

Hydrofluoric Acid/Nitric Acid, 50%/50% (v/v)

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Hydrofluoric Acid/Nitric Acid, 50%/50% (v/v)

Synonyms/Generic Names: None

Product Number: 2659

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 IDENTIFICATION

Hazard Not Otherwise Classified (HNOC): None

Signal Words: Danger

Pictograms:



GHS Classification:

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

GHS Label Elements, including precautionary statements:

Hazards Statements:

H314	Causes severe skin burns and eye damage.
H300+H310	Fatal if swallowed or in contact with skin.
H330	Fatal if inhaled.

Precautionary Statements:

P280	Wear protective gloves/protective clothing/eye protection/face protection.
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P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contacts if present and easy to do so. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P284	Wear respiratory protection.
P302+P350	IF ON SKIN: Gently wash with plenty of soap and water

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 severe skin burns.
Ingestion	May be fatal if swallowed.

NFPA Ratings

Health	4
Flammability	0
Reactivity	1
Specific hazard	Not Available

HMIS Ratings

Health	3
Fire	0
Reactivity	2

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	CAS #	EINECS# / ELINCS#	Formula	Molecular Weight
Nitric Acid	35-40	7697-37-2	231-714-2	HNO ₃	63.01 g/mol
Hydrofluoric Acid	20-25	7664-39-3	231-634-8	HF	20.01 g/mol

4. FIRST-AID MEASURES

Eyes	In case of eye contact, rinse with plenty of water and seek medical attention immediately. Cold water may be used. Keep the eyelids apart and away from the eyeballs during irrigation. Do not use oily drops or ointment of HF skin burn treatments on the eyes. Get medical attention immediately, eye specialist preferably. 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. Get medical attention.
Skin	In case of contact, 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. While waiting for medical attention, it has been shown that flushing the affected area with water for one minute and then massaging HF Antidote Gel into the wound until there is a cessation of pain is a most effective first aid treatment. HF Antidote Gel contains Calcium Gluconate which combines with HF for insoluble Calcium Fluoride, thus preventing the extraction of calcium from the body tissue and bones. Another alternative first aid treatment, after thorough washing of the burned area, is to immerse the burned area in a solution of 0.2% iced aqueous Hyamine 1622 or 0.13% iced aqueous Zephiran Chloride. If immersion is impractical, towels could be soaked with one of the above solutions and used as compresses for the burn area. Hyamine 1622 is a trade name for Tetracaine Benzethonium Chloride. Zephiran is a trade name for Benzalkonium Chloride.
Ingestion	Do Not Induce Vomiting! Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.

5. FIREFIGHTING MEASURES

Suitable (and unsuitable) extinguishing media	Product is not flammable. Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide for adjacent fire. Use flooding quantities of water to cool containers, 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 (nitrogen oxides, hydrogen fluoride gas) under fire conditions. Strong Oxidizer! Contact with organic material may cause fire. Material will react with metals to produce flammable hydrogen gas. Pressurized containers may explode. See also Stability and Reactivity section.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	See section 8 for recommendations on the use of personal protective equipment.
Environmental precautions	Prevent spillage from entering drains. Any release to the environment may be subject to a federal/national or local reporting requirements.
Methods and materials for containment and cleaning up	Neutralize spill with sodium bicarbonate or lime. 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

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.

Conditions for safe storage, including any incompatibilities

Store in cool, dry well ventilated area in tightly closed, plainly labeled containers. Keep away from incompatible materials (see section 10 for incompatibilities). Containers, even when empty, will retain residue and vapors. Prevent contact with glass, sand, or silica.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls:

Component	Exposure Limits	Basis	Entity
Nitric Acid	2 ppm 5.2 mg/m ³	TLV	ACGIH
	4 ppm 10 mg/m ³	STEL	ACGIH
	2 ppm	PEL	OSHA

	5 mg/m ³		
	2 ppm 5 mg/m ³	REL	NIOSH
	4 ppm 10 mg/m ³	STEL	NIOSH
	25 ppm	IDLH	OSHA
Hydrofluoric Acid	0.5 ppm 0.41 mg/m ³	TLV	ACGIH
	2 ppm 1.64 mg/m ³	CEIL	ACGIH
	3 ppm	PEL	OSHA
	3 ppm 2.5 mg/m ³	REL	NIOSH
	6 ppm 5 mg/m ³	CEIL	NIOSH
	30 ppm	IDLH	USA OSHA

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 during x minutes.

