented, appropriate respiratory protection must be used. Use appropriate respiratory protection for respirable particulates based on

consideration of airborne workplace concentrations and duration of exposure arising from intended end use. Refer to the most recent government and local standards.

Gloves: Chemical resistant gloves recommended.

Eye Protection: Chemical safety goggles and/or face shield recommended.

Other Protective Equipment/Clothing: Chemical resistant clothing and boots as needed to prevent skin contact. A safety shower and eye wash should be available in the work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid	Appearance:	Water white to straw yellow
Viscosity:	Not applicable	Odor:	Pungent odor
pH:	Not applicable	Odor Threshold:	Not applicable
Boiling Point/Range:	105.56°C / 222°F	Vapor Density:	Not applicable
Melting point/freezing point:	-20°C / -4°F	Evaporation Rate:	Not applicable
Flammability (solid, gas):	Water solution, will not burn	Partition coefficient (n-octanol/water):	Not applicable
Decomposition Temperature:	Non-combustible	Vapor Pressure:	218 mmHg @ 75°
Flash Point:	Not applicable	Relative Density:	1.223
Lower Explosion Limit:	Not applicable	Solubilities:	Completely soluble in water
Upper Explosion Limit:	Not applicable	Autoignition Temperature:	Non-combustible

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Reacts with metals to form flammable hydrogen gas.

Chemical Stability: This product is stable at normal temperatures.

Possibility of Hazardous Reactions: Contact with metals may form flammable hydrogen gas.

Conditions to Avoid: None

Incompatible Materials: Metals, glass, stoneware, alkali, strong concentrated acids.

Hazardous Decomposition Products: Thermal decomposition yields hydrogen silica tetrafluoride and hydrogen fluoride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Potential Health Effects:

Inhalation: Inhalation of vapors or mists may cause severe irritation of the nose, throat and respiratory passages. High concentrations may cause lung damage (edema) with symptoms of chest pain and difficulty breathing. The effects may be delayed for several hours and are aggravated by physical exertion.

Skin Contact: May cause severe irritation and chemical burns. Burns may not be apparent for several hours.

Eye Contact: Contact may cause severe irritation or chemical burns with possible permanent damage.

Ingestion: Swallowing may cause irritation and burns to the mouth, throat and gastrointestinal tract with nausea, weakness and shock. Severe damage, which may be fatal, may occur.

Chronic Health Effects: Prolonged absorption of fluorides may result in fluorosis. Symptoms include changes in bone density (osteosclerosis), ossification of ligaments and mottling of the dental enamel.

Signs and Symptoms of Exposure: Overexposure to mists may cause mucous membrane and respiratory irritation, cough, sore throat, nasal congestion, sneezing and shortness of breath. Eye and skin contact may cause redness, burning, pain and swelling.

Acute Toxicity Values: Fluorosilicic Acid: LD50 oral rat 430 mg/kg
Hydrochloric Acid: LC50 Inhalation rat 3124 ppm/ 1 hour.
Hydrofluoric Acid: LC50 Inhalation rat 1276 ppm/1 hr

Skin Sensitization: Not a skin sensitizer in animals or humans.

Repeated Dose Toxicity: No specific data is available.

Carcinogenicity: None of the components of this product are listed as carcinogens or suspected carcinogens by IARC, NTP or OSHA.

Developmental / Reproductive Toxicity: No specific data is available.

Genetic Toxicity: No specific data is available.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity: Fluorosilicic Acid: Lepomis macrochirus 96hr LC50: 50 mg/L; Daphnia magna 48hr EC50: 270 mg/L
Hydrofluoric Acid: Oncorhynchus mykiss: 96hr LC50 51 mg/L; Daphnia magna 48hr EC50: 26-48 mg/L

Persistence and Degradability: This product is expected to be highly degradable.

Bioaccumulative Potential: Not expected to bioaccumulate.

Mobility in Soil: Not applicable.

Results of PBT and vPvB Assessment: None required.

Other Adverse Effects: None known

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Treatment Methods:

This product, as produced, is classified as a hazardous waste under US EPA RCRA regulations – characteristic corrosive (D002). Dispose in accordance with all applicable local, state/provincial and federal regulations. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

SECTION 14: TRANSPORT INFORMATION

U.S. DOT HAZARD CLASSIFICATION

Proper Shipping Name: Fluorosilicic Acid

Technical Name: N/A

UN Number: UN1778

Hazard Class/Packing Group: 8, 11
Labels Required: Corrosive
DOT Packaging Requirements: 173.202, 173.242
Exceptions: None

SECTION 15: REGULATORY INFORMATION

SARA 311/312: Hazard Categories for SARA Section 311/312 Reporting: Acute health

SARA 313 This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under the SARA Section 313 (40 CFR 372): Hydrochloric Acid <3%, Hydrofluoric Acid <1%

CERCLA Section 103 Reportable Quantity: Product: 10,000 lbs. (Hydrofluoric Acid 100 lbs.)

California Proposition 65: This product does not contain substances regulated under California Proposition 65.

Toxic Substances Control Act: All of the components of this product are listed on the EPA TSCA Inventory or exempt from premanufacture notification requirements.

EU Inventory: All of the components of this product are listed on the EINECS inventory or exempt from notification requirements.

EU REACH Status: This substance is exempt from REACH registration.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Canadian WHMIS Classification: Not a controlled product

This SDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the SDS contains all of the information required by the CPR.

Japan METI: All of the components of this product are existing chemical substances as defined in the Chemical Substance Control Law.

Australian Inventory of Chemical Substances: All of the components of this product are listed on the AICS inventory or exempt from notification requirements.

Australian National Occupational Health & Safety Commission Status: Hazardous according to the criteria of Australian National Occupational Health & Safety Commission – Corrosive C, Toxic T, R21/22 Harmful in contact with the skin and if swallowed. R23 Toxic by inhalation R35 Causes severe burns.

Korea: All of the components of this product are listed on the KECL inventory or exempt from notification requirements.

Philippines: All of the components of this product are listed on the PICCS inventory or exempt from notification requirements.

New Zealand: All of the components of this product are listed on the HSNO inventory or exempt from notification requirements.

China: All of the components of this product are listed on the IECSC inventory or exempt from notification requirements.

Taiwan: All of the components of this product are listed on the CSNN inventory or exempt from notification requirements.

16: OTHER INFORMATION

NFPA Hazard Rating: Health: 3 Fire: 0 Reactivity: 0

HMIS Hazard Rating: Health: 3 Fire: 0 Reactivity: 0

References:

Registry for Toxic Effects of Chemical Substances (RTECS), 2014
Patty's Industrial Hygiene and Toxicology
NTP Twelfth Report on Carcinogens, 2011
Hazardous Substances Data Bank (HSDB), 2014

SDS Date of Preparation/Revision: April 2014

Revision Summary: Conversion to US Hazcom 2012 format – GHS Classification added.

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