

**REQUEST  
FOR  
BIDS**



**Water Treatment  
Chemicals**

**November 2015**

## **NOTICE TO BIDDERS**

Sealed bids will be received by the City of Thibodaux, Louisiana, in the Council Chambers, City Hall, 310 West 2<sup>nd</sup> Street, Thibodaux, Louisiana, until 10:00 A.M., Tuesday, November 24, 2015 after which time they will be publicly opened and read for furnishing to the Municipal Water Plant and Sewer Treatment Plant, chemicals as follows:

- A. Gaseous Chlorine**
- B. Anhydrous Ammonia**
- C. Hydrofloursilic Acid (Flouride)**

All proposals shall be sealed and addressed as follows:

**BID PROPOSAL- Chemical Requirements**  
**City of Thibodaux**  
**c/o Jennifer Morvant, Council Administrator**  
**P.O. Box 5418**  
**310 West 2<sup>nd</sup> Street**  
**Thibodaux, LA 70302**

Proposals must be made on blank forms provided by the City of Thibodaux. Copies of detailed specifications may be obtained from the Office of the City Council, Second Floor, City Hall, 310 West Second St., Thibodaux, Louisiana between the hours of 8:00 A.M. and 4:30 P.M. or by calling (985) 446-7200.

Please find bid related materials and submit electronic bids at [www.centralbidding.com](http://www.centralbidding.com). For questions related to the electronic bid process, please call Central Bidding at 225-810-4814.

The Hydrofloursilicic Acid must meet all specifications, standards and requirements of the AWWA, the U.S. EPA, the U.S. HEW, the Louisiana State Department of Health and Hospitals and have a performance approval of the Municipal Water Treatment Plant. The product must be suitable for use in the purification of water for drinking purposes.

Any proposal received after the announced closing time will be returned to the bidder unopened.

  
Jennifer Morvant  
Council Administrator

PUBLICATIONS: November 9 and 16, 2015

## SPECIFICATIONS

### I. General

It is the purpose of these specifications to provide for the purchase of chemicals for the production and distribution of drinking water.

The estimated quantities to be used are based upon historical and annual usage at the Municipal Water Treatment Plant. While annual usage is estimated, the prices quoted shall be effective regardless of how much is ordered by the customer. The City of Thibodaux also reserves the right to purchase chemicals on Louisiana State Contract.

Gaseous Chlorine:	One hundred thousand (100,000) lbs. of gaseous chlorine
Anhydrous Ammonia:	Twenty-five thousand (25,000) lbs. of anhydrous ammonia.
Hydrofloursilicic Acid:	Thirty thousand (30,000) lbs. hydrofloursilicic acid

### II. Bid Price Quotations

All above chemicals are to be quoted on a price per pound basis including freight charges. Gaseous chlorine is to be bid at a price per one (1) ton or 1200 lb. cylinder.

### III. Change in Bid Quantities

The bidder declares that he understands that if the quantities of these items are increased, the bidder proposes to furnish these units at the unit price set out herein, and should the quantities be decreased, the bidder also understands the payment will be made on the actual quantities furnished at the unit price. The City of Thibodaux reserves the right to select one or more of certain chemicals that may be desired for purchase.

### IV. Sales and Use Tax

The unit price for each item shall be the amount required to furnish the product FOB Thibodaux, Louisiana. The City of Thibodaux is exempt from the payment of any local or State sales and use tax.

### V. Delivery

Successful bidders shall be required to make delivery within seven (7) working days from the receipt of the purchase order unless otherwise stated.

### VI. Period of the Bid

The bids awarded shall be in effect for the period January 1, 2016 through June 30, 2017.

### VII. Hazardous Material

Bidders must submit a product label, technical brochure, MSDS sheet and an EPA Registry Number on all products on which bids are submitted. The potable coagulant shall be acrylamide and epichlorohydrin free. Successful bidders must supply the water plant with bulk tank placards.

**PROPOSAL A**  
**CHLORINE**

**Specification:**

Gaseous chlorine must meet AWWA standards and specifications for all regulatory agencies including but not limited to USEPA, USHEW and the Louisiana Department of Health and Hospitals.

Cylinders including valves, fittings safety features and identification markings must conform to all applicable regulatory agencies including but not limited to the USDOT, Hazardous Materials Transportation Act and applicable standards of the Chlorine Institute and AWWA.

