MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**HYDROFLUORIC ACID, VERITAS® DOUBLE DISTILLED**
Catalog #	1229
Version #	02
Revision date	11-Aug-2009
CAS #	Mixture
Manufacturer information	GFS Chemicals, Inc. P.O. Box 245 Powell, OH 43065 US www.gfschemicals.com Fax 740-881-5989 Phone 740-881-5501 Toll Free 800-858-9682 Emergency Assistance Chemtrec 800-424-8300

2. Hazards Identification

Emergency overview	DANGER May be fatal if swallowed. May be fatal if absorbed through skin. May be fatal if inhaled. Corrosive. Causes skin and eye burns. Prolonged exposure may cause chronic effects.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Causes eye burns. Very toxic in contact with eyes. Risk of serious damage to eyes. Do not get this material in contact with eyes.
Skin	Very toxic in contact with skin. Causes severe skin burns. Causes chemical burns. Do not get this material in contact with skin.
Inhalation	Very toxic by inhalation. Causes burns. Do not breathe dust/fume/gas/mist/vapors/spray.
Ingestion	Very toxic if swallowed. Harmful if swallowed. Components of the product may be absorbed into the body by ingestion. Ingestion causes burns of the upper digestive and respiratory tracts. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. Do not ingest.
Target organs	Bone. Eyes. Skin. Respiratory system.
Signs and symptoms	Symptoms may be delayed.
Potential environmental effects	Components of this product are hazardous to aquatic life.

3. Composition / Information on Ingredients

Hazardous components	**CAS #**	**Percent**
HYDROGEN FLUORIDE	7664-39-3	40 - 60
Non-hazardous components	**CAS #**	**Percent**
WATER	7732-18-5	40 - 60

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Skin contact	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. After washing, skin burns may be treated with calcium gluconate salve or soaked in 0.2% iced Hyamine 1662 or 0.13% iced aqueous Zephiran Chloride and get medical attention. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse. After washing, skin burns may be treated with calcium gluconate salve or soaked in 0.2% iced Hyamine 1662 or 0.13% iced aqueous Zephiran Chloride and get medical attention.
Inhalation	Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.
Ingestion	Drink milk of magnesia or Tums with water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Seek medical attention.
Notes to physician	In case of shortness of breath, give oxygen. Keep victim warm.
General advice	Immediate medical attention is required. In case of shortness of breath, give oxygen. Keep victim warm. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties	No unusual fire or explosion hazards noted. The product is not flammable.
Extinguishing media	
Suitable extinguishing media	Water. Use extinguishing agent suitable for type of surrounding fire.
Protection of firefighters	
Specific hazards arising from the chemical	Hydrogen Fluoride.
Protective equipment and precautions for firefighters	In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers. Cool containers exposed to flames with water until well after the fire is out.
Specific methods	In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Keep upwind. Keep out of low areas. Keep people away from and upwind of spill/leak. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Ventilate closed spaces before entering them. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
Methods for containment	Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.
Methods for cleaning up	Should not be released into the environment. Large Spills: Dike far ahead of spill for later disposal. Dilute spill with water and neutralize with lime. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Dilute spill with water and neutralize with lime. Following product recovery, flush area with water. Never return spills in original containers for re-use.

7. Handling and Storage

Handling Do not breathe dust/fume/gas/mist/vapors/spray. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. Do not use in areas without adequate ventilation. Wear personal protective equipment. Avoid prolonged exposure. Wash thoroughly after handling. Handle and open container with care.

Storage Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Components	CAS #	Type	Value	Form
HYDROGEN FLUORIDE	7664-39-3	Ceiling	2 ppm	
		TWA	0.5 ppm	

U.S. - OSHA

Components	CAS #	Type	Value	Form
HYDROGEN FLUORIDE	7664-39-3	STEL	6 ppm	
		TWA	3 ppm	

Engineering controls Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Respiratory protection Use only with adequate ventilation. In case of inadequate ventilation, use respiratory protection. Do not breathe dust/fume/gas/mist/vapors/spray.

Hand protection Rubber gloves.

Eye / face protection Face-shield. Do not get in eyes.

Skin protection Do not get this material in contact with skin. Do not get this material on clothing. Wear chemical protective equipment that is specifically recommended by the manufacturer. Wear appropriate chemical resistant clothing. It may provide little or no thermal protection. Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations. Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent). Chemical resistant gloves.

General hygeine considerations Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. When using, do not eat, drink or smoke. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

General Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations.

9. Physical & Chemical Properties

Appearance Clear.

Color Colorless.

Odor Pungent.

Odor threshold Not available.

Physical state Liquid.

Form Liquid.

pH 3.4

Melting point -29.2 °F (-34 °C)

Freezing point Not available.

Boiling point 33.8 °F (1.07 °C)

Flash point Not available.

Evaporation rate Not available.

Flammability Not available.

Flammability limits in air, upper, % by volume Not available.

Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	1223 hPa estimated
Vapor density	Not available.
Specific gravity	1.16
Relative density	1.16 g/cm3
Solubility (water)	Miscible.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Percent volatile	52 % estimated
Molecular weight	20.0100 g/mol
Molecular formula	HF

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions. No hazardous self-reactivity.
Incompatible materials	May be corrosive to metals.
Hazardous decomposition products	Hydrogen fluoride.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Sensitization

US ACGIH Threshold Limit Values: Skin designation

HYDROGEN FLUORIDE	7664-39-3	Can be absorbed through the skin.

Acute effects Causes burns.

Acute Inhalation: LC 50

HYDROGEN FLUORIDE	7664-39-3	Monkey 1780 mg/l 1 h
HYDROGEN FLUORIDE	7664-39-3	Mouse 500 mg/l 1 h
HYDROGEN FLUORIDE	7664-39-3	Rat 1278 mg/l 1 h
HYDROGEN FLUORIDE	7664-39-3	Guinea pig 3.54 mg/l 15 min

Toxicology data for the preparation

Acute LC50: 7.38 mg/l, Guinea pig, Inhalation, estimated
Acute LC50: 3708 mg/l, Monkey, Inhalation, estimated
Acute LC50: 1042 mg/l, Mouse, Inhalation, estimated

Local effects	Very toxic by inhalation, in contact with skin and if swallowed. May deplete calcium levels in the body.
Chronic effects	Hazardous by OSHA criteria. Prolonged exposure may cause chronic effects.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Corrosivity	Hazardous by OSHA criteria.

12. Ecological Information

Ecotoxicity	Components of this product are hazardous to aquatic life.
Environmental effects	Harmful to aquatic organisms.
Persistence and degradability	Not available.

13. Disposal Considerations

Waste codes

US RCRA Hazardous Waste U List: Reference

HYDROGEN FLUORIDE	7664-39-3	U134

Disposal instructions	Do not allow this material to drain into sewers/water supplies. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Solutions with low pH-value must be neutralized before discharge. Dispose in accordance with all applicable regulations.
Waste from residues / unused products	Not applicable.

14. Transport Information

DOT

Basic shipping requirements:

Proper shipping name	Hydrofluoric acid, with not more than 60 percent strength
Hazard class	8
Subsidiary hazard class	6.1
UN number	UN1790
Packing group	II
Additional information:	
Special provisions	A6, A7, B15, IB2, N5, N34, T8, TP2, TP12
Packaging exceptions	154
Packaging non bulk	202
Packaging bulk	243
ERG number	157

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity

HYDROGEN FLUORIDE	7664-39-3	100 LBS

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity

HYDROGEN FLUORIDE	7664-39-3	100 LBS

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

HYDROGEN FLUORIDE	7664-39-3	1.0 %

CERCLA (Superfund) reportable quantity

HYDROGEN FLUORIDE: 100.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
Section 302 extremely hazardous substance	No
Section 311 hazardous chemical	Yes

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

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

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

HYDROGEN FLUORIDE	7664-39-3	500 LBS
HYDROGEN FLUORIDE	7664-39-3	100 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

HYDROGEN FLUORIDE	7664-39-3	Listed.

16. Other Information

Further information HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings
Health: 3*
Flammability: 0
Physical hazard: 1

NFPA ratings
Health: 3
Flammability: 0
Instability: 1

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This data sheet contains changes from the previous version in section(s): This document has undergone significant changes and should be reviewed in its entirety.