SAFETY DATA SHEET

Revision date 17-January-2022 **Revision Number** 5

1. Identification

Product identifier

Product Name HYDROFLUORIC ACID, ULTRATRACE

Other means of identification

Product Code(s) H1120

UN/ID no UN1790

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use No information available

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Address
Spectrum Chemical Mfg. Corp.
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300

2. Hazard(s) identification

Classification

Acute toxicity - Oral	Category 2
Acute toxicity - Dermal	Category 1
Acute toxicity - Inhalation (Gases)	Category 2
Acute toxicity - Inhalation (Vapors)	Category 2
Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin corrosion/irritation	Category 1 Sub-category A
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (repeated exposure)	Category 1
Corrosive to metals	Category 1

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Danger

Hazard statements
Fatal if swallowed
Fatal in contact with skin
Fatal if inhaled
Causes severe skin burns and eye damage
Causes damage to organs through prolonged or repeated exposure
May be corrosive to metals

Appearance clear **Physical state** Liquid **Odor** Strong

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
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear respiratory protection
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container

Precautionary Statements - Response
Specific treatment (see .? on this label)
Specific treatment is urgent (see .? on this label)
Immediately call a POISON CENTER or doctor
Specific treatment (see .? on this label)
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
Immediately call a POISON CENTER or doctor
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
Wash contaminated clothing before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing
Immediately call a POISON CENTER or doctor
IF SWALLOWED: Immediately call a POISON CENTER or doctor
Rinse mouth
Do NOT induce vomiting
Absorb spillage to prevent material damage

Precautionary Statements - Storage
Store locked up.
Store in a well-ventilated place. Keep container tightly closed
Store in corrosive resistant/ .? container with a resistant inner liner

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Unknown acute toxicity
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

Other information
No information available.

3. Composition/information on ingredients

Substance

Not applicable.

Mixture

Chemical name	CAS No	Weight-%	Trade secret
Water	7732-18-5	48 - 54	*
Hydrogen fluoride	7664-39-3	46 - 52	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

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

Inhalation Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. 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. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical advice/attention.

Skin contact Get immediate medical advice/attention. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Ingestion Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical advice/attention.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Do not breathe vapor or mist. 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. Use personal protective equipment as required. See section 8 for more information.

Most important symptoms and effects, both acute and delayed

Symptoms Coughing and/ or wheezing. Difficulty in breathing. Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. Fire-fighting measures

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

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 Hydrogen fluoride gas.

Explosion data

Sensitivity to mechanical impact none.

Sensitivity to static discharge none.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Do not breathe vapor or mist. Keep people away from and upwind of spill/leak. Attention! Corrosive material.

Other information Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Take off contaminated clothing and wash before reuse. Do not breathe vapor or mist. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Packaging materials Plastic container.

8. Exposure controls/personal protection

Control parameters

Exposure Limits The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydrogen fluoride	No data available	3 ppm TWA	30 ppm IDLH (as F)

7664-39-3			

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Tight sealing safety goggles. Face protection shield.

Hand protection Wear suitable gloves. Impervious gloves.

Skin and body protection Impervious clothing. Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

General hygiene considerations Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Do not breathe vapor or mist. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	clear
Color	Colorless
Odor	Strong
Odor threshold	No information available

Property	**Values**	**Remarks • Method**
pH	no data available	None known
Melting point / freezing point	-37 °C / -34.6 °F	None known
Boiling point / boiling range	112 °C / 233.6 °F	None known
Flash point	no data available	None known
Evaporation rate	no data available	None known
Flammability (solid, gas)	no data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	1.65 @ 20°C (kPa)	None known
Vapor density	no data available	None known
Relative density	1.15	None known
Water solubility	Easily soluble in hot water Easily soluble in cold water	None known
Solubility(ies)	Very soluble in Acetone Slightly soluble in Ether	None known
Partition coefficient	No data available	None known
Autoignition temperature	no data available	None known
Decomposition temperature		None known
Kinematic viscosity	no data available	None known
Dynamic viscosity	No data available	None known

Other information

Explosive properties	No information available
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	20.01
VOC Content (%)	No information available
Liquid Density	No information available
Bulk density	No information available

10. Stability and reactivity

Reactivity No information available.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Conditions to avoid Exposure to air or moisture over prolonged periods. Excessive heat.

Incompatible materials Oxidizing agent. Acids. Bases.

Hazardous decomposition products Hydrogen fluoride will react with all silicon containing materials such as glass, concrete, and chemical spill sorbents such as vermiculite. This reaction will cause the generation of the highly toxic gas, silicon tetrafluoride.

11. Toxicological information

Information on likely routes of exposure

Product Information .

Inhalation Specific test data for the substance or mixture is not available. Fatal if inhaled. (based on components). Corrosive by inhalation. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.

Skin contact Specific test data for the substance or mixture is not available. Fatal in contact with skin. (based on components). Corrosive. Causes burns.

Ingestion Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. Fatal if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Coughing and/ or wheezing. Difficulty in breathing. Redness. Burning. May cause blindness.

Acute toxicity

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (inhalation-gas) 217.41 ppm

ATEmix (inhalation-vapor) 1.09 mg/l

Unknown acute toxicity

0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	90 mL/kg (Rat)	-	-
Hydrogen fluoride 7664-39-3	-	-	= 0.79 mg/L (Rat) 1 h

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

Skin corrosion/irritation Classification based on data available for ingredients. Causes burns.
Serious eye damage/eye irritation Classification based on data available for ingredients. Risk of serious damage to eyes. Causes burns.
Respiratory or skin sensitization No information available.
Germ cell mutagenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.
STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure.
Target organ effects respiratory system, Eyes, Skin.

Aspiration hazard No information available.

Other adverse effects No information available.

Interactive effects No information available.

12. Ecological information

Ecotoxicity .

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Hydrogen fluoride 7664-39-3	-	LC50: =660mg/L (48h, Leuciscus idus)	-	EC50: =270mg/L (48h, Daphnia species)

Persistence and degradability No information available.
Bioaccumulation Inherently biodegradable.

Component Information

Chemical name	Partition coefficient
Hydrogen fluoride 7664-39-3	-1.4

Other adverse effects No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

14. Transport information

DOT

UN/ID no	UN1790
Proper Shipping Name:	Hydrofluoric acid solution
Hazard class	8
Subsidiary Class	6.1
Packing group:	II
Special Provisions	A7, B15, IB2, N5, N34, T8, TP2,
Marine Pollutant	Severe Marine Pollutant
Description:	UN1790, Hydrofluoric acid solution, 8 (6.1), II
Emergency Response Guide Number	157

TDG

UN-No:	UN1790
Proper Shipping Name:	Hydrofluoric acid solution
Hazard class	8
Subsidiary Class	6.1
Packing Group:	II
Description:	UN1790, Hydrofluoric acid solution, 8 (6.1), II

MEX

UN-No	UN1790
Proper Shipping Name	Hydrofluoric acid solution
Hazard class	8
Subsidiary Class	6.1
Packing Group	II
Description	UN1790, Hydrofluoric acid solution, 8 (6.1), II

ICAO (air)

UN-No:	UN1790
Proper Shipping Name:	Hydrofluoric acid solution
Hazard class	8
Subsidiary hazard class	6.1
Packing Group:	II
Description:	UN1790, Hydrofluoric acid solution, 8 (6.1), II

IATA

UN number	UN1790
Proper Shipping Name:	Hydrofluoric acid solution
Transport hazard class(es)	8
Subsidiary hazard class	6.1
Packing group	II
Description:	UN1790, Hydrofluoric acid solution, 8 (6.1), II

IMDG

UN number	UN1790
Proper shipping name	Hydrofluoric acid solution
Transport hazard class(es)	8
Subsidiary hazard class	6.1
Packing group	II
EmS-No	F-A, S-B
Marine pollutant	NP1
Description	UN1790, Hydrofluoric acid solution, 8 (6.1), II

RID

UN number	UN1790
Proper Shipping Name:	Hydrofluoric acid solution
Transport hazard class(es)	8
Packing group	II
Classification code	CT1
Description:	UN1790, Hydrofluoric acid solution, 8 (6.1), II
Labels	8 + 6.1

ADR

UN number	1790
Proper Shipping Name:	Hydrofluoric acid solution
Transport hazard class(es)	8
Subsidiary hazard class	6.1
Packing group	II
Classification code	CT1
Tunnel restriction code	(E)
Description:	1790, Hydrofluoric acid solution, 8 (6.1), II, (E)
Labels	8 + 6.1

ADN

UN/ID No	UN1790
Proper shipping name	Hydrofluoric acid solution
Transport hazard class(es)	8
Packing Group	II
Classification code	CT1
Special Provisions	802
Description	UN1790, Hydrofluoric acid solution, 8 (+ 6.1), II
Hazard label(s)	8 + 6.1
Limited quantity (LQ)	1 L
ventilation	VE02
Equipment Requirements	PP, EP, TOX, A

15. Regulatory information

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	This product complies with ENCS:
IECSC	This product complies with China:
KECL	Complies
PICCS	Complies
AICS	All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	SARA 313 - Threshold Values %
Hydrogen fluoride - 7664-39-3	1.0

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Hydrogen fluoride 7664-39-3	-	-	-	Present

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).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Hydrogen fluoride 7664-39-3	100 lb final RQ 45.4 kg final RQ	-

US State Regulations

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

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Hydrogen fluoride 7664-39-3	3759	Present	Environmental hazard

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA
Health hazards 4
Flammability 0
Instability 0
Physical and chemical properties -
HMIS
Health hazards 4 *
Flammability 0
Physical hazards 0
Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet
Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value		

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)

Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Revision date	17-January-2022
Revision Note	No information available.

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 Safety Data Sheet