**Delivery:**

Per the request of the Director of Public Works or the City Chemist, either one ton cylinders or 1200 pound cylinders will be delivered. The supplier is to provide an emergency telephone number of an individual within the vendor company that can get a one ton chlorine cylinder under emergency conditions and/or provide a delivery date of a specific purchase order shipment.

Gaseous chlorine cylinders will be delivered to the Thibodaux Water Plant, 110 E. Bayou Road, Thibodaux, Louisiana.

Delivery of one-ton cylinders are to be made within three (3) business days after the purchase order is received by the supplier.

**Price:**

Bid price per cylinder shall include transportation and any applicable freight charges.

**PROPOSAL B**  
**AMMONIA**

**Specification:**

Refrigeration Grade Anhydrous Ammonia (at least 99.995% NH<sub>3</sub>) is a colorless gas with an extremely pungent odor with the following properties:

Boiling Point = -28 degrees F	Vapor Density = 0.60 @ 32 degrees F
Specific Gravity – 0.6330 @ 39 degrees F	Solubility in water – 34% (wt) @ 68 degrees F
Percent Volatile =100%	Bulk Density = 5.1 lbs/gallon
pH = 11.7 (for 1% aqueous solution)	Water Content = 33 ppm maximum
Oil Content = 2 ppm maximum	

**Delivery:**

Anhydrous Ammonia will be delivered by request of the Director of Public Works or the City Chemist in amounts not to exceed 2000 gallons per delivery.

**Price:**

Bid price per pound shall be FOB Thibodaux Municipal Water Plant.

**PROPOSAL C**  
**HYDROFLOURSILICIC ACID (FLUORIDE)**

**Specification:**

Hydrofloursilicic Acid shall be furnished with not less than 25% of H Si F by weight and in accordance with AWWA Standards for Hydrofloursilicic Acid, AWWA B-703-71. An affidavit from the manufacturer shall be furnished to the City of Thibodaux stating that this product furnished complies with the standards of these specifications.

**Physical Properties:**

Boiling Point – 222° F  
Specific Gravity – 1.234 @ 25° F  
Bulk Density – 10.29 lbs/gal @ 25° F  
pH (1% solution) – 1.2

**Delivery:**

Delivery shall be made in bulk shipments in amounts no greater than nine hundred (900) gallons per delivery. A certificate of analysis shall accompany every shipment. Delivery trucks preferably should be center (belly) discharge with 2" coupling valves which will mate with our 2" coupling valves going to our bulk tanks.

**Price:**

Bid price per pound shall be FOB Thibodaux Municipal Water Plant.

**PROPOSAL FORM**

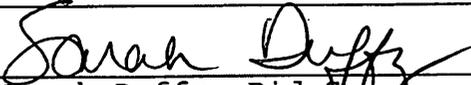
NAME OF BIDDER: Pencco, Inc.

ADDRESS: P.O. Box 600

San Felipe, TX 77473

PHONE: 979 885 0005

FAX: 979 885 3208

AUTHORIZED SIGNATURE:   
Sarah Duffy, Bid Sec.

**PROPOSAL**

**BID PRICE**

A - Gaseous Chlorine \$ No Bid per ton

\$ No Bid per 1200 lbs.

B - Anhydrous Ammonia \$ No Bid per pound

C - Hydroflourisilicic Acid \$ 0.73 per pound



PO Box 600 San Felipe, Texas 77473  
(979) 885-0005 Fax: (979) 885-3208

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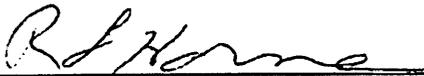
## BOARD OF DIRECTORS MEETING

Prior Notice was waived and a meeting of the Directors was held on August 15, 2014. The following resolution was adopted in respects to the official signing of bids on behalf of Pencco, Inc.

BE IT RESOLVED by the Board of Directors of Pencco, Inc. in a meeting duly assembled that Monica Avila, former Bid Secretary of the Corporation, no longer has authority to negotiate for and sign any bid proposals and/or contracts on behalf of the Corporation.

BE IT FURTHER RESOLVED that Sarah Duffy, Bid Secretary, of the Corporation has authority to negotiate for and sign any bid proposals and/or contracts which the Corporation might enter into for the furnishing of services for the Corporation under such terms, conditions, and stipulations, and for such consideration as she may deem to be in the best interest of the Corporation.

No further business was necessary and the meeting was concluded.

  
Ron L. Horne, President

**PENCCO, INC.**  
*Pioneer Engineering Chemical Company*

**AFFIDAVIT OF COMPLIANCE**

**This is to certify that the Hydrofluorosilicic Acid supplied by our company meets AWWA Standard B703-11 or the latest revision, and is certified to NSF/ANSI Standard NSF-60.**

  
\_\_\_\_\_  
Signature

**R. L. Home, President**  
\_\_\_\_\_  
Name and Title of Official

**1/30/2014**  
\_\_\_\_\_  
Date



The Public Health and Safety Organization

## NSF Product and Service Listings

These NSF Official Listings are current as of **Monday, November 23, 2015** at 12:15 a.m. Eastern Time. Please [contact NSF International](#) to confirm the status of any Listing, report errors, or make suggestions.

Alert: NSF is concerned about fraudulent downloading and manipulation of website text.

Always confirm this information by clicking on the below link for the most accurate information: <http://info.nsf.org/Certified/PwsChemicals/Listings.asp?>

[CompanyName=penco&](#)

## NSF/ANSI 60 Drinking Water Treatment Chemicals - Health Effects

### PENCCO, Inc.

831 Bartlett Road

Sealy, TX 77474

United States

800-864-1742

979-885-0005

[Visit this company's website](#)

<http://www.penco.com>

**Facility :** Vernon, CA

#### Ferric Chloride

**Trade Designation**

Ferric Chloride

**Product Function**

Coagulation & Flocculation

**Max Use**

500mg/L

**Ferrous Chloride****Trade Designation**

Ferrous Chloride

**Product Function**

Coagulation &amp; Flocculation

**Max Use**

500mg/L

**Facility : Distribution Center - Willow Springs, IL****Hydrofluosilicic Acid****Trade Designation**

Fluorosilicic Acid

Fluosilicic Acid

Hydrofluosilicic Acid

**Product Function**

Fluoridation

Fluoridation

Fluoridation

**Max Use**

6mg/L

6mg/L

6mg/L

**Facility : Distribution Center - Westborough, MA****Hydrofluosilicic Acid****Trade Designation**

Fluorosilicic Acid

**Product Function**

Fluoridation

**Max Use**

6mg/L

**Facility : Middlesex, NC****Ferric Sulfate****Trade Designation**

50% Ferric Sulfate

60% Ferric Sulfate

Ferric Sulfate

Penn 3202

Poly Ferric Sulfate

**Product Function**

Coagulation &amp; Flocculation

**Max Use**

650mg/L

650mg/L

650mg/L

650mg/L

650mg/L

**Hydrofluosilicic Acid****Trade Designation**

Hydrofluorosilicic Acid

**Product Function**

Fluoridation

**Max Use**

6mg/L

**Facility : Distribution Center - Bardwell, TX****Ferric Chloride****Trade Designation**

Ferric Chloride

Pencco 3012

**Product Function**

Coagulation &amp; Flocculation

Coagulation &amp; Flocculation

**Max Use**

600mg/L

600mg/L

**Ferric Sulfate****Trade Designation**

Ferric Sulfate Solution

**Product Function**

Coagulation &amp; Flocculation

**Max Use**

650mg/L

**Ferrous Chloride****Trade Designation**

Ferrous Chloride

Pencco 0210

**Product Function**

Corrosion Control

Coagulation &amp; Flocculation

Corrosion Control

Coagulation &amp; Flocculation

**Max Use**

500mg/L

500mg/L

**Hydrofluosilicic Acid****Trade Designation**

Hydrofluorosilicic Acid

**Product Function**

Fluoridation

**Max Use**

6mg/L

**Facility : Ennis, TX****Ammonium Sulfate****Trade Designation**

LIQUID AMMONIUM SULFATE

**Product Function**

Chloramination

**Max Use**

60mg/L

**Ferric Chloride****Trade Designation**

Ferric Chloride

Pencco 3012

**Product Function**

Coagulation &amp; Flocculation

Coagulation &amp; Flocculation

**Max Use**

600mg/L

600mg/L

**Ferric Sulfate**

**Trade Designation****Product Function****Max Use**

50% Ferric Sulfate	Coagulation & Flocculation	150mg/L
60% Ferric Sulfate	Coagulation & Flocculation	150mg/L
Ferric Sulfate	Coagulation & Flocculation	150mg/L
Poly Ferric Sulfate	Coagulation & Flocculation	150mg/L

