SAFETY DATA SHEET

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

1.1 Product identifiers

Product name	Hydrofluoric Acid 48% Solution (48-51%)
CAS number	7664-39-3
Synonyms	Hydrofluoric acid solution; Fluohydric acid; Fluoric acid

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

Identified uses	Laboratory Chemicals

1.3 Details of the supplier of the safety data sheet

Company	Lab Alley, LLC 12501 Pauls Valley Road Austin, Texas 78737 U.S.A.
Telephone	512-668-9918
Fax	512-886-4008

1.4 Emergency telephone

Emergency Phone #	US & Canada: 1-800-535-5053	INFOTRAC
	International 1-352-323-3500	INFOTRAC

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

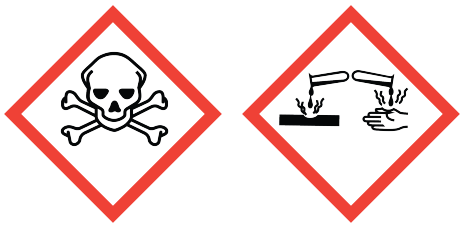
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Corrosive to Metals	Category 1
Acute Oral Toxicity	Category 2
Acute Dermal Toxicity	Category 1
Acute Inhalation Toxicity	Category 2
Skin Corrosion/Irritation	Category 1A
Serious Eye Damage/Eye Irritation	Category 1

Specific Target Organ Toxicity (single exposure) Category 3
Target Organ(s) - Respiratory system

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word: Danger

Hazard statements:
May be corrosive to metals.
Causes severe skin burns and eye damage.
May cause respiratory irritation.
Fatal if swallowed, in contact with skin or 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.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED: 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.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

None identified.

SECTION 3: Composition/information on ingredients

3.1 Components

Chemical name	Common name and synonyms	CAS number	Concentration
Hydrogen fluoride	Hydrofluoric acid; Fluoric acid	7664-39-3	48%
Water	Aqua; H2O	7732-18-5	52%

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

If inhaled	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. Remove to fresh air. Immediate medical attention is required. A nebulized solution of 2.5% Calcium gluconate may be administered with Oxygen by inhalation.
In case of skin contact	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required. Dermal burns may be treated with calcium gluconate gel or slurry in water or glycerine. This compound binds the active fluorides in an insoluble form and limits burn extension and pain. Soaking or immersion with iced 0.13% Benzalkonium chloride solution may be used for skin burns and should be continued until the pain is relieved. Do not use in eyes.
In case of 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.
If swallowed	Do NOT induce vomiting. Call a physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

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.

4.3 Indication of any immediate medical attention and special treatment needed

Immediate and specialised first aid and medical treatment is required. Speed is of the essence. Flush with plenty of water immediately. Continue flushing during transport to hospital or medical center. Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	Dry chemical, CO2 or water spray.
Unsuitable extinguishing media	Dry sand.

5.2 Specific hazards arising from the substance or mixture

The product causes burns of eyes, skin, and mucous membranes. Contact with metals may evolve flammable hydrogen gas. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.Hazardous Combustion Products: Gaseous hydrogen fluoride (HF).

5.3 Special 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.

5.4 Further information

Flash Point 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.

NFPA

Health	Flammability	Instability	Physical hazards
4	0	1	N/A

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

6.2 Environmental precautions

Should not be released into the environment.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

See Section 2 for full list of hazard and precaution statements.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed, seek immediate medical assistance.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

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

Incompatibilities

Metals. Cyanides. Sulfides. Bases. Fluorine.

SECTION 8: Exposure controls/personal protection

8.1 Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Component	Type	Value
Hydrogen fluoride	(Vacated) TWA	3 ppm, 2.5 mg/m3
	(Vacated) STEL	6 ppm
	TWA	3 ppm

US. ACGIH Threshold Limit Values

Component	Type	Value
Hydrogen fluoride	TWA	0.5 ppm, 2.5 mg/m3
	Ceiling	2.0 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Component	Type	Value
Hydrogen fluoride	IDLH	30 ppm, 250 mg/m3
	TWA	3 ppm, 2.5 mg/m3
	Ceiling	6 ppm, 5 mg/m3

Biological occupational exposure limits

No information available.

8.2 Exposure controls

Appropriate engineering controls

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

Tight sealing safety goggles. Face protection shield.

Skin protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Body Protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

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. Recommended Filter type: Acid gases filter; Type E; Yellow; conforming to EN14387.

