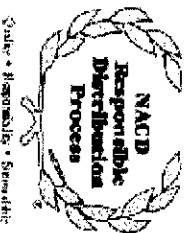


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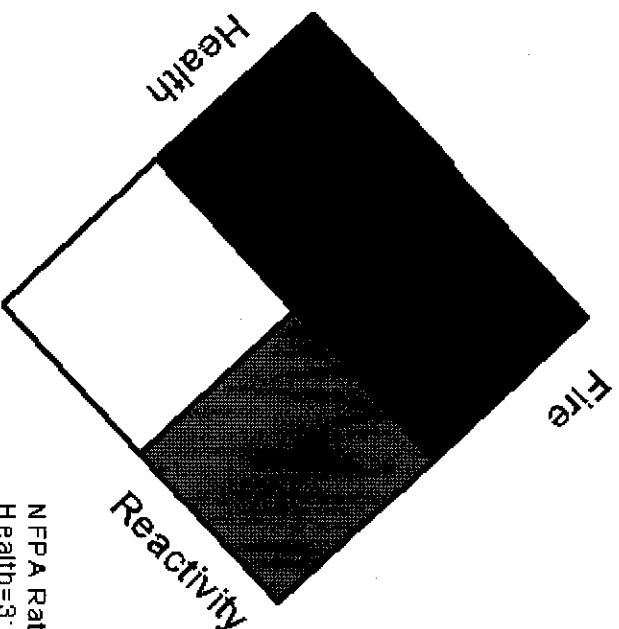
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MATERIAL SAFETY DATA SHEET

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LCl, Ltd.

P. O. Box 49000

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904-241-1200

24 Hour Emergency Assistance:

Chemtec: 1-800-424-9300

Fluorosilicic Acid

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Section I

PRODUCT NAME AND DESCRIPTION

DOT Chemical Name: Fluorosilicic Acid
Hydrofluosilicic Acid,
Fluosilicic Acid,
Hexafluosilicic Acid

Synonyms:

Chemical Family: Inorganic Acid

CAS Number: 16961-83-4

Formula: H₂SiF₆

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/m³ (as F).

Section III

HEALTH INFORMATION

OSHA Permissible Exposure Limit (PEL): 2.5mg/m³(as F)

ACGIH Threshold Limit Value (TLV): 2.5mg/m³(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: LD₅₀200 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 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 ₂ SIF ₆	25.0 +/- 2%
H ₂ O	75.0 +/- 2%

Section VI

PHYSICAL DATA

Boiling Point: 222°F (105°C)	Freezing Point: 4°F(-15.5°C)
Specific Gravity(H ₂ O=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: Furning 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/m³ (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.

DISCLAIMER

The information presented herein is based on data considered to be accurate and that reflects the requirements of the OSHA Hazard Communication Standards in effect as of the date of preparation of this Material Safety Data Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.