

MATERIAL SAFETY DATA SHEET



Chemifloc Ltd

FLUOROSILICIC ACID

SECTION 1 IDENTIFICATION	
Trade Marks and Synonyms (if any) Fluorosilicic Acid	Chemical Names and Synonyms Fluosilicic Acid. Silicate-hexafluoro-dihydrogen. Hydrofluosilicic Acid
Physical Form Colourless Liquid.	Molecular Formula H₂SiF₆
Responsible Person : Chemifloc Ltd, Smithstown Ind. Estate, Shannon, Co. Clare. +353 61-708699	Emergency Telephone : Chemifloc Ltd, +353 61-708699

SECTION 2 INFORMATION ON INGREDIENTS			
Ingredients	Concentration	Classification	CAS No.
H₂SiF₆	10.5 - 47.0%	Corrosive,8, PG II.	16961-83-4
H₂O	63.0 - 89.5%	NR	
HF	< 1.5%	Corrosive,8, PG II	7664-39-3

SECTION 3 HAZARDS IDENTIFICATION
Fluorosilicic Acid is an acute irritant to the skin, eyes and mucous membranes and lungs. The acid and its vapour are moderately toxic. Flouride poisoning effects may be delayed up to 24 hours, depending upon the flouride ion concentration
Occupational Exposure Limit (OEL) TLV (as F):ppm: 2.5mg/m³ (as TWA).

SECTION 4 PHYSICAL AND CHEMICAL PROPERTIES			
Appearance and Odour : Colourless liquid with pungent odour.			
pH	0	Conc:	<1.5% as HF
Boiling Point @ 100 kPa ³ 110°C	Melting Point - 11. 6°C	Flash Point (deg. C) Not Applicable	Specific Gravity 1. 085 - 1.495 @ 15°C
Autoignition (deg. C) None	Flammable Limit (% by Vol. in Air) None	Vapour Pressure 3kPa³	
Solubility in Water Totally Soluble	Solubility in Other Solvents N/A	Oxidising Properties N/A	

SECTION 5

STABILITY AND REACTIVITY

Stability:

Fluorosilicic Acid is stable in an aqueous solution.

Reactivity:

Incompatible with strong alkalis and strong concentrated acids. Reacts with oxidising agents, combustible solids and organic peroxides.

It forms hydrogen fluoride (HF) on contact with concentrated acids.

It produces hydrogen on contact with metals, e.g. steel, nickel, aluminium.

Conditions and Materials to avoid:

Metal, glass, stoneware, alkali and strong concentrated acids.

Hazardous Decomposition Products:

When heated to decomposition (105°C) it emits highly toxic and corrosive fumes of Hydrogen Fluoride, Silicon Tetrafluoride and Hydrogen gas.

SECTION 6

TOXICITY DATA

Acute:	Fluorosilicic Acid is an acute irritant to the skin, eyes and mucous membranes and lungs. The acid and its vapour are moderately toxic. Fluoride poisoning effects may be delayed up to 24 hours, depending upon the fluoride ion concentration.
Ingestion:	Severe irritant. Ingestion may cause burns of the gastrointestinal tract leading to vomiting, acidosis, bloody diarrhoea, wheezing, laryngitis, shortness of breath, headache and shock. Circulatory system may be affected with symptoms of shock, rapid, weak or no pulse, severe hypotension and pulmonary changes with dyspnea, and emphysema. In some cases, necrosis and haemorrhage of the gastrointestinal tract, liver damage and death may occur. Scarring of the gastrointestinal tract may occur in non-fatal cases.
Eye:	Severe irritant. Contact may result in lacrimation, irritation, pain, redness and conjunctivitis. Prolonged contact - corneal burns and possible permanent damage.
Skin:	Severe irritant. Prolonged contact may result in irritation, itching and possible skin rash.
Inhalation:	Severe irritant to the respiratory tract. Over exposure at high levels may result in mucous membrane irritation of the nose and throat with coughing, shortness of breath and pulmonary oedema.
Chronic:	Chronic exposure to fluoride present in Fluorosilicic Acid may lead to sclerosis of the bones, calcification of ligaments, loss of weight, anorexia and teeth disorders. At low levels, chronic exposure can lead to nose bleeds and sinus problems.
Health Information:	OSHA Permissible Exposure Limit (PEP): 2.5 mg/m³ (as F) ACGIH Threshold Limit Value (TLV): 2.5 mg/m³ (as F)
Toxicity Data:	LD₅₀ 200mg/kg (Oral-Guinea Pig)

