Safety Data Sheet

HF/HCL 2.4:1:44

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: HF/HCL 2.4:1:44

Synonyms/Generic Names: None

Product Number: 2487

Product Use: Industrial, Manufacturing or Laboratory use

Manufacturer: Columbus Chemical Industries, Inc.
N4335 Temkin Rd.
Columbus, WI. 53925

For More Information: 920-623-2140 (Monday-Friday 8:00-4:30)
www.columbuschemical.com

In Case of Emergency Call: CHEMTREC - 800-424-9300 or 703-527-3887 (24 Hours/Day, 7 Days/Week)

2. HAZARDS INDENTIFICATION

Hazard Not Otherwise Classified (HNOC): None

Signal Words: Danger

Pictograms:

GHS Classification:

Corrosive to metal	Category 1
Acute toxicity, Oral	Category 2
Acute toxicity, Inhalation	Category 2
Acute toxicity, Dermal	Category 1
Skin corrosion	Category 1A
Serious eye damage	Category 1

GHS Label Elements, including precautionary statements:

Hazard Statements:

H290	May be corrosive to metal.
H300+H310+H330	Fatal if swallowed, if inhaled or in contact with skin.
H314	Causes severe skin burns and eye damage.

Precautionary Statements:

P260	Do not breathe fume/gas/mist/vapors/spray.

P262	Do not get in eyes, on skin, or on clothing.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	In case of inadequate ventilation, wear respiratory protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do not induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/physician.
P361+P363	Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.
P271	Use only outdoors or in a well-ventilated area.
P390	Absorb spillage to prevent material damage.
P233+P234	Keep container tightly closed. Keep in original container.
P403+P405	Store in a well-ventilated place. Store locked up
P501	Dispose of contents/container in accordance with local regulations.

Potential Health Effects

Eyes	Causes severe eye burns.
Inhalation	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin	May be fatal if absorbed through skin. Causes skin burns.
Ingestion	May be fatal if swallowed.

NFPA Ratings

Health	3
Flammability	0
Reactivity	1
Specific hazard	Not Available

HMIS Ratings

Health	3
Fire	0
Reactivity	1

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	CAS #	EINECS# / ELINCS#	Formula	Molecular Weight
Hydrofluoric Acid	4-8	7664-39-3	231-634-8	HF	20.01 g/mol
Hydrochloric Acid	2-4	7647-01-0	231-595-7	HCl	36.46 g/mol
Water	Balance	7732-18-5	231-791-2	H_2O	18.00 g/mol

4. FIRST-AID MEASURES

Eyes	Immediately rinse with plenty of water for at least 15 minutes and seek medical attention immediately. Cold water may be used. Keep the eyelids apart and away from the eyeballs during irrigation. **Do not use skin burn treatments on the eyes.** Flushing with water should not be interrupted and contact lenses should be removed if possible. If sterile 1% calcium gluconate solution is available, water washing may be limited to 5 minutes, after which the 1% calcium gluconate solution should be used to irrigate the eye using a syringe or a continuous irrigation device. Get medical attention

	immediately, preferably an eye specialist. Place ice pack on eyes until reaching emergency room.
Inhalation	Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. An authorized person should administer oxygen to a victim who is having difficulty breathing, until the exposed is able to breathe easily by themself. Get medical attention immediately. Calcium gluconate, 2.5% in normal saline may be given by nebulizer with oxygen.
Skin	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cold water may be used. Material is absorbed through the skin. Get medical attention immediately. Limit washing to 5 minutes if treatment specific to HF exposure is available. After thorough washing for at least 5 minutes, the burned area should be immersed in a solution of 0.13% iced aqueous Benzalkonium chloride until pain is relieved. If immersion is impractical, towels could be soaked with one of the above solutions and used as compresses for the burn area. As an alternate first aid treatment, 2.5% calcium gluconate gel may be continuously massaged into the burn area until the pain is relieved.
Ingestion	**Do Not Induce Vomiting!** Never give anything by mouth to an unconscious person. If conscious, drink large amounts of water as quickly as possible to dilute the acid. Drink several glasses of milk, or several ounces of milk of magnesia, or grind up and administer up to 30 antacid tablets with water. Get medical attention immediately.
General advice	Immediately call a Poison Center/Physician. Show safety data sheet to the doctor.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media	Product is not flammable. Use appropriate media for adjacent fire. Cool containers with water, keep away from common metals.
Special protective equipment and precautions for firefighters	Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots. Material can react violently with water (spattering and misting) and react with metals to produce flammable hydrogen gas.
Specific hazards arising from the chemical	Emits toxic fumes (hydrogen fluoride, hydrogen chloride gas) under fire conditions. (See also Stability and Reactivity section).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Do not breathe vapors, fume or mist. See section 8 for recommendations on the use of personal protective equipment. Emergency procedures shall be executed only by specialists or authorized personnel.
Environmental precautions	Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements.
Methods and materials for containment and cleaning up	Neutralize spill. Absorb spill with noncombustible absorbent material, then place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Do not breathe vapors, fume, or mist. See section 8 for recommendations on the use of personal

protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use. Avoid formation of aerosols.

Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area. Do not store in glass for prolonged periods of time. Keep away from incompatible materials (see section 10 for incompatibilities).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls:

Component	Exposure Limits	Basis	Entity
Hydrogen fluoride	0.5 ppm (0.41 mg/m^3)	TWA	ACGIH® TLV®
	2 ppm (1.64 mg/m^3)	CEIL	ACGIH® TLV®
	3 ppm	TWA	OSHA PELs
	3 ppm (2.5 mg/m^3)	TWA	NIOSH RELs
	6 ppm (5 mg/m^3)	CEIL	NIOSH RELs
Hydrogen chloride	2 ppm (2.98 mg/m^3)	CEIL	ACGIH® TLV®
	5 ppm (7 mg/m^3)	CEIL	OSHA PELs
	5 ppm (7 mg/m^3)	CEIL	NIOSH RELs

TWA: Time Weighted Average over 8 hours of work.
TLV: Threshold Limit Value over 8 hours of work.
REL: Recommended Exposure Limit
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit usually 15 minutes.
IDLH: Immediately Dangerous to Life or Health
WEEL: Workplace Environmental Exposure Levels
CEIL: Ceiling

Personal Protection

Eyes	Wear chemical safety glasses or goggles, and face shield.
Inhalation	Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.
Skin	Wear nitrile or rubber gloves, and full body (synthetic) covering. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Other	Not Available

Other Recommendations
Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling. Have supplies and equipment for neutralization and running water available. HF antidote gel for skin burns or other solutions discussed in Section 4, First Aid.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	Liquid
Odor	Characteristic odor
Odor threshold	Not Available
pH	Not Available
Melting point/freezing point	Not Available
Initial boiling point and boiling range	Not Available
Flash point	Not Flammable
Evaporation rate	Not Available
Flammability (solid, gas)	Not Flammable
Upper/lower flammability or explosive limit	Not Explosive
Vapor pressure	Not Available

Vapor density	Not Available
Relative density	Not Available
Solubility (ies)	Not Available
Partition coefficient: n-octanol/water	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	Not Available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable
Possibility of Hazardous Reactions	Will not occur.
Conditions to Avoid	Uncontrolled addition of water.
Incompatible Materials	Moisture, bases, organic material, metals, glass, ceramics, aluminum, stainless steel, carbonates, cyanides, sulfides. Reacts violently with acetic anhydride, ammonium hydroxide, arsenic trioxide, calcium oxide, potassium permanganate, sodium, sodium hydroxide, sulfuric acid.
Hazardous Decomposition Products	Hydrogen fluoride, Hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Hydrofluoric acid

Skin	Not Available
Eyes	Not Available
Respiratory	LC50- rat- 1 hour: 2240-2340 ppm
Ingestion	LD100- guinea pig– 80 mg/kg

Hydrochloric acid

Skin	Not Available
Eyes	Not Available
Respiratory	Not Available
Ingestion	LD50 – Rabbit – 900 mg/kg

Carcinogenicity

IARC	3: Not classifiable as to its carcinogenicity to humans (Hydrogen chloride).
ACGIH	A4: Not classifiable as a human carcinogen (Hydrogen chloride).
NTP	No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Signs & Symptoms of Exposure

Eyes	Burns, pain, watering eyes.
Inhalation	Burning, choking, coughing, wheezing, laryngitis, shortness of breath, headache or nausea.
Skin	Burning, irritation
Ingestion	Severe and rapid corrosive burns of the mouth, gullet and gastrointestinal tract, burning, choking, nausea, vomiting and severe pain.

Chronic Toxicity	May cause Fluorosis or hypocalcaemia and organ damage.
Teratogenicity	Not available
Mutagenicity	May cause genetic effects based on animal data.
Embryotoxicity	May cause fetal toxicity based on animal data.

Target Organ(s)	Kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, circulatory system, teeth.
Reproductive Toxicity	Not Available
Respiratory/Skin Sensitization	Not Available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Hydrofluoric acid

Aquatic Vertebrate	Aquatic fish; EC50 (48 hours): 270 mg/l
Aquatic Invertebrate	Not Available
Terrestrial	Not Available

Hydrochloric acid

Aquatic Vertebrate	LC50 – Gambusia affinis – 282 mg/L – 96h
Aquatic Invertebrate	Not Available
Terrestrial	Not Available

Persistence and Degradability	Not Available
Bioaccumulative Potential	Not Available
Mobility in Soil	Not Available
PBT and vPvB Assessment	Not Available
Other Adverse Effects	Not Available
Reproductive Toxicity	Not Available
Respiratory/Skin Sensitization	Not Available

13. DISPOSAL CONSIDERATIONS

Waste Product or Residues	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product or residue.
Product Containers	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

14. TRANSPORTATION INFORMATION

US DOT	UN2922, Corrosive liquids, toxic, n.o.s. (Hydrofluoric acid, Hydrochloric acid), 8 (6.1), pg II
TDG	UN2922, CORROSIVE LIQUIDS, TOXIC, N.O.S. (HYDROFLUORIC ACID, HYDROCHLORIC ACID), 8 (6.1), PG II
IMDG	UN2922, CORROSIVE LIQUIDS, TOXIC, N.O.S. (HYDROFLUORIC ACID, HYDROCHLORIC ACID), 8 (6.1), PG II
Marine Pollutant	No
IATA/ICAO	UN2922, Corrosive liquids, toxic, n.o.s. (Hydrofluoric acid, Hydrochloric acid), 8 (6.1), pg II

15. REGULATORY INFORMATION

TSCA Inventory Status	All ingredients are listed on the TSCA Active inventory.
DSL / NDSL	All ingredients are listed on the DSL inventory.
California Proposition 65	Not Listed
Rhode Island: Hazardous Substance List	Listed: Hydrochloric Acid, Hydrofluoric Acid
Massachusetts: Toxic or Hazardous Substance List, Right to Know	Listed: Hydrochloric Acid, Hydrofluoric Acid
Pennsylvania: Hazardous Substance List	Listed: Hydrochloric Acid, Hydrofluoric Acid
New Jersey: Right to Know Hazardous Substance List	Listed: Hydrochloric Acid, Hydrofluoric Acid
SARA 302	Listed: Hydrofluoric Acid
SARA 304	Listed: Hydrofluoric Acid
SARA 311	Reactive Hazard, Acute Health Hazard
SARA 312	Reactive Hazard, Acute Health Hazard
SARA 313	Listed: Hydrofluoric Acid
WHMIS Canada	Class D1A: Poisonous and infectious material – Immediate and serious effects – Very toxic. Class D2A, Poisonous and infectious material – Other effects – Very toxic. Class E: Corrosive material.

16. OTHER INFORMATION

Revision	Date
Original	06/03/2021
Revision 1	02/21/2022

Disclaimer: The information provided in this Safety Data Sheet (“SDS”) is correct to the best of our knowledge, information, and belief at the date of publication. The information in this SDS relates only to the specific Product identified under Section 1, and does not relate to its use in combination with other materials or products, or its use as to any particular process. Those handling, storing, or using the Product should satisfy themselves that they have current information regarding the particular way the Product is handled, stored or used and that the same is done in accordance with federal, state and local law. WE DO NOT MAKE ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING (WITHOUT LIMITATION) WARRANTIES WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN OR WITH RESPECT TO FITNESS FOR ANY PARTICULAR USE. WE DO NOT ASSUME RESPOSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, INJURY, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THIS PRODUCT.