Control of environmental exposure

No information available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Pungent
Odor Threshold	No information available
pH	1.0 (0.1M solution)
Melting Point/Range	< -36°C (< -33°F)
Boiling Point/Range	108°C (226°F)
Evaporation Rate	No information available
Flammability (solid)	Not applicable
Flammability or explosive limit	
Upper	No data available
Lower	No data available
Vapor Pressure	25 @ 20°C (68°F)
Vapor Density	1.97
Density	1.153 g/cc
Solubility	Miscible
Partition coefficient; n-octanol/water	No data available
Autoignition Temp	No information available
Decomposition Temp	No information available
Viscosity	1.4 cPs
Molecular Formula	HF
Molecular Weight	20.01 g/mol

VOC Content(%)	No information available
Oxidizing properties	No information available

9.2 Other safety information No information available

SECTION 10: Stability and reactivity

10.1 Reactivity
No information available.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Corrosive to metals. Contact with metals may evolve flammable hydrogen gas.

10.4 Conditions to avoid
Incompatible products. Excess heat.

10.5 Incompatible materials
Metals, Cyanides, Sulfides, Bases, Fluorine.

10.6 Hazardous decomposition products
Gaseous hydrogen fluoride (HF).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Product Information, Component Information

Acute toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrogen fluoride	-	-	0.79 mg/L (Rat) 1 h

Skin corrosion/irritation
Causes severe burns by all exposure routes.

Serious eye damage/eye irritation
Causes severe burns by all exposure routes.

Respiratory or skin sensitization
No information available.

Germ cell mutagenicity

No information available.

Carcinogenicity

Component	CAS	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

Specific target organ toxicity - single exposure

Respiratory system.

Specific target organ toxicity - repeated exposure

None known.

Reproductive toxicity

No information available.

Chronic effects

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.

11.2 Additional Information

The toxicological properties have not been fully investigated.

SECTION 12: Ecological information

12.1 Toxicity

Do not empty into drains.

Product		Species	Test Results
Hydrogen fluoride	LC50	Leuciscus idus	660 mg/L, 48h
	EC50	Daphnia species	270 mg/L, 48h

12.2 Persistence and degradability

Persistence is unlikely based on information available. Miscible with water.

12.3 Bio accumulative potential

No information available.

12.4 Mobility in soil

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

12.5 Results of PBT and vPvB assessment

No information available.

12.6 Endocrine disrupting properties

No information available.

12.7 Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1 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	-

SECTION 14: Transport information

DOT (US)

UN Number	UN1790
Proper Shipping name	HYDROFLUORIC ACID SOLUTION
Hazard Class	8
Subsidiary Hazard Class	6.1
Packaging Group	II

IMDG

UN Number	UN1790
Proper Shipping name	HYDROFLUORIC ACID SOLUTION
Hazard Class	8
Subsidiary Hazard Class	6.1
Packaging Group	II

IATA

UN Number	UN1790
Proper Shipping name	HYDROFLUORIC ACID SOLUTION
Hazard Class	8
Subsidiary Hazard Class	6.1
Packaging Group	II

SECTION 15: Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not applicable.

CERCLA Hazardous Substance List (40 CFR 302.4)
Listed, Hydrogen fluoride (CAS #7664-39-3), RQ: 100 lb.

SARA 304 Emergency release notification
Listed, Hydrogen fluoride (CAS #7664-39-3), RQ: 100 lb.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance
Listed, Hydrogen fluoride (CAS #7664-39-3), RQ: 100 lb.

SARA 311/312 Hazardous
See Section 2 for more information.

SARA 313 (TRI reporting)
Listed, Hydrogen fluoride (CAS #7664-39-3), RQ: 100 lb.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Listed, Hydrogen fluoride (CAS #7664-39-3), RQ: 100 lb.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act
Listed, Hydrogen fluoride (CAS #7664-39-3), RQ: 100 lb.

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace
Not listed.

US state regulations

US. Massachusetts RTK - Substance List
Listed, Hydrogen fluoride (CAS #7664-39-3).

US. New Jersey Worker and Community Right-to-Know Act
Listed, Hydrogen fluoride (CAS #7664-39-3).

US. Pennsylvania Worker and Community Right-to-Know Law
Listed, Hydrogen fluoride (CAS #7664-39-3).

California Proposition 65
Not listed.

SECTION 16: Other information

Date of Issue: 11/25/2019
Revision Date: 7/10/2026

SECTION 17: Disclaimer

The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.