SECTION 7 FIRST AID MEASURES	
Ingestion:	If conscious, give the exposed person large quantities of water. Administer calcium gluconate solution or milk. Seek immediate medical attention.
Eye Contact:	Immediately irrigate with copious amounts of water, while holding eyelids open for at least 15 minutes. Seek immediate medical attention.
Skin:	Wash affected area with copious amounts of water for at least 15 minutes. Apply calcium gluconate gel to the affected area, rub in until locally free of pain and then continue for a further 15 minutes. Apply a dressing soaked in 20% (m/m) calcium gluconate solution. Seek immediate medical attention.
Inhalation:	Remove affected person from exposure to a well ventilated area. Keep warm and at rest. Administer orally six effervescent calcium pills (400 mg calcium per pill) dissolved in water. Seek immediate medical attention.
Further Medical Advice:	Following severe exposure the patient should be kept under medical attention for 48 hours as delayed pulmonary oedema may develop.

SECTION 8 FIRE AND EXPLOSIVE HAZARD DATA	
Flammability:	Fluorosilicic Acid is non flammable and does not support combustion.
Fire Fighting Protective Equipment:	Wear NIOSH approved self-contained acid suit and/or approved respirator.
Fire Extinguishing Data:	There are no restrictions on extinguishing media in fire situations.
Unusual Fire and Explosion Hazards:	Reacts with many metals to produce flammable and explosive hydrogen gas. Keep containers cool with water, using spray nozzles, as decomposition will occur above 105°C and produce toxic and corrosive fumes of fluoride.

SECTION 9 PERSONAL PROTECTION	
General Precautions :	Eye and skin protection should be used when handling Fluorsilicic Acid.
Ventilation Requirements : Adequate ventilation is essential in buildings where the material is handled or stored.	Respiratory Protection : Not normally required. Breathing apparatus must be worn if levels exceed the recommended limit.
Protective Clothing PVC or rubber gloves, boots and an acid proof suit are essential.	Eye protection : Goggles or full face mask

SECTION 10 HANDLING AND STORAGE

Handling:

Do not inhale fumes and prevent skin contact. If pungent, irritating odour can be detected, over-exposure is occurring. Eye wash and safety shower should be available in all acid handling areas.

Avoid contact with incompatible materials.

Storage:

Store in a cool, dry, well ventilated area away from sources of ignition. Do not store in glass or stoneware. Bulk quantities should be stored in plastic (uPVC, Polypropylene or Polythene) or rubber - lined tanks. Tanks should be vented and fitted with an overflow pipe. Tanks should be banded to contain spillage. For smaller packages double skinned HDPE plastic containers are acceptable.

Ventilation:

Provide adequate and/or local ventilation to maintain vapours below 2.5 mg/m³ (as F).

SECTION 11 SPILLAGE/ACCIDENTAL RELEASE

Small Spillage : **Wash away with large quantities of water.**

Large Spillage : **If fumes are evolved wear respiratory protection. Bund large spillages with sand, earth etc. and pump away, neutralise with soda ash then dilute with water (spray) and flush away with large amounts of water after neutralisation. Inform the local water authority if product has entered public drains or waterways.**

Personal Precautions : **Wear full protective clothing.**

Neutralising Chemicals : **Hydrated Lime or Soda Ash.**

SECTION 12 WASTE DISPOSAL

Neutralise with Lime and landfill in accordance with local regulations.

SECTION 13 ENVIRONMENTAL INFORMATION

Environmental Fate and Distribution

High tonnage material produced in wholly contained systems.

Used in the fluoridation of water supplies.

The substance is soluble in water.

Persistence and Degradation

Degrades on heating.

Effect on Effluent Treatment

Large discharges may contribute to the acidification of effluent treatment systems and will injure treatment organisms.

Toxicity

Large discharges may contribute to the acidification of water and soil and will injure aquatic life and soil micro - organisms.

SECTION 14 REGULATORY INFORMATION

EEC Classification: **Class 8, Hazard Label: 8**

Risk Phrases: **Causes burns (R 34)**

Safety Phrases: **In case of contact with eyes, rinse immediately with plenty of water and seek medical treatment. (S 26).**

Take off immediately all contaminated clothing. (S 27).

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). (S 45).

SECTION 15 TRANSPORT INFORMATION

UN No.	1778	UN Pack. Group	II	ICAO/IATA Class	8,II
IMDG Class	8,II	ADR/RID Class	8	ADR/RID Item	9b

SECTION 16 OTHER INFORMATION

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.