

SAFETY DATA SHEET

Creation Date 06-Jul-2010

Revision Date 25-Apr-2019

Revision Number 5

1. Identification

Product Name

HYDROFLUORIC ACID

Cat No. :

A513-4; A513-500; A513-P500

Synonyms

Hydrofluoric acid solution; Fluohydric acid; Fluoric acid

Recommended Use

Laboratory chemicals.

Uses advised against

Food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive to metals	Category 1
Acute oral toxicity	Category 2
Acute dermal toxicity	Category 1
Acute Inhalation Toxicity - Vapors	Category 2
Skin Corrosion/Irritation	Category 1 A
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word

Danger

Hazard Statements

May be corrosive to metals
Fatal if swallowed
Fatal in contact with skin
Causes severe skin burns and eye damage

May cause respiratory irritation
 Fatal if inhaled



Precautionary Statements

Prevention

- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not get in eyes, on skin, or on clothing
- Wear protective gloves/protective clothing/eye protection/face protection
- Do not breathe dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area
- Wear respiratory protection
- Keep only in original container

Response

Immediately call a POISON CENTER or doctor/physician

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin

- Wash contaminated clothing before reuse
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Ingestion

- Rinse mouth
- Do NOT induce vomiting

Spills

Absorb spillage to prevent material damage

Storage

- Store locked up
- Store in a well-ventilated place. Keep container tightly closed
- Store in corrosive resistant polypropylene container with a resistant inliner
- Store in a dry place

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Hydrogen fluoride	7664-39-3	40-60
Water	7732-18-5	40-60

4. First-aid measures

General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In

the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation

If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Move to fresh air. Immediate medical attention is required.

Ingestion

Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms and effects

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician

Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available

Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products

Gaseous hydrogen fluoride (HF)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health 4	Flammability 0	Instability 1	Physical hazards N/A
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6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not ingest.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Do not store in metal containers.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Hydrogen fluoride	TWA: 0.5 ppm TWA: 2.5 mg/m ³ Ceiling: 2 ppm Skin	(Vacated) TWA: 3 ppm (Vacated) TWA: 2.5 mg/m ³ (Vacated) STEL: 6 ppm TWA: 3 ppm	IDLH: 30 ppm IDLH: 250 mg/m ³ TWA: 3 ppm TWA: 2.5 mg/m ³ Ceiling: 6 ppm Ceiling: 5 mg/m ³	TWA: 0.5 ppm TWA: 2.5 mg/m ³ Ceiling: 2 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Tightly fitting safety goggles. Face-shield.

Skin and body protection Long sleeved clothing.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	pungent
Odor Threshold	No information available
pH	< 1.0
Melting Point/Range	-35 °C / -31 °F
Boiling Point/Range	105 °C / 221 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	2.21
Specific Gravity	1.15-1.20
Solubility	miscible
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available

Molecular Formula H F
 Molecular Weight 20

10. Stability and reactivity

Reactive Hazard None known, based on information available
Stability Stable under normal conditions.
Conditions to Avoid Incompatible products. Excess heat.
Incompatible Materials Metals, Cyanides, Sulfides, Bases, Fluorine
Hazardous Decomposition Products Gaseous hydrogen fluoride (HF)
Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions Corrosive to metals. Contact with metals may evolve flammable hydrogen gas.

11. Toxicological information

Acute Toxicity

Product Information
Oral LD50 Category 2. ATE = 5 - 50 mg/kg.
Dermal LD50 Category 1. ATE < 50 mg/kg.
Vapor LC50 Category 2. ATE = 0.5 - 2 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrogen fluoride	Not listed	Not listed	LC50 = 0.79 mg/L (Rat) 1 h
Water	-	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes severe burns by all exposure routes
Sensitization No information available
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Hydrogen fluoride	7664-39-3	Not listed	Not listed	Not listed	Not listed	Not listed
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. .

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hydrogen fluoride	Not listed	LC50 = 660 mg/L, 48h (Leuciscus idus)	Not listed	EC50 = 270 mg/L, 48h (Daphnia species)

Persistence and Degradability Soluble in water Persistence is unlikely based on information available. Miscible with water

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Hydrogen fluoride	-1.4

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Hydrogen fluoride - 7664-39-3	U134	-

14. Transport information

DOT

UN-No UN1790
 Proper Shipping Name HYDROFLUORIC ACID
 Hazard Class 8
 Subsidiary Hazard Class 6.1
 Packing Group II

TDG

UN-No UN1790
 Proper Shipping Name HYDROFLUORIC ACID
 Hazard Class 8
 Subsidiary Hazard Class 6.1
 Packing Group II

IATA

UN-No UN1790
 Proper Shipping Name HYDROFLUORIC ACID
 Hazard Class 8
 Subsidiary Hazard Class 6.1
 Packing Group II

IMDG/IMO

UN-No UN1790
 Proper Shipping Name HYDROFLUORIC ACID
 Hazard Class 8
 Subsidiary Hazard Class 6.1
 Packing Group II

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Hydrogen fluoride	7664-39-3	X	ACTIVE	-
Water	7732-18-5	X	ACTIVE	-

Legend:

TSCA - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Hydrogen fluoride	7664-39-3	X	-	231-634-8	X	X	X	X	KE-20198
Water	7732-18-5	X	-	231-791-2	X	-	X	X	KE-35400

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Hydrogen fluoride	7664-39-3	40-60	1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Hydrogen fluoride	X	100 lb	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hydrogen fluoride	X		-

OSHA - Occupational Safety and Health Administration Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Hydrogen fluoride	-	TQ: 1000 lb

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hydrogen fluoride	100 lb	100 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hydrogen fluoride	X	X	X	X	X
Water	-	-	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): N

DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Hydrogen fluoride	Release STQs - 1000lb (concentration >=50%) Release STQs - 1000lb (anhydrous) Theft STQs - 45lb (anhydrous)

Other International Regulations

Mexico - Grade No information available

16. Other information

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Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

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. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS