

Safety Data Sheet

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

SECTION 1: Identification

Product identifier

Trade name/designation:	Hydrofluoric Acid BAKER INSTRA-ANALYZED Plus
Product No.:	9387
Synonyms:	none

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

Recommended use	For Laboratory, Research or Manufacturing Use.
Uses advised against	Not determined.

Details of the supplier of the safety data sheet

Supplier

Avantor Performance Materials, LLC.

Street	100 Matsonford Rd, Suite 200
Postal code/City	Radnor, PA 19087, United States
Telephone	+1-855-282-6867
Telefax	+1-610-573-2610

Emergency phone number

Telephone	+1-800-424-9300 (Chemtrec, 24 hrs/day, 7 days/week, USA and Canada)
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Preparation Information

Product Information Compliance

E-mail	SDS@avantorsciences.com
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SECTION 2: Hazards identification

Classification of the substance or mixture

Label elements

Physical hazards

Substance or mixture corrosive to metals, category 1

Health hazards

Acute toxicity, category 2, oral and inhalation

Acute toxicity, category 1, dermal

Skin corrosion, category 1

Serious eye damage, category 1

Specific target organ toxicity (single exposure), category 1⁽¹⁾

Specific target organ toxicity (repeated exposure), category 1⁽²⁾

Target Organs

(1) blood, respiratory tract

(2) no data available

Hazard pictograms



Signal word: Danger

Hazard statements

H290 - May be corrosive to metals.

H310 - Fatal in contact with skin.

H300+H330 - Fatal if swallowed or if inhaled.

H314 - Causes severe skin burns and eye damage.

H370 - Causes damage to organs.

H372 - Causes damage to organs through prolonged or repeated exposure.

Precautionary statements**Prevention:**

P234 - Keep only in original container.

P260 - Do not breathe dust/fume/gas/mist/vapours/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.

P271 - Use only outdoors or in a well-ventilated area.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P284 - [In case of inadequate ventilation] wear respiratory protection.

Response:

P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P302+P352 - IF ON SKIN: Wash with plenty of water.

P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

P308+P311 - IF exposed or concerned: Call a POISON CENTER/doctor.

P320 - Specific treatment is urgent (see FIRST AID on this label).

P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.

P363 - Wash contaminated clothing before reuse.

P390 - Absorb spillage to prevent material damage.

Storage:

P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

P405 - Store locked up.

P406 - Store in a corrosion-resistant container with a resistant inner liner.

Disposal:

P501 - Dispose of contents/container to an appropriate treatment or disposal facility in accordance with applicable laws and regulations.

Hazard(s) not otherwise classified (HNOC)

none

SECTION 3: Composition/information on ingredients

Substances

Not applicable

Mixtures

Substance name	Identifier	Concentration
Hydrofluoric acid%	CAS No.: 7664-39-3	45 - 55 %

SECTION 4: First aid measures

General information

Calcium gluconate solutions for rinsing (recipes are available in pharmacies), calcium gluconate gel and drinking ampoules with calcium lactate pentahydrate and calcium gluconate from the pharmacy and glucocorticoid metered dose aerosol should be available. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure. Symptoms may develop several hours following exposure; medical observation therefore necessary for at least 48 hours.

In case of inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. Have the casualty deeply breath in a glucocorticoid inhalation spray repeatedly as soon as possible. Immediately call a POISON CENTER/doctor.

In case of skin contact

Take off immediately all contaminated clothing. Rinse skin with water or shower. Rinse with calcium gluconate solution. Apply calcium gluconate gel (2.5%) generously and massage in gently, even if no pain is felt. Continue treatment until pain free and then for another 15 minutes. Apply new calcium gluconate gel in between after rinsing with water. Seek medical advice immediately.

After eye contact:

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse eyes with Calcium gluconate 1% solution in physiological serum. Continue Calcium gluconate drip into eyes. Transport to the ophthalmologist or eye clinic as soon as possible. Continue drop wise with Calcium gluconate solution or if not available rinsing with isotonic saline solution during transport, alternatively with water. Put victim at rest, cover with a blanket and keep warm. Seek medical advice immediately.

In case of ingestion

Rinse mouth thoroughly with water. Spit out all liquid. Administer 1-4 calcium gluconate drinking ampoules (calcium lactate pentahydrate and calcium gluconate) or 1% calcium gluconate solution in small sips (if not available: substitute milk or chalk suspension, otherwise water). Put victim at rest, cover with a blanket and keep warm. Immediately call a POISON CENTER/doctor.

Most important symptoms/effects, acute and delayed

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. After inhalation: Causes severe burns. Dyspnoea. Pulmonary oedema. After skin contact: Causes severe burns. Absorptive effect possible. After eye contact: Causes severe burns. Causes serious eye damage. Risk of blindness. After ingestion: Causes severe burns. Nausea. Vomiting. General: Hypocalcemia Depression of central nervous system.

Indication of any immediate medical attention and special treatment needed

Hydrofluoric acid rapidly dissociates into hydrogen and fluoride ions after absorption. Fluoride ion migrates further, destroying underlying tissue layers and forming soluble and insoluble compounds that cause systemic toxic effects. Symptoms of poisoning may appear later. After inhalation, immediate application of glucocorticoids (inhalative), administration of oxygen and immobilization of the affected person are indicated. If necessary, all further measures of pulmonary edema prophylaxis. Inhalation of a 2.5 - 3% calcium gluconate solution (in isotonic sodium chloride solution) via a nebulizer. Monitoring of respiratory function. After skin contact: Apply calcium gluconate gel (2.5%) generously and massage in gently, even if no pain is felt. Continue treatment until pain free and then for another 15 minutes. Apply new calcium gluconate gel in between after rinsing with water. For third-degree burns from the size of the hand, Ca and Mg substitution by means of infusions is indicated, with monitoring of the serum levels and the ECG. After decontamination of the skin pain treatment and shock prophylaxis. After eye contact: Rinse with calcium gluconate solution. Treat symptomatically. Corticosteroid and antibiotic treatment. Following ingestion: Careful endoscopic examination and emptying of the stomach as quickly as possible; Gastric lavage with 1% calcium gluconate solution and subsequent instillation of 40 g calcium gluconate.

SECTION 5: Fire fighting measures**Extinguishing media****Suitable extinguishing media**

ABC-powder
Carbon dioxide (CO₂).
Dry sand
Nitrogen

Extinguishing media which must not be used for safety reasons

Water spray.
Full water jet

Specific hazards arising from the chemical

Non-combustible corrosive substances (liquid).
Causes severe skin burns and eye damage.
Lung damage.
In case of fire may be liberated:
Hydrogen fluoride

Advice for firefighters

In case of fire and/or explosion do not breathe fumes.
Protective equipment and precautions for firefighters:
Wear a self-contained breathing apparatus and chemical protective clothing.
Co-ordinate fire-fighting measures to the fire surroundings.
In case of fire: Evacuate area.

SECTION 6: Accidental release measures**Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel: Use personal protective equipment as required. Avoid substance contact. Do not breathe vapor or spray. Remove victim out of the danger area. First Aid, decontamination, treatment of symptoms. For emergency responders: Wear a self-contained breathing apparatus and chemical protective clothing. Product is non-flammable. Adapt fire and explosion protection measures to the combustible substances in the area. In case of major fire and release of large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Environmental precautions

Avoid release to the environment. Do not allow to enter into surface water or drains. Cover drains. Advise Authorities if spillage has entered water course or sewer or has contaminated soil or vegetation.

Methods and material for containment and cleaning up

Large spills: Dike or dam to contain for later disposal. Take up mechanically. Collect spillage. Small spills: Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Then neutralise with soda solution or slurried lime (calcium hydroxide suspension). Dispose according to legislation.

Reference to other sections

Personal protection equipment (PPE): see section 8 Disposal information: see section 13

SECTION 7: Handling and storage
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Precautions for safe handling

Advices on safe handling

Obtain special instructions before use.

Ensure operatives are trained to minimise exposures.

Calcium gluconate solutions for rinsing (recipes are available in pharmacies), calcium gluconate gel and drinking ampoules with calcium lactate pentahydrate and calcium gluconate from the pharmacy and glucocorticoid metered dose aerosol should be available.

Wear personal protection equipment (refer to section 8).

Avoid contact with eyes and skin.

Avoid inhalation of the product.

Use extractor hood (laboratory).

Transfer and handle product only in closed systems.

Provide adequate ventilation.

Use of small quantities within laboratory settings within enclosed or contained systems, including unavoidable exposures during material transfers and equipment cleaning.

Measures to prevent fire, aerosol and dust generation

Use extractor hood (laboratory).

Measures required to protect the environment

Cover drains.

Do not allow to enter into surface water or drains.

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

Conditions for safe storage, including any incompatibilities

Recommended storage temperature: 15-25 °C

Storage: Store in a place accessible by authorized persons only. Keep container tightly closed and in a well-ventilated place. Keep cool. Protect from sunlight. Keep/Store only in original container. For longer storage periods, regularly check the period of use of the packaging. For hydrofluoric acid, this is 2.5 years from the date of manufacture of the packaging (see plastic clock on packaging). Suitable

container/equipment material: Polytetrafluoroethylene (PTFE) Unsuitable container/equipment material: Glass Polyethylene

SECTION 8: Exposure controls/personal protection

Control parameters

Ingredient (Designation)	Source	Country	parameter	Limit value
Hydrofluoric acid%	NIOSH	US	LTV	2,5 mg/m ³ - 3 ppm
Hydrofluoric acid%	NIOSH	US	STV	5 mg/m ³ (1) - 6 ppm (1)
Hydrofluoric acid%	OSHA	US	LTV	3 ppm

Engineering controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.

Personal protection equipment (PPE)

Wear suitable protective clothing. When handling with chemical substances, protective clothing must be worn.

Eye/face protection

Eye glasses with side protection

Skin protection

Wear suitable gloves. When handling with chemical substances, protective gloves must be worn. In the case of wanting to use the gloves again, clean them before taking off and air them well. Check leak tightness/impermeability prior to use.

By short-term hand contact

Suitable material:	Butyl caoutchouc (butyl rubber)
Thickness of the glove material:	0,50 mm
Breakthrough time	> 120 min

By long-term hand contact

Suitable material:	Butyl caoutchouc (butyl rubber)/FKM (fluoro rubber)
Thickness of the glove material:	0,70 mm
Breakthrough time	> 480 min

Respiratory protection

Respiratory protection necessary at: aerosol or mist formation If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

Additional information

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

Environmental exposure controls

no data available

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	
Physical state:	liquid
Color:	colorless
Odor:	pungent
Odor threshold:	no data available

