

1. Identification

Product identifier	Fluorosilicic Acid, 42-47%	
Other means of identification	None.	
Recommended use	Industrial applications	
Recommended restrictions	None known.	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	PVS Benson	
Address	1012 Gore Road Freelton, ON L0R1K0 Canada	
Telephone	1-800-265-0014	
e-mail	bensoncs@pvschemicals.com	
Emergency phone number	24 hours/7 days:	1-313-921-1200
Supplier	See above.	

2. Hazard identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 2
	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Not classified.	

Label elements



Signal word Danger

Hazard statement May be corrosive to metals. Causes severe skin burns and eye damage. Harmful if swallowed. Fatal if inhaled.

Precautionary statement

Prevention Keep only in original packaging. Do not breathe mist or vapour. Wash thoroughly after handling. Wear protective gloves, protective clothing, eye protection and face protection. Wear respiratory protection. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area.

Response Absorb spillage to prevent material-damage. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor. Specific treatment is urgent (see information on this label). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage Store in a corrosion resistant container with a resistant inner liner. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal Dispose of container in accordance with local, regional, national and international regulations.

Other hazards None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Hydrofluorosilicic acid		16961-83-4	42-47

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments

The concentration ranges are provided due to batch-to-batch variability.

4. First-aid measures

Inhalation	IF INHALED: remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTRE or doctor. Specific treatment is urgent (see information on this label).
Skin contact	a. Immediately remove contaminated clothing and continually flush exposed areas of skin with large volumes of water. Rinsing may be limited to 5 minutes if 0.13% benzalkonium chloride solution or 2.5% calcium gluconate gel is available, with the soaks or gel applied as soon as the rinsing is stopped. If not available, rinsing must continue until medical treatment is rendered. b. Immediately after thorough washing, use one of the measures below: 1. Begin soaking the affected areas in iced 0.13% benzalkonium chloride solution. Use ice cubes, not shaved ice, in order to prevent frostbite. If immersion is not practical, towels should be soaked with iced 0.13% benzalkonium chloride solution and used as compresses for the burned area. Compresses should be changed every 2 to 3 minutes. Soaks or compresses should be continued until pain is relieved or until more definitive medical treatment is provided. Relief of the pain is an indication of the success of treatment; therefore, local anesthetics should be avoided. It is recommended the applicator wear chemical protective gloves (e.g. butyl rubber gloves). 2. Gently massage a liberal quantity of calcium gluconate 2.5% gel - commercial preparation, 'HF Antidote Gel' if available or prepare at site by adding 10 mL of 10% calcium gluconate injectable solution to 30 mL of KY jelly or Muko other water soluble gels also suitable. (Note: Taro Gel is physically incompatible with calcium gluconate and must not be used. Do not use calcium chloride as it causes skin necrosis). Apply gel every 15 minutes and massage continuously until pain subsides and/or redness disappears or until medical attention becomes available. It is recommended the applicator wear chemical protective gloves, (e.g. butyl rubber gloves).
Eye contact	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 CENTRE or doctor.
Ingestion	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically.
General information	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Hazardous combustion products	May include and are not limited to: Fluoride gases. Hydrogen fluoride.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapour. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
--	---

Methods and materials for containment and cleaning up

Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Do not discharge into lakes, streams, ponds or public waters.

7. Handling and storage**Precautions for safe handling**

Do not breathe mist or vapour. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash thoroughly after handling. In case of insufficient ventilation, wear suitable respiratory equipment. Use good industrial hygiene practices in handling this material.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in a cool, dry place out of direct sunlight. Store in a corrosion resistant container with a resistant inner liner. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep out of reach of children.

8. Exposure controls/Personal protection**Occupational exposure limits****US. ACGIH Threshold Limit Values**

Components	Type	Value
Hydrofluorosilicic acid (CAS 16961-83-4)	TWA	2.5 mg/m3

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Hydrofluorosilicic acid (CAS 16961-83-4)	TWA	2.5 mg/m3

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value
Hydrofluorosilicic acid (CAS 16961-83-4)	TWA	2.5 mg/m3

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
Hydrofluorosilicic acid (CAS 16961-83-4)	TWA	2.5 mg/m3

Canada. Quebec OELs. (Ministry of Labour - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Hydrofluorosilicic acid (CAS 16961-83-4)	TWA	2.5 mg/m3

Biological limit values**ACGIH Biological Exposure Indices**

Components	Value	Determinant	Specimen	Sampling time
Hydrofluorosilicic acid (CAS 16961-83-4)	3 mg/L	Fluoride	Urine	*
	2 mg/L	Fluoride	Urine	*

* - For sampling details, please see the source document.

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Avoid generating mists. 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. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Impervious gloves. Confirm with reputable supplier first.
Other	As required by employer code. Use of an impervious apron is recommended. Wear appropriate chemical resistant clothing. Where contact is likely, wear chemical-resistant gloves, a chemical suit, rubber boots, and chemical safety goggles plus a face shield.
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2). Emergency responders should wear self-contained breathing apparatus (SCBA) to avoid inhalation of vapours generated by this product during a spill or other clean-up operations.
Thermal hazards	Not applicable.
General hygiene considerations	Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. When using do not eat or drink.

9. Physical and chemical properties

Appearance	Clear
Physical state	Liquid.
Form	Fuming liquid
Colour	Light yellow
Odour	Pungent
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (Water)	Complete
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

10. Stability and reactivity

Reactivity	May be corrosive to metals. Caustics. This product may react with strong oxidising agents.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Do not mix with other chemicals.
Incompatible materials	Strong oxidising agents. Metals.
Hazardous decomposition products	May include and are not limited to: Fluoride gases. Hydrogen fluoride.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Fatal if inhaled.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed. May cause stomach distress, nausea or vomiting.

Symptoms related to the physical, chemical and toxicological characteristics Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity Fatal if inhaled. Harmful if swallowed.

Components	Species	Test results
Hydrofluorosilicic acid (CAS 16961-83-4)		
Acute		
<i>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC50	Rat	1.1 mg/L, 1 hr, Fisher Scientific
<i>Oral</i>		
LD50	Guinea pig	200 mg/kg, HSDB
	Rat	430 mg/kg, NIOSH/RTECS
		125 mg/kg, Fisher Scientific

Skin corrosion/irritation Causes severe skin burns and eye damage.

Exposure minutes Not available.

Erythema value Not available.

Oedema value Not available.

Serious eye damage/eye irritation Causes serious eye damage.

Corneal opacity value Not available.

Iris lesion value Not available.

Conjunctival reddening value Not available.

Conjunctival oedema value Not available.

Recover days Not available.

Respiratory or skin sensitisation

Respiratory sensitisation Not a respiratory sensitizer.

Skin sensitisation This product is not expected to cause skin sensitisation.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity See below.

ACGIH Carcinogens

Hydrofluorosilicic acid (CAS 16961-83-4) A4 Not classifiable as a human carcinogen.

Canada - Manitoba OELs: carcinogenicity

FLUORIDES, AS F (CAS 16961-83-4) Not classifiable as a human carcinogen.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful. Exposure to fluorides over the years may produce an embrittlement and densification of bones, and an increased calcification of ligaments and vertebrae resulting in spinal stiffness.
Further information	Not available.

12. Ecological information

Ecotoxicity	Not available.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Mobility in general	Not available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	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.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

General Canada: TDG Proof of Classification: Classification Method: Classified as per Part 2, Sections 2.1 – 2.8 of the Transportation of Dangerous Goods Regulations. If applicable, the technical name and the classification of the product will appear below.

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number	UN1778
Proper shipping name	FLUOROSILICIC ACID
Hazard class	8
Packing group	II

TDG



15. Regulatory information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Canada CEPA Schedule I: Listed substance

Hydrofluorosilicic acid (CAS 16961-83-4) Listed.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

WHMIS status Controlled**International regulations****Inventory status**

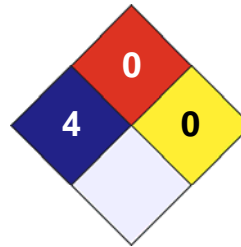
Country(s) or region	Inventory Name	On Inventory (Yes/No)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	/ 4
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	X



Issue date 26-April-2019
Revision date 26-April-2019
Effective date 26-April-2019
Version No. 01

Other information For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

Prepared by Dell Tech Laboratories Ltd. Phone: (519) 858-5021