**Ferrous Chloride****Trade Designation****Product Function****Max Use**

Ferrous Chloride	Corrosion Control	500mg/L
	Coagulation & Flocculation	
Pencco 0210	Corrosion Control	500mg/L
	Coagulation & Flocculation	

**Hydrofluosilicic Acid****Trade Designation****Product Function****Max Use**

Hydrofluorosilicic Acid	Fluoridation	6mg/L
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**Facility : Sealy, TX****Ferric Sulfate****Trade Designation****Product Function****Max Use**

50% Ferric Sulfate	Coagulation & Flocculation	650mg/L
60% Ferric Sulfate	Coagulation & Flocculation	650mg/L
Ferric Sulfate	Coagulation & Flocculation	650mg/L
Ferric Sulfate Solution	Coagulation & Flocculation	650mg/L
Penn 3202	Coagulation & Flocculation	650mg/L
Poly Ferric Sulfate	Coagulation & Flocculation	650mg/L

**Hydrofluosilicic Acid****Trade Designation****Product Function****Max Use**

Fluorosilicic Acid	Fluoridation	6mg/L
Fluosilicic Acid	Fluoridation	6mg/L
Hydrofluosilicic Acid	Fluoridation	6mg/L

**Number of matching Manufacturers is 1**

**Number of matching Products is 37**

**Processing time was 1 seconds**



# Hydrofluorosilicic Acid

Safety Data Sheet  
Revision date: 04/30/2015

217

Version: 1.0

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product form : Mixture  
Product name : Hydrofluorosilicic Acid  
Product code : HFSA  
Formula :  $H_2SiF_6$  (aq)  
Synonyms : HFSA, Fluorosilicic acid

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Industrial use

### 1.3. Details of the supplier of the safety data sheet

PCS Sales (USA), Inc.  
1101 Skokie Blvd.  
Suite 400  
Northbrook, IL 60062  
T 800-241-6908 / 847-849-4200

Suite 500  
122 1st Avenue South  
Saskatoon, Saskatchewan Canada S7K7G3  
T 800-667-0403 (Canada) / 800-667-3930 (USA)

[SDS@PotashCorp.com](mailto:SDS@PotashCorp.com) - [www.PotashCorp.com](http://www.PotashCorp.com)

### 1.4. Emergency telephone number

Emergency number : 800-424-9300  
CHEMTREC

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### GHS-US classification

Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Inhalation:dust,mist)	H332
Skin Corr. 1A	H314
Eye Dam. 1	H318
Aquatic Acute 3	H402

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## 2.2. Label elements

### GHS-US labelling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H302 - Harmful if swallowed  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage  
H332 - Harmful if inhaled  
H402 - Harmful to aquatic life

Precautionary statements (GHS-US)

: P260 - Do not breathe fume, mist, vapours, spray  
P264 - Wash hands and forearms thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P271 - Use only outdoors or in a well-ventilated area  
P273 - Avoid release to the environment  
P280 - Wear eye protection, face protection, protective gloves, protective clothing  
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor  
P312 - Call a POISON CENTER or doctor if you feel unwell  
P363 - Wash contaminated clothing before reuse  
P405 - Store locked up  
P501 - Dispose of contents/container according to local, regional, national, and international regulations

## 2.3. Other hazards

Hazardous to the aquatic environment

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixture

Name	Product identifier	%	GHS-US classification
Fluorosilicic acid	(CAS No.) 16961-83-4	24	Acute Tox. 3 (Oral), H301 Acute Tox. 2 (Inhalation:dust,mist), H330 Skin Corr. 1A, H314

# Hydrofluorosilicic Acid

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			Eye Dam. 1, H318 Aquatic Acute 3, H402
Water	(CAS No.) 7732-18-5	76	Not classified
Fluorides, as F		19	Not classified

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- First-aid measures general** : If exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation** : Using proper respiratory protection, immediately move the exposed person to fresh air. Keep at rest and in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Seek immediate medical advice. Symptoms may be delayed.
- First-aid measures after skin contact** : Remove/Take off immediately all contaminated clothing. Rinse immediately with plenty of water (for at least 15 minutes). Seek medical attention immediately if exposure is severe. Obtain medical attention if irritation develops or persists. Wash contaminated clothing before reuse.
- First-aid measures after eye contact** : Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Seek medical attention immediately if exposure is severe. Obtain medical attention if irritation develops or persists.
- First-aid measures after ingestion** : If swallowed, do not induce vomiting. Seek medical advice immediately and show this container or label.

### 4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries** : Corrosive. Causes burns. Harmful if swallowed. Harmful if inhaled.
- Symptoms/injuries after inhalation** : Causes severe respiratory irritation if inhaled. Symptoms may include: Burning of nose and throat, constriction of airway, difficulty breathing, shortness of breath, bronchial spasms, chest pain, and pink frothy sputum. Contact may cause immediate severe irritation progressing quickly to chemical burns. May cause pulmonary edema. Symptoms may be delayed.
- Symptoms/injuries after skin contact** : Contact may cause immediate severe irritation progressing quickly to chemical burns.
- Symptoms/injuries after eye contact** : Contact may cause immediate severe irritation progressing quickly to chemical burns. Can cause blindness.
- Symptoms/injuries after ingestion** : May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.
- Chronic symptoms** : Repeated or prolonged inhalation may damage lungs. Prolonged and repeated contact will eventually cause permanent tissue damage. Repeated and prolonged exposure to flourine containing compounds may cause flourosis, a condition characterized by changes in bone density and strength, accompanied by stiffness and pain in joints.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

# Hydrofluorosilicic Acid

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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : Do not get water inside containers. Do not apply water stream directly at source of leak. Do not use a heavy water stream. A direct water stream will cause violent splattering and generation of heat.

### 5.2. Special hazards arising from the substance or mixture

- Fire hazard : Not flammable. Under conditions of fire this material may produce: Silicon oxides. Hydrogen fluoride. Tetrafluorosilane. Decomposes above 108 °C (227 °F)
- Explosion hazard : Product is not explosive.

### 5.3. Advice for firefighters

- Firefighting instructions : Keep upwind. Use water spray or fog for cooling exposed containers.
- Protection during firefighting : Firefighters must use full bunker gear including NIOSH-approved positive-pressure self-contained breathing apparatus to protect against potential hazardous combustion and decomposition products.
- Other information : Do not allow run-off from fire fighting to enter drains or water courses.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment : Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection.
- Emergency procedures : Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area. Keep upwind.

#### 6.1.2. For emergency responders

- Protective equipment : Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection.
- Emergency procedures : Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area.

### 6.2. Environmental precautions

If spill could potentially enter any waterway, including intermittent dry creeks, contact the U.S. COAST GUARD NATIONAL RESPONSE CENTER at 800-424-8802. In case of accident or road spill notify CHEMTREC at 800-424-9300. In other countries call CHEMTREC at (International code) +1-703-527-3887.

### 6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or inert absorbents to prevent migration and entry into sewers or streams. Do not allow into drains or water courses or dispose of where ground or surface waters may be affected.

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## Methods for cleaning up

: Ventilate area. Small quantities of liquid spill: take up in non-combustible inert absorbent material and shovel into container for disposal. Collect absorbed material and place into a sealed, labelled container to be disposed at an appropriate disposal facility according to current applicable laws and regulations and product characteristics at the time of disposal.  
Liquid spill: neutralize with powdered limestone or sodium bicarbonate.  
Practice good housekeeping – spillage can be slippery on smooth surface either wet or dry.

## 6.4. Reference to other sections

No additional information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Precautions for safe handling

: Avoid all eyes and skin contact and do not breathe vapour and mist. Wear recommended personal protective equipment. Ensure there is adequate ventilation. Keep away from heat and open flame. Employ good maintenance practices to prevent leaks. Use good process control measures to prevent releases.

#### Hygiene measures

: Handle in accordance with good industrial hygiene and safety procedures. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Wash contaminated clothing before reuse.

### 7.2. Conditions for safe storage, including any incompatibilities

#### Incompatible materials

: Reacts with many metals to produce flammable and explosive hydrogen gas.

#### Prohibitions on mixed storage

: Keep away from strong acids and bases, chlorites, organic peroxides, combustible materials, and metals.

#### Storage area

: Store in dry, cool area. Store in a well-ventilated place away from heat and sources of ignition. Large tanks should be bermed and electrically grounded. Keep away from combustible materials. Avoid using glass, metal, or stoneware containers.

### 7.3. Specific end use(s)

Industrial use.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Fluorides		
USA ACGIH	TWA	2.5 mg/ m <sup>3</sup>
USA OSHA	TWA	2.5 mg/ m <sup>3</sup>
USA NIOSH	TWA	2.5 mg/ m <sup>3</sup>

### 8.2. Exposure controls

#### Appropriate engineering controls

: Ensure adequate ventilation, especially in confined areas.

# Hydrofluorosilicic Acid

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Personal protective equipment	: Protective goggles. Face shield. Gas mask at concentration in the air >> TLV. Protective clothing.
	
Hand protection	: Impermeable protective gloves, such as: nitrile, neoprene, or PVC. Wear gauntlet gloves. Check glove manufacturer's permeation / degradation information.
Eye protection	: Chemical safety goggles. Face shield. Do not wear contact lenses.
Skin and body protection	: Wear suitable protective clothing. Chemical resistant suit. Rubber apron, boots.
Respiratory protection	: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits. Use respirator approved for acid fumes and mist.
Environmental exposure controls	: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Water white to straw yellow.
Odour	: Pungent
Odour threshold	: No data available
pH	: 1.5 - 2
pH solution	: 10 %
Molecular mass	: 144 g/mol (Hydrofluorosilicic acid)
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -18 - -20 °C (-1 - -4 °F)
Freezing point	: No data available
Boiling point	: 136 - 163 °C (277 - 326 °F)
Flash point	: No data available
Self ignition temperature	: No data available
Decomposition temperature	: 108 °C (227 °F)
Flammability (solid, gas)	: No data available
Vapour pressure	: 24 mm Hg at 25 °C (77 °F)
Relative vapour density at 20 °C	: No data available
Relative density	: 1.2 at 24 °C (75 °F)
Density	: 10.3 lb/gal
Solubility	: Water: Miscible
Log Pow	: No data available

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Log Kow	: No data available
Viscosity	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

## 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

May react violently with water.

### 10.2. Chemical stability

Stable at standard temperature and pressure.

### 10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to avoid

Temperatures above 108 °C (227 °F).

### 10.5. Incompatible materials

Keep away from strong acids and bases, chlorites, organic peroxides, combustible materials, and metals. Attacks glass and stoneware.

### 10.6. Hazardous decomposition products

Thermal decomposition generates : Silicon oxides. Hydrogen fluoride. Tetrafluorosilane.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed. Harmful if inhaled.

Fluorosilicic acid (16961-83-4)	
LD50 oral rat	125 mg/kg
LC50 inhalation rat (mg/l)	0.28 mg/l (reported as 1.11 mg/l/1h)

Skin corrosion/irritation : Causes severe skin burns and eye damage.  
pH: 1.5 - 2

Serious eye damage/irritation : Causes serious eye damage.  
pH: 1.5 - 2

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Fluorosilicic acid (16961-83-4)	
IARC group	3

Reproductive toxicity : Not classified

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Specific target organ toxicity (single exposure) : Not classified  
Specific target organ toxicity (repeated exposure) : Not classified  
Aspiration hazard : Not classified

## SECTION 12: Ecological information

### 12.1. Toxicity

<b>Ecotoxicity</b>	<b>EPA Ecological Toxicity rating :</b>	No data available.
	<b>Acute Toxicity to Fish:</b>	No data available.
	<b>Chronic Toxicity to Fish:</b>	No data available.
	<b>Acute Toxicity to Aquatic Invertebrates:</b>	(Frog) Subcutaneous: LD <sub>50</sub> = 140 mg/kg.
	<b>Chronic Toxicity to Aquatic Invertebrates:</b>	No data available.
	<b>Acute Toxicity to Aquatic Plants:</b>	No data available.
	<b>Toxicity to Soil Dwelling Organisms:</b>	No data available.
	<b>Toxicity to Terrestrial Plants:</b>	No data available.
<b>Environmental Fate:</b>	<b>Stability in Water:</b>	Product is NSF certified to ANSI Standard 60 for the fluoridation of municipal water supplies.
	<b>Stability in Soil:</b>	No data available.
	<b>Transport and Distribution:</b>	No data available.
<b>Toxicity:</b>	No data available	
<b>Degradation Products:</b>	<b>Biodegradation:</b>	No data available.
	<b>Photodegradation:</b>	No data available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Sewage disposal recommendations : This material is hazardous to the aquatic environment. Keep out of sewers and waterways.  
Waste disposal recommendations : Place in an appropriate container/dispose of contaminated material at a licensed site.  
Additional information : Dispose of waste material in accordance with all local, regional, national, and international regulations.

