

SAFETY DATA SHEET

HYDROFLUORIC ACID 49%

Revision Date 04/01/2015

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

1.1 Product identifier

- Trade name HYDROFLUORIC ACID 49%
- Chemical Name Hydrofluoric acid
- Molecular formula HF

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

Uses of the Substance / Mixture

- Chemical industry
- Glass industry
- Metallurgy.
- Fuel additive
- Chemical intermediate

1.3 Details of the supplier of the safety data sheet

Company

SOLVAY FLUORIDES, LLC
3333 RICHMOND AVENUE
77098-3099, HOUSTON
USA
Tel: +1-713-5256700
Fax: +1-713-5257805

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

2.1 Classification of the substance or mixture

HCS 2012 (29 CFR 1910.1200)

- Acute toxicity, Category 2
- Acute toxicity, Category 2
- Acute toxicity, Category 1
- Skin corrosion, Category 1A
- Serious eye damage, Category 1
- H300: Fatal if swallowed.
- H330: Fatal if inhaled.
- H310: Fatal in contact with skin.
- H314: Causes severe skin burns and eye damage.
- H318: Causes serious eye damage.

2.2 Label elements

HCS 2012 (29 CFR 1910.1200)

Pictogram



Signal Word

- Danger

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Hazard Statements

- H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.

Precautionary Statements

Prevention

- P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
- P262 Do not get in eyes, on skin, or on clothing.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P284 Wear respiratory protection.

Response

- P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
- 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 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
- P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
- P363 Wash contaminated clothing before reuse.

Storage

- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.

Disposal

- P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards which do not result in classification

- Chronic exposure may entail dental or skeletal fluorosis

SECTION 3: Composition/information on ingredients

3.1 Substance

- Not applicable, this product is a mixture.

3.2 Mixture

- Formula HF

Hazardous Ingredients and Impurities

Chemical Name	Identification number CAS-No	Concentration [%]
Hydrogen fluoride	7664-39-3	49

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

- Call a physician immediately.
- Take victim immediately to hospital.

In case of inhalation

- In case of accident by inhalation: remove casualty to fresh air and keep at rest.
- Oxygen or artificial respiration if needed.
- Victim to lie down in the recovery position, cover and keep him warm.
- Call a physician immediately.
- Take victim immediately to hospital.

In case of skin contact

- Call a physician immediately.
- Take victim immediately to hospital.
- Take off contaminated clothing and shoes immediately.
- Wash off with plenty of water.
- First treatment with calcium gluconate paste.
- Rinse with lukewarm running water.
- Please make sure that hospital staff is aware of the unique characteristics of injuries caused by HF exposures and the fact that the systemic toxic effects of the exposure will require prompt serum monitoring of fluorides, calcium, magnesium and sodium, and calcium replacement by infusion.

In case of eye contact

- Immediate medical attention is required.
- Take victim immediately to hospital.
- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).

In case of ingestion

- Call a physician immediately.
- Take victim immediately to hospital.
- If victim is conscious:
- Rinse mouth with water.
- Give to drink a 1% aqueous calcium gluconate solution.
- Do NOT induce vomiting.
- Artificial respiration and/or oxygen may be necessary.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation

Symptoms

- Breathing difficulties
- sore throat
- Nose bleeding

Effects

- Inhalation of vapors is irritating to the respiratory system, may cause throat pain and cough.
- Aspiration may cause pulmonary edema and pneumonitis.
- risk of hypocalcemia with nervous problems (tetany) and cardiac arrhythmia

Repeated or prolonged exposure

- chronic bronchitis

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In case of skin contact

Symptoms

- Irritation
- Redness
- Swelling of tissue
- Burn

Effects

- Causes severe burns.
- Risk of shock.
- Risk of hypocalcemia following the extent of the lesions.

In case of eye contact

Symptoms

- Lachrymation
- Redness
- Swelling of tissue
- Burn

Effects

- May cause permanent eye injury.
- May cause blindness.