IDLH: Immediately Dangerous to Life or Health

WEEL: Workplace Environmental Exposure Levels

CEIL: Ceiling

Personal Protection

Eyes	Wear chemical safety glasses with a face shield for splash protection.
Inhalation	Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.
Skin	Wear neoprene or rubber gloves, apron and other protective clothing appropriate to the risk of exposure.
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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	Clear to light brown/pink liquid
Odor	Sharp, irritating odor
Odor threshold	Not Available
pH	1
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	1.2950 (water = 1)
Solubility (ies)	Completely soluble in water
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, contact with combustible materials, heat
Incompatible Materials	Acids, alkalis, amines, 2-aminoethanol, Chlorosulfuric acid, glass, metals, nitrogen compounds, oleum silicates
Hazardous Decomposition Products	Will yield hydrogen gas from contact with metals; silicon tetrafluoride from reaction with silica or glass, hydrogen fluoride gas, nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Nitric Acid

Skin	Not Available
Eyes	Not Available
Respiratory	LC50 Inhalation – rat – 244 ppm
Ingestion	LDLo Oral (human): 430 mg/kg

Hydrofluoric Acid

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

Carcinogenicity

IARC	No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
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

Skin	May be fatal if absorbed through skin. Causes skin burns.
Eyes	Eye burns, pain, watering eyes.
Respiratory	Spasm, inflammation and edema of the bronchi, inflammation and edema of the larynx, pneumonitis, burning, choking, coughing, wheezing, laryngitis, shortness of breath, headache or nausea.
Ingestion	Burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting, pulmonary edema. Large doses may cause: conversion of hemoglobin to methemoglobin, producing cyanosis; marked fall in blood pressure, leading to collapse, coma, and possibly death.

Chronic Toxicity	Not Available
Teratogenicity	Not Available
Mutagenicity	Not Available
Embryotoxicity	Not Available
Target Organ(s)	Lungs, Teeth, Cardiovascular system, Liver, Kidney
Reproductive Toxicity	Not Available
Respiratory/Skin Sensitization	Not Available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Nitric Acid

Aquatic Vertebrate	Aquatic fish; LC50 (96 hrs): 72 mg/l (Gambusia affinis)
Aquatic Invertebrate	Not Available
Terrestrial	Not Available

Hydrofluoric Acid

Aquatic Vertebrate	Aquatic fish; EC50 (48 hours): 270 mg/l
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

13. DISPOSAL CONSIDERATIONS

Waste 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 container 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. TRANSPORT INFORMATION

US DOT	UN2922, Corrosive liquids, toxic, n.o.s., (hydrofluoric acid and nitric acid), 8 (6.1), pg II
TDG	UN2922, CORROSIVE LIQUIDS, TOXIC, N.O.S., (HYDROFLUORIC ACID AND NITRIC ACID), 8 (6.1), pg II
IMDG	UN2922, CORROSIVE LIQUIDS, TOXIC, N.O.S., (HYDROFLUORIC ACID AND NITRIC ACID), 8 (6.1), pg II
Marine Pollutant	No
IATA/ICAO	UN2922, Corrosive liquids, toxic, n.o.s., (hydrofluoric acid and nitric 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: Nitric Acid, Hydrofluoric Acid

Massachusetts: Toxic or Hazardous Substance List, Right to Know	Listed: Nitric Acid, Hydrofluoric Acid
Pennsylvania: Hazardous Substance List	Listed: Nitric Acid, Hydrofluoric Acid
New Jersey: Right to Know Hazardous Substance List	Listed: Nitric Acid, Hydrofluoric Acid
SARA 302	Listed: Nitric Acid, Hydrofluoric Acid
SARA 304	Listed: Nitric Acid, Hydrofluoric Acid
SARA 311	Acute Health Hazard.
SARA 312	Acute Health Hazard.
SARA 313	Listed: Nitric Acid, Hydrofluoric Acid
WHMIS Canada	Class C: Oxidizing material. 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	01/22/2014
Revision 1	01/10/2022

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 RESPONSIBILITY 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.