## SECTION 14: Transport information

In accordance with DOT / TDG / ADR / RID / ADNR / IMDG / ICAO / IATA

### 14.1. UN number

UN-No.(DOT) : 1778  
DOT NA no. UN1778

### 14.2. UN proper shipping name

DOT Proper Shipping Name : Fluorosilicic acid  
Department of Transportation (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136  
Hazard Classes

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Hazard labels (DOT) : 8 - Corrosive substances



Packing group (DOT) : II - Medium Danger

DOT Special Provisions (49 CFR 172.102)

- : A6 - For combination packagings, if plastic inner packagings are used, they must be packed in tightly closed metal receptacles before packing in outer packagings.
- A7 - Steel packagings must be corrosion-resistant or have protection against corrosion.
- B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.
- B15 - Packagings must be protected with non-metallic linings impervious to the lading or have a suitable corrosion allowance.
- IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
- N3 - Glass inner packagings are permitted in combination or composite packagings only if the hazardous material is free from hydrofluoric acid.
- N34 - Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.
- T8 - 4 178.274(d)(2) Normal..... Prohibited
- TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where:  $t_r$  is the maximum mean bulk temperature during transport,  $t_f$  is the temperature in degrees celsius of the liquid during filling, and  $\alpha$  is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling ( $t_f$ ) and the maximum mean bulk temperature during transportation ( $t_r$ ) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where:  $d_{15}$  and  $d_{50}$  are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.
- TP12 - This material is considered highly corrosive to steel.

DOT Packaging Exceptions (49 CFR 173.xxx) : None

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

### 14.3. Additional information

Emergency Response Guide (ERG) Number : 154

Other information : No supplementary information available.

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## Overland transport

No additional information available

## Transport by sea

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

## Air transport

DOT Quantity Limitations Passenger : 1 L  
aircraft/rail (49 CFR 173.27)

DOT Quantity Limitations Cargo : 30 L  
aircraft only (49 CFR 175.75)

IATA ERG Number : 8L

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

<b>Hydrofluorosilicic Acid</b>	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
<b>Fluorosilicic acid (16961-83-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

### 15.2. US State regulations

The following states have an OSH program approved by OSHA. If you are located in any of these states you may be under state jurisdiction rather than federal jurisdiction and your state may have more stringent requirements than OSHA. You should consult your state regulations to ensure compliance.

Alaska	Indiana	Minnesota	North Carolina	Utah
Arizona	Iowa	Nevada	Oregon	Vermont
California	Kentucky	New Mexico	Puerto Rico	*Virgin Islands
*Connecticut	Maryland	*New Jersey	South Carolina	Virginia
Hawaii	Michigan	*New York	Tennessee	Washington
*Illinois				Wyoming

\*The state plans in these states apply only to public sector employers. In these states private sector employers are subject to USOL – OSHA jurisdiction. All other state plans apply to both public and private sector employers.

<b>Fluorosilicic acid (16961-83-4)</b>
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - Texas - Effects Screening Levels - Long Term

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U.S. - Texas - Effects Screening Levels - Short Term

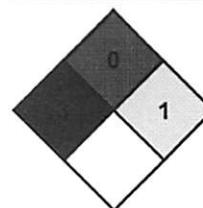
## 15.3. Canadian regulations

Hydrofluorosilicic Acid	
WHMIS Classification	Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class E - Corrosive Material
Fluorosilicic acid (16961-83-4)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
Listed on the Canadian Ingredient Disclosure List – Disclosure at 1%.	

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## SECTION 16: Other information

- NFPA health hazard : 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.
- NFPA fire hazard : 0 - Materials that will not burn.
- NFPA reactivity : 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



Full text of H-phrases:

Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Corr. 1A	skin corrosion/irritation Category 1A
H301	Toxic if swallowed
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H330	Fatal if inhaled
H332	Harmful if inhaled

Previous PotashCorp MSDS Number : MSDS 52 – Hydrofluorosilicic Acid

SDS US (GHS HazCom 2012)

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