In case of ingestion

Symptoms

- Nausea
- Bloody vomiting
- Abdominal pain
- Diarrhea
- Cough
- Severe shortness of breath

Effects

- If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
- Risk of throat (o)edema and suffocation.
- Risk of chemical pneumonitis from product inhalation.
- risk of hypocalcemia with nervous problems (tetany) and cardiac arrhythmia
- Risk of convulsions, loss of consciousness, deep coma and cardiopulmonary arrest.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

- Please make sure that hospital staff is aware of the unique characteristics of injuries caused by HF exposures and the fact that the systemic toxic effects of the exposure will require prompt serum monitoring of fluorides, calcium, magnesium and sodium, and calcium replacement by infusion.
- Immediately apply calcium gluconate gel 2.5% and massage into the affected area using rubber gloves; continue to massage while repeatedly applying gel until 15 minutes after pain is relieved.
- HF-Antidote Gel from IPS Healthcare is recommended as treatment for injuries from hydrofluoric acid.

SECTION 5: Firefighting measures

Flash point

Not applicable

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Autoignition temperature Not applicable
Flammability / Explosive limit no data available

5.1 Extinguishing media

Suitable extinguishing media

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

- Water may be ineffective.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting

- The product is not flammable.
- Not combustible.
- Hazardous decomposition products formed under fire conditions.
- Gives off hydrogen by reaction with metals.

Hazardous combustion products:

- Hydrogen

5.3 Advice for firefighters

Special protective equipment for fire-fighters

- Wear self-contained breathing apparatus and protective suit.
- Wear chemical resistant oversuit
- Special protective actions for fire-fighters
- In case of fire, use water spray.
- Keep product and empty container away from heat and sources of ignition.
- Cool containers/tanks with water spray.
- Keep from any possible contact with water.
- Approach from upwind.

Further information

- Suppress (knock down) gases/vapors/mists with a water spray jet.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel

- Immediately evacuate personnel to safe areas.
- Keep people away from and upwind of spill/leak.

Advice for emergency responders

- Wear self-contained breathing apparatus and protective suit.
- Suppress (knock down) gases/vapors/mists with a water spray jet.
- Avoid spraying the leak source.
- Ventilate the area.
- Prevent further leakage or spillage if safe to do so.
- Keep away from incompatible products

6.2 Environmental precautions

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- Discharge into the environment must be avoided.
- If the product contaminates rivers and lakes or drains inform respective authorities.
- Prevent product from entering sewage system.

6.3 Methods and materials for containment and cleaning up

- Prevent product from entering sewage system.
- Dilute with water.
- Contact with water may produce heat release and presents risks of splashing.
- Keep in properly labeled containers.
- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

- Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Use only in well-ventilated areas.
- Used in closed system
- Use only clean and dry utensils.
- Keep away from water.
- Preferably transfer by pump or gravity.
- Avoid inhalation, ingestion and contact with skin and eyes.
- Keep away from incompatible products

Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Take off contaminated clothing and shoes immediately.
- Wash contaminated clothing before re-use.
- May not get in touch with:
 - Leather
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Keep container tightly closed.
- Keep in a cool, well-ventilated place.
- Keep away from heat.
- Prevent spreading over a wide area (e.g. by containment or oil barriers).
- Information about special precautions needed for bulk handling is available on request.

- Keep away from:
 - Incompatible products

Packaging material

- Suitable material**
- Steel drum
 - Coated steels.

 - Plastic drum
 - Polyethylene

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Unsuitable material

- glass

7.3 Specific end use(s)

- Contact your supplier for additional information

SECTION 8: Exposure controls/personal protection

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters**Components with workplace occupational exposure limits**

Ingredients	Value type	Value	Basis
Hydrogen fluoride	TWA	0.5 ppm	American Conference of Governmental Industrial Hygienists Danger of cutaneous absorption Expressed as :Fluorine
Hydrogen fluoride	C	2 ppm	American Conference of Governmental Industrial Hygienists Danger of cutaneous absorption Expressed as :Fluorine
Hydrogen fluoride	TWA	3 ppm 2.5 mg/m3	National Institute for Occupational Safety and Health
Hydrogen fluoride	C	6 ppm 5 mg/m3	National Institute for Occupational Safety and Health 15 minute ceiling value
Hydrogen fluoride			Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants See Table Z-2 Expressed as :Fluorine
Hydrogen fluoride	TWA	3 ppm	Occupational Safety and Health Administration - Table Z-2 Z37.28-1969

NIOSH IDLH (Immediately Dangerous to Life or Health Concentrations)

Ingredients	CAS-No.	Concentration
Hydrogen fluoride	7664-39-3	30 ppm

Biological Exposure Indices

Ingredients	Value type	Value	Basis
Hydrogen fluoride	BEI	2 mg/l Fluoride Urine Prior to shift (16 hours after exposure ceases)	American Conference of Governmental Industrial Hygienists

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Hydrogen fluoride	BEI	3 mg/l Fluoride Urine End of shift (As soon as possible after exposure ceases)	American Conference of Governmental Industrial Hygienists
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8.2 Exposure controls**Control measures****Engineering measures**

- Provide appropriate exhaust ventilation at machinery.
- Apply technical measures to comply with the occupational exposure limits.

Individual protection measures**Respiratory protection**

- Use only respiratory protection that conforms to international/ national standards.
- Use NIOSH approved respiratory protection.
- In the case of dust or aerosol formation use respirator with an approved filter.
- Respirator with a full face mask.
- Self-contained breathing apparatus in confined spaces/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.
- Use respirator when performing operations involving potential exposure to vapor of the product.

Hand protection

- Heat insulating gloves
- Impervious gloves
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

Suitable material

- Fluoroelastomer

Eye protection

- Chemical resistant goggles must be worn.
- If splashes are likely to occur, wear:
- Face-shield

Skin and body protection

- Complete suit protecting against chemicals
- Boots
- Do not wear leather shoes.

Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Take off contaminated clothing and shoes immediately.
- Wash contaminated clothing before re-use.
- May not get in touch with:
- Leather
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

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SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

9.1 Information on basic physical and chemical properties

<u>Appearance</u>	<u>Physical state:</u> liquid <u>Color:</u> colorless colorless
<u>Odor</u>	pungent
<u>Odor Threshold</u>	no data available
<u>pH</u>	< 1.0
<u>Freezing point</u>	-33.0 °F (-36.1 °C)
<u>Boiling point/boiling range</u>	223 °F (106 °C)
<u>Flash point</u>	Not applicable
<u>Evaporation rate (Butylacetate = 1)</u>	no data available
<u>Flammability (solid, gas)</u>	Not applicable
<u>Flammability (liquids)</u>	The product is not flammable.
<u>Flammability / Explosive limit</u>	<u>Explosiveness:</u> With certain materials (see section 10).
<u>Autoignition temperature</u>	Not applicable
<u>Vapor pressure</u>	23.03 mmHg (30.70 hPa) (68 °F (20 °C))
<u>Vapor density</u>	no data available
<u>Density</u>	<u>Bulk density:</u> Not applicable
<u>Solubility</u>	<u>Water solubility :</u> completely miscible, Reacts violently with water.
<u>Partition coefficient: n-octanol/water</u>	Not applicable
<u>Thermal decomposition</u>	no data available
<u>Viscosity</u>	no data available
<u>Explosive properties</u>	no data available
<u>Oxidizing properties</u>	Not applicable

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9.2 Other information

Molecular weight 20 g/mol

SECTION 10: Stability and reactivity

10.1 Reactivity

- Reacts violently with water.
- Risk of explosion.

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- Corrosive in contact with metals, Gives off hydrogen by reaction with metals.

10.4 Conditions to avoid

- Exposure to moisture.

10.5 Incompatible materials

- Water
- glass
- Metals
- Strong bases
- Alkali metals

10.6 Hazardous decomposition products

- Hydrogen

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity**Acute oral toxicity**

LD100 : 80 mg/kg - Guinea pig
Test substance: 2 % solution

Acute inhalation toxicity

LC50 - 1 h 2240 - 2340 ppm - Rat
Test substance: gas

Acute dermal toxicity

sodium fluoride

LD 10 : ca. 300 mg/kg - Mouse

Acute toxicity (other routes of administration)

no data available

Skin corrosion/irritation

Corrosive

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Serious eye damage/eye irritation

sodium fluoride Rabbit
Eye irritation

Respiratory or skin sensitization

sodium fluoride not sensitizing

Mutagenicity

Genotoxicity in vitro

sodium fluoride In vitro tests did not show mutagenic effects

Genotoxicity in vivo

sodium fluoride In vivo tests did not show mutagenic effects

Carcinogenicity

no data available

This product does not contain any ingredient designated as probable or suspected human carcinogens by:

NTP
IARC
OSHA
ACGIH

Toxicity for reproduction and development

Toxicity to reproduction / fertility

sodium fluoride Rat
NOAEL parent: 10 - 14 mg/kg

Rabbit
NOAEL parent: 14 mg/kg
not significant
Developmental Toxicity

Developmental Toxicity/Teratogenicity no data available

STOT

STOT-single exposure no data available

STOT-repeated exposure

Inhalation Prolonged exposure - Rat
Test substance: gas
Target Organs: Cardio-vascular system, Nervous system
observed effect

Inhalation - Rat
Target Organs: Respiratory system, Kidney, Liver, Testes
observed effect
gas

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Aspiration toxicity no data available

Further information corrosive effects
 Liver and kidney injuries may occur.
 Chronic exposure may entail dental or skeletal fluorosis
 The carcinogenic effect is not demonstrated in human
 risk of effect to:
 toxic effects for reproduction

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish
 sodium fluoride LC50 - 96 h : 51 mg/l - Fishes, Salmo gairdneri
 static test
 Fresh water

Acute toxicity to daphnia and other aquatic invertebrates.
 sodium fluoride EC50 - 48 h : 26 mg/l - Daphnia magna (Water flea)
 Fresh water
 EC50 - 96 h : 10.5 mg/l - Daphnia magna (Water flea)
 salt water

Chronic toxicity to fish
 sodium fluoride NOEC: 4 mg/l - 21 Days - Oncorhynchus mykiss (rainbow trout)
 static test
 Fresh water

Chronic toxicity to daphnia and other aquatic invertebrates.
 sodium fluoride NOEC: 8.9 mg/l - 21 Days - Daphnia magna (Water flea)
 static test
 Fresh water

12.2 Persistence and degradability

Abiotic degradation

Photodegradation neutralization by natural alkalinity
 Medium
 Air

Biodegradation

Biodegradability The methods for determining the biological degradability are not applicable to inorganic substances.

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12.3 Bioaccumulative potential

Bioconcentration factor (BCF) Does not bioaccumulate.

12.4 Mobility in soil

Adsorption potential (Koc)

Water
Solubility(ies)
Mobility

Soil/sediments
potential adsorption
pH
fluorides

Air
mobility as solid aerosols

12.5 Results of PBT and vPvB assessment no data available

12.6 Other adverse effects no data available

Ecotoxicity assessment

Acute aquatic toxicity
sodium fluoride Harmful to aquatic organisms.

Chronic aquatic toxicity
sodium fluoride . low chronic toxicity.

Remarks

No data is available on the product itself., Ecological data therefore refers only to the effects of the decomposition products., Harmful to aquatic organisms., Nevertheless, hazard for the environment is limited due to product properties: . low chronic toxicity., Product fate is highly dependent on environmental conditions: pH, temperature, redox potential, mineral and organic content of the medium ,...

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

- or

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Waste Code

- Environmental Protection Agency
- Hazardous Waste – YES

- RCRA Hazardous Waste (40 CFR 302)
- Corrosive waste – (C)

Advice on cleaning and disposal of packaging

- Clean container with water.
- The empty and clean containers are to be reused in conformity with regulations.
- To avoid treatments, as far as possible, use dedicated containers.

SECTION 14: Transport information

Transportation status: IMPORTANT! Statements below provide additional data on listed transport classification. The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

DOT

14.1 UN number	UN 1790
14.2 Proper shipping name	HYDROFLUORIC ACID
14.3 Transport hazard class	8
Subsidiary hazard class	6.1
Label(s)	8 (6.1)
14.4 Packing group	
Packing group	II
ERG No	157
14.5 Environmental hazards	NO
Marine pollutant	

14.6 Special precautions for user

This product contains one or more ingredients identified as a hazardous substance in Appendix A of 49 CFR 172.101. The product quantity, in one package, which triggers the RQ requirements under 49 CFR for each hazardous substance is shown.

Reportable quantities	:	RQ substance: Hydrogen fluoride
		RQ limit for substance: 100 lb
		RQ limit for product: 201.08 lb

TDG

14.1 UN number	UN 1790
14.2 Proper shipping name	HYDROFLUORIC ACID
14.3 Transport hazard class	8
Subsidiary hazard class	6.1
Label(s)	8 (6.1)

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14.4 Packing group

Packing group	II
ERG No	157

14.5 Environmental hazards

Marine pollutant	NO
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NOM

no data available

IMDG

14.1 UN number	UN 1790
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14.2 Proper shipping name	HYDROFLUORIC ACID
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14.3 Transport hazard class

	8
Subsidiary hazard class	6.1
Label(s)	8 (6.1)

14.4 Packing group

Packing group	II
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14.5 Environmental hazards

Marine pollutant	NO
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14.6 Special precautions for user

EmS	F-A , S-B
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For personal protection see section 8.

IATA

14.1 UN number	UN 1790
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14.2 Proper shipping name	HYDROFLUORIC ACID
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14.3 Transport hazard class

	8
Subsidiary hazard class:	6.1
Label(s):	8 (6.1)

14.4 Packing group

Packing group	II
---------------	----

Packing instruction (cargo aircraft)	855
Max net qty / pkg	30.00 L
Packing instruction (passenger aircraft)	851
Max net qty / pkg	1.00 L

14.5 Environmental hazards

	NO
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14.6 Special precautions for user

For personal protection see section 8.

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

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SECTION 15: Regulatory information**15.1 Notification status**

Inventory Information	Status
United States TSCA Inventory	Listed on Inventory
Mexico INSQ (INSQ)	In compliance with the inventory
Canadian Domestic Substances List (DSL)	Listed on Inventory
New Zealand. Inventory of Chemical Substances	In compliance with the inventory
Australia Inventory of Chemical Substances (AICS)	Listed on Inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	One or more components not listed on inventory
Korea. Korean Existing Chemicals Inventory (KECI)	Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed on Inventory

15.2 Federal Regulations**US. EPA EPCRA SARA Title III****SARA HAZARD DESIGNATION SECTIONS 311/312 (40 CFR 370)**

Fire Hazard	no
Reactivity Hazard	no
Sudden Release of Pressure Hazard	no
Acute Health Hazard	yes
Chronic Health Hazard	yes

Section 313 Toxic Chemicals (40 CFR 372.65)

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients	CAS-No.	Concentration
Hydrogen fluoride	7664-39-3	49 %

Section 302 Emergency Planning Extremely Hazardous Substance Threshold Planning Quantity (40 CFR 355)

The following components are subject to reporting levels established by SARA Title III, Section 302:

Ingredients	CAS-No.	Threshold planning quantity	Remarks
Hydrogen fluoride	7664-39-3	100 lb	

Section 302 Emergency Planning Extremely Hazardous Substance Reportable Quantity (40 CFR 355)

Ingredients	CAS-No.	Reportable quantity
Hydrogen fluoride	7664-39-3	100 lb

Section 304 Emergency Release Notification Reportable Quantity (40 CFR 355)

Ingredients	CAS-No.	Reportable quantity
Hydrogen fluoride	7664-39-3	100 lb

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US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

Ingredients	CAS-No.	Reportable quantity
Hydrogen fluoride	7664-39-3	100 lb

15.3 State Regulations**US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16: Other information**NFPA (National Fire Protection Association) - Classification**

Health	4 severe
Flammability	0 minimal
Instability or Reactivity	1 slight
Special Notices	None

HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

Health	4 severe
Flammability	0 minimal
Reactivity	1 slight
PPE	Determined by User; dependent on local conditions

Further information

- Environmental Protection Agency (EPA) requirements for a Risk Management Plan must be followed anytime at least 1000 lbs. of Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) are used or stored. Refer to 40 CFR 68.150 for specific details.
- Occupational Safety and Health Administration (OSHA) requirements for process safety management must be followed anytime at least 1000 lbs. of Hydrogen Fluoride are used or stored. Refer to 29 CFR 1910.119 for specific details.
- Product evaluated under the US GHS format.

Date Prepared: 04/01/2015

Key or legend to abbreviations and acronyms used in the safety data sheet

- C Ceiling limit
- STEL Short-term exposure limit
- TWA 8-hour, time-weighted average
- ACGIH American Conference of Governmental Industrial Hygienists
- OSHA Occupational Safety and Health Administration
- NTP National Toxicology Program
- IARC International Agency for Research on Cancer
- NIOSH National Institute for Occupational Safety and Health

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. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in another manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.