



# NAPCO CHEMICAL COMPANY

## Safety Data Sheet Hydrofluorosilicic Acid (HFS)

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### SECTION 1: Identification

#### 1.1 Product identifier

Product name Hydrofluorosilicic Acid (HFS)

#### 1.3 Recommended use of the chemical and restrictions on use

Industrial uses.

#### 1.4 Supplier's details

Name NAPCO Chemical Company  
Address 2830 Spring Cypress Rd  
Spring, Tx 77383  
United States

Telephone 281-651-6800  
Fax 281-651-6868

#### 1.5 Emergency phone number(s)

ChemTel 1(800)255-3924

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### SECTION 2: Hazard identification

#### 2.1 Classification of the substance or mixture

##### GHS classification in accordance with OSHA (29 CFR 1910.1200)

- Acute toxicity, oral (chapter 3.1), Cat. 4
- Acute toxicity, inhalation (chapter 3.1), Cat. 4
- Skin corrosion/irritation (chapter 3.2), Cat. 1A
- Eye damage/irritation (chapter 3.3), Cat. 1
- Hazardous to the aquatic environment - acute hazard (chapter 4.1), Cat. 3

#### 2.2 GHS label elements, including precautionary statements

##### Pictogram



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## Hydrofluorosilicic Acid (HFS)

### Signal word

### Danger

### Hazard statement(s)

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 statement(s)

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash ... 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 protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): 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/doctor/...
P312	Call a POISON CENTER/doctor/... if you feel unwell.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/container to ...

### 2.3 Other hazards which do not result in classification

Hazardous to aquatic environment.  
No additional information available.

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## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Hazardous components

##### 1. fluorosilicic acid ... %

Concentration	24 %
EC no.	241-034-8
CAS no.	16961-83-4
Index no.	009-011-00-5

- Skin corrosion/irritation (chapter 3.2), Cat. 1B

H314	Causes severe skin burns and eye damage
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##### 2. WATER

Concentration	76 %
CAS no.	7732-18-5

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### 3. Flourides, as F

Concentration 19 %

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

General advice	If exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible).
If inhaled	Use proper respiratory protection. If breathed in, move person into fresh air and keep at rest in a position comfortable for breathing. Call a Poison Center or doctor/physician if you feel unwell. Symptoms may be delayed.
In case of skin contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of water (for at least 15 minutes). Consult a physician. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
If swallowed	Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into lungs. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician or poison control center immediately.
Personal protective equipment for first-aid responders	Ensure that medical personel are aware of the material(s) involved, and take precautions to protect themselves.

### 4.2 Most important symptoms/effects, 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 a 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 immediate medical attention and special treatment needed, if necessary

No additional information available.

## **SECTION 5: Fire-fighting measures**

### **5.1 Suitable extinguishing media**

Use extinguishing media appropriate for surrounding fire.  
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 Specific hazards arising from the chemical**

Not flammable. Under conditions of fire this material may produce Silicon Oxides. Hydrogen fluoride. Tetrafluorosilane.  
Decomposes above 108 C (227 F).  
Product is not explosive.

### **5.3 Special protective actions for fire-fighters**

Keep upwind. Use water spray or fog for cooling exposed containers.  
Firefighters must use full bunker gear including NIOSH-approved positive-pressure self-contained breathing apparatus to protect against potential hazardous combustion and decomposition products.

#### **Further information**

Do not allow run-off from fire fighting to enter drains or water courses.

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## **SECTION 6: Accidental release measures**

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

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas upwind. Beware of vapors accumulating. Vapors can accumulate in low areas. For personal protection see section 8.

### **6.2 Environmental precautions**

Avoid discharge into drains, water courses or onto the ground.

### **6.3 Methods and materials for containment and cleaning up**

Prevent entry into waterways, sewer, basements or confined areas. **SMALL SPILLS:** Contain and absorb with absorbent material and place into containers for later disposal. **LARGE SPILLS:** Dike far ahead of spill to prevent further movement. Recover by pumping or by using a suitable absorbent material and place into containers for later disposal. Dispose in suitable waste container to be properly disposed at appropriate disposal facility.  
Liquid spill: neutralize with powdered limestone or sodium bicarbonate.

#### **Reference to other sections**

No additional information available.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. When using, do not eat, drink or smoke. Provide adequate ventilation. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

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

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Store locked up. Store in original tightly closed container. Keep in dry, cool, and well ventilated area away from heat and sources of ignition. Avoid using glass, metal or stoneware containers. Store away from incompatible materials including any incompatibilities. (See section 10 of the SDS).

**Specific end use(s)**  
Industrial uses.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**1. Fluorides (as F) (CAS: Varies with compound)**

TWA (Inhalation): 2.5 mg/m<sup>3</sup>; USA (ACGIH)

**2. Fluorides (as F) (CAS: Varies with compound)**

TWA (Inhalation): 2.5 mg/m<sup>3</sup>; USA (OSHA)

**3. Fluorides (as F) (CAS: Varies with compound)**

TWA (Inhalation): 2.5 mg/m<sup>3</sup>; USA (NIOSH)

### 8.2 Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

### 8.3 Individual protection measures, such as personal protective equipment (PPE)

**Eye/face protection**

Chemical safety goggles. Face shield. Do not wear contact lenses.

**Skin protection**

Impermeable protective gloves, such as: nitrile, neoprene, or PVC. Check glove manufacturer's permeation and degradation information. Wear suitable protective clothing. Chemical resistant suit. Rubber apron, boots.

**Body protection**

Wear suitable protective clothing. Chemical resistant suit. Rubber apron, boots.

**Respiratory protection**

Use NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits. Use respirator approved for acid fumes and mist.

**Thermal hazards**

Wear appropriate thermal protective clothing when necessary.

**Environmental exposure controls**

Eye wash facilities and emergency shower must be available when handling this product. Should not be released into the environment. See Section 12 for additional ecological information.

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## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

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## Hydrofluorosilicic Acid (HFS)

Appearance/form	Liquid/water white to straw yellow
Odor	Pungent
Odor threshold	No data available.
pH	1.5 - 2
Melting point/freezing point	-18 - -20 C (-1 - -4 F)
Initial boiling point and boiling range	136 - 163 C (277 - 326 F)
Flash point	No data available.
Evaporation rate	No data available.
Flammability (solid, gas)	No data available.
Upper/lower flammability limits	No data available.
Upper/lower explosive limits	No data available.
Vapor pressure	24 mm Hg at 25 C (77 F)
Vapor density	Relative density 1.2 at 24C (75 F)
Relative density	1.2 at 24 C (75 F)
Solubility(ies)	Water: Miscible
Partition coefficient: n-octanol/water	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	108 C (227 F)
Viscosity	No data available.
Explosive properties	No data available.
Oxidizing properties	No data available.

### Other safety information

No other information available.

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## 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.

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## SECTION 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

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## Hydrofluorosilicic Acid (HFS)

LD50 oral rat 125 mg/kg  
LC50 inhalation rat mg/l (reported as 1.11 mg/l/1h)  
Harmful if swallowed. Harmful if inhaled.

### **Skin corrosion/irritation**

Causes severe skin burns.  
ph: 1.5 - 2

### **Serious eye damage/irritation**

Causes severe eye damage.  
ph: 1.5 - 2

### **Respiratory or skin sensitization**

Not classified.

### **Germ cell mutagenicity**

Not classified.

### **Carcinogenicity**

Not classified.

### **Reproductive toxicity**

Not classified.

### **Summary of evaluation of the CMR properties**

This product is not expected to contribute to any of these properties.

### **STOT-single exposure**

Not classified.

### **STOT-repeated exposure**

Not classified.

### **Aspiration hazard**

Not classified.

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## **SECTION 12: Ecological information**

### **Toxicity**

Acute toxicity to aquatic invertebrates: (Frog) Subcutaneous: LD<sub>50</sub>= 140 mg/kg.

### **Persistence and degradability**

Not available.

### **Bioaccumulative potential**

Not available.

### **Mobility in soil**

Not available.

### **Results of PBT and vPvB assessment**

Not available.

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### SECTION 13: Disposal considerations

#### Disposal of the product

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Disposal of contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

#### Waste treatment

Dispose of in accordance with local regulations.

#### Sewage disposal

Do not allow.

#### Other disposal recommendations

Dispose of contents/container in accordance with local/regional/national/international regulations.

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### SECTION 14: Transport information

#### DOT (US)

UN Number: UN1778

Class: 8

Packing Group: II

Proper Shipping Name: Fluorosilicic Acid

Reportable quantity (RQ):

Marine pollutant: Yes

Poison inhalation hazard:

#### IMDG

UN Number:

Class:

Packing Group:

EMS Number:

Proper Shipping Name:

#### IATA

UN Number:

Class:

Packing Group:

Proper Shipping Name:

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### SECTION 15: Regulatory information

#### 15.1 Safety, health and environmental regulations specific for the product in question

##### New Jersey Right To Know Components

Common name: SILICOFLUORIC ACID

CAS number: 16961-83-4

##### SARA 311/312 Hazards



# Safety Data Sheet

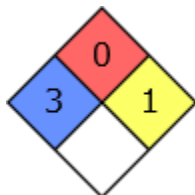
## Hydrofluorosilicic Acid (HFS)

Toxic Substances Control Act (TSCA) Inventory

Massachusetts Right To Know Components

New Jersey Right To Know Components

NFPA Rating



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### SECTION 16: Other information

#### 16.1 Further information/disclaimer

The information contained herein is accurate to the best of our knowledge. However, data, safety standards and government regulations are subject to change and, therefore, holders and users should satisfy themselves that they are aware of all current data and regulations relevant to their particular use of product. NAPCO CHEMICAL COMPANY, INC. DISCLAIMS ALL LIABILITY FOR RELIANCE ON THE COMPLETENESS OR ACCURACY OR THE INFORMATION INCLUDED HEREIN. NAPCO CHEMICAL COMPANY, INC. MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR USE OR PURPOSE OF THE PRODUCT DESCRIBED HEREIN. All conditions relating to storage, handling, and use of the product are beyond the control of NAPCO Chemical Company, Inc., and shall be the sole responsibility of the holder or user of the product.