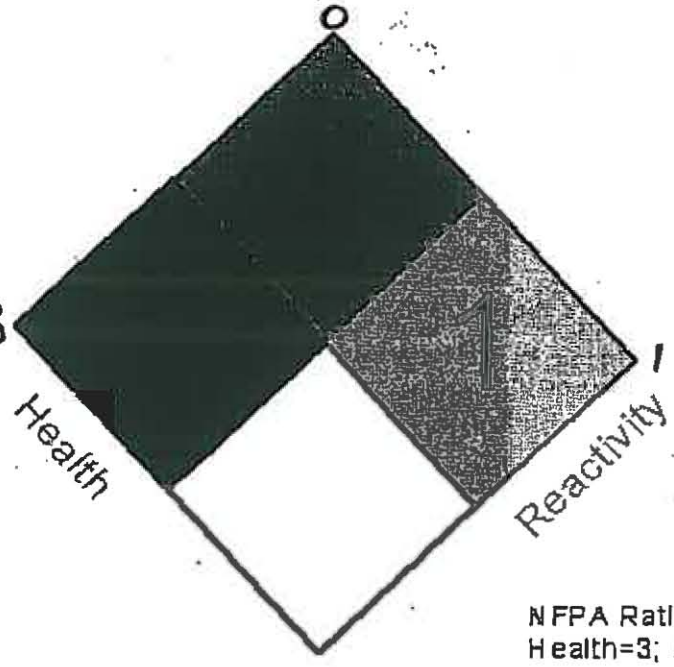
This Information is provided for your protection by:

LCI LTD
THE FLUORIDE SPECIALISTS

904-241-1200




For 24 Hour Emergency Assistance Call:

CHEMTREC

800-424-930C

NACD Responsible Distribution Process

NFPA Ratings (Scale 0-4)
Health=3; Fire=0; Reactivity=1

# MATERIAL SAFETY DATA SHEET

**This information is provided for your protection by:**

**LCI,Ltd.**
**P. O. Box 49000**
**Jacksonville Beach, FL 32240-9000**
**904-241-1200**

**24 Hour Emergency Assistance:**
**Chemtrec: 1-800-424-9300**

# Fluorosilicic Acid

# Section I

## PRODUCT NAME AND DESCRIPTION

**DOT Chemical Name:** Fluorosilicic Acid

**Synonyms:** Hydrofluosilicic Acid, Fluosilicic Acid, Hexafluosilicic Acid

**Chemical Family:** Inorganic Acid

**Formula:** $H_2SiF_6$

**CAS Number:** 16961-83-4

**NIOSH Number:** V V 8225000

**Note: N/A Indicates Not Applicable where shown.**

# Section II

## PERSONAL PROTECTION INFORMATION

**Respiratory Protection:** A NIOSH approved cartridge respirator with full-face shield. Chemical cartridge should provide protection against acid fumes (Hydrogen Fluoride). For concentrations greater than 20ppm, a NIOSH approved self-contained breathing apparatus with full-face shield should be used.

**Eye and Face Protection:** Use tight-fitting chemical splash goggles and a full-face shield, 8 inch minimum. Contact lenses should not be worn.

**Hand, Arm and Body Protection:** Prevent contact with skin by use of acid-proof clothing, gloves and shoes. Use a NIOSH approved acid proof suit and boots where liquid or high vapor concentration is possible.

**Other Protective Clothing and Equipment:** Eye wash and emergency shower facilities should be available in handling area.

**Engineering Controls:** General or local exhaust systems sufficient to maintain vapors below 2.5 $mg/m^3$ (as F).

# Section III

## HEALTH INFORMATION

**OSHA Permissible Exposure Limit (PEL):** 2.5$mg/m^3$(as F)

**ACGIH Threshold Limit Value (TLV):** 2.5mg/m$^3$(as F)

**Listing in the following:**
Department of Transportation Hazardous Material Regulations (49CFR)
Massachusetts Hazardous Substance List
toxic Substances Control Act Inventory of toxic Substances (TSCA)

**OSHA Health Hazard Classification:** Corrosive

**Primary Route(s) of Entry:** Eye and skin contact, inhalation

**Symptoms of Exposure:**

**Acute:** Liquid or vapors can cause severe irritation and burns which may not be apparent for hours. Can cause severe irritation to the lungs, nose and throat if swallowed, can cause severe damage to throat and stomach.

**Chronic:** Prolonged exposure could result in bone changes, corrosive effect on mucous membranes including ulceration of nose, throat and bronchial tubes, cough, shock, pulmonary edema, Fluorosis, coma and death.

Aggravated **Medical Condition:** Any skin condition and/or pre-existing respiratory disease including asthma and emphysema.

**Toxic Data:** $LD_{50}$200 mg/kg (Oral - Guinea Pig)

# Section IV

## EMERGENCY AND FIRST AID PROCEDURES

**Inhalation:** Remove exposed person to an uncontaminated area immediately. If breathing has stopped, start artificial respiration at once. Oxygen should be provided for an exposed person having difficulty breathing (but only by an authorized person) until exposed person is able to breathe easily by themselves. Exposed person should be examined by a physician.

**Eye Contact:** Flush eyes for at least 15 minutes with large amounts of water. Eyelids should be held apart during the flushing to insure contact of water with all accessible tissue of the eyes and lids. Medical attention should be given as soon as possible.

**Skin Contact:** Exposed person should be removed to an uncontaminated area and subjected immediately to a drenching shower of water for a minimum of 15 to 20 minutes. Remove all contaminated clothing while under shower. Medical attention should be given as soon as possible for all burns, regardless of how minor they seem.

**Ingestion:** If conscious, give the exposed person large quantities of water immediately to dilute the acid. Do NOT induce vomiting. Milk may be given for its soothing effect. A physician should be contacted immediately.

**Note to Physician:** Beware of late onset of pulmonary edema for up to 48 hours. Treat severe

burns similar to Hydrofluoric Acid exposure.

# Section V

**INGREDIENTS**

| Composition | Percentage |
|---|---|
| $H_2SiF_6$ | 25.0 +/- 2% |
| $H_2O$ | 75.0 +/- 2% |

# Section VI

**PHYSICAL DATA**

**Boiling Point:** 222°F.(105°C)
**Freezing Point:** 4°F(-15.5°C)
**Specific Gravity($H_2O$=1):** 1.234 @ 25%
**Vapor Pressure(mm Hg):** 24 @ 77° F
**Percent Volatile by Volume:** N/A
**Vapor Density (Air=1):** N/A
**Solubility in Water:** Complete
**Evaporation Rate:** N/A
**Physical State:** Fuming Liquid
**Molecular Weight:** 144.08
**Bulk Density:** 10.29 lbs/gal @ 25%
**pH (1% Solution):** 1.2
**Appearance and Odor:** Water white to straw yellow,burning liquid,with pungent odor

# Section VII

**REACTIVITY**

**Stability:** Stable.

**Hazardous Polymerization:** Will not occur.

**Conditions and Materials to Avoid:** Metal, glass, stoneware, alkali and strong concentrated acids.

**Hazardous Decomposition Products:** When heated to decomposition (222°F) it emits highly toxic and corrosive fumes of Hydrogen Fluoride, Silicon Tetra-fluoride and Hydrogen Gas.

# Section VIII

**FIRE AND EXPLOSION HAZARDS**

**Flash Point and Method Used:** N/A

**Flammable Limits - % Volume in Air: Lower** N/A **Upper** N/A

**Extinguishing Media:** Use agent which is appropriate for surrounding fire.

**Special Fire Fighting Procedures and Precautions:** Wear NIOSH approved self-contained acid suits.

**Auto Ignition Temperature:** N/A

**Unusual Fire and Explosion Hazards:** Reacts with many metals to produce flammable and explosive hydrogen gas. Keep container cool with water, using fog nozzles, as decomposition will occur above
222°F and produce toxic and corrosive fumes of fluoride.

# Section IX

**STORAGE AND SPECIAL PRECAUTIONS**

**Handling and Storing Precautions:** Store in containers in cool, dry, well ventilated area away from sources of heat or ignition. Do NOT store in glass or stoneware. Use non-sparking tools. Keep separate from alkali metals, oxidizing agent, combustible solids and organic peroxides.

**Ventilation:** Provide adequate general and/or local exhaust to maintain vapors below 2.5 $mg/m^3$ (as F).

**Other Precautions:** Do not inhale fumes and prevent skin contact. If pungent, irritating odor can be detected, workers are being over-exposed. Eye wash and safety shower should be available in all acid handling areas.

# Section X

**TRANSPORTATION REQUIREMENTS**

**DOT Proper Shipping Name:** Fluorosilicic Acid
**Packing Group:** II
**DOT Hazard Class:** 8 (Corrosive)
**Subsidiary Hazard Class:** N/A
**Identification Number:** UN 1778
**Placarding Requirement:** Corrosive
**EPA Hazardous Substance:** No
**Reportable Quantity:** N/A
**RCRA Status of Unused Material if Discarded:** Not Listed
**Waste Disposal Method:** Disposer must comply with federal, state and local disposal or discharge laws.
**Additional Comments:** For International transportation, Fluorosilicic Acid is regulated by the International Maritime Organization (IMO) and the International Air Transport Association (IATA) for vessel and air movement as a Class 8. Packaging, marking, labelling and shipping paper descriptions must precisely reflect the regulation for export movement.

# Section XI

## EMERGENCY ACTION - SPILL OR LEAK

**Emergency Action:** Keep unnecessary people away. Stay upwind, keep out of low areas. Isolate hazard area and deny entry. We recommend that the user establish a spill prevention, control and countermeasure plan. This plan should include procedures for proper storage as well as containment and clean-up of spills and leaks. The procedures should conform to safe practices and provide for proper recovery and disposal in accordance with federal, state and local regulation. Contact Chemtrec at 1-800-424-9300 for 24-hour emergency assistance.

**Small Spills:** Any personnel in area should wear a NIOSH approved air supplied acid suit. Dike area to contain material. Do not allow solution to enter sewers or surface water. Neutralize the spill with water and lime (hydrated lime). Take up with sand or non-combustible absorbent material and place in containers for later disposal. Provide ventilation and be wary of hydrogen generation upon reaction with some metals. Contact Chemtrec at 1-800-424-9300 for 24-hour emergency assistance.

**Large Spills:** Contact Chemtrec at 1-800-424-9300 for 24-hour emergency assistance. Any personnel in area should wear a NIOSH approved air supplied acid suit. Dike area ahead of spill to contain material. Do not allow solution to enter sewers or surface water. Neutralize the spill with water and lime (hydrated lime). Provide ventilation and be wary of hydrogen generation upon reaction with some metals. Notify the National Response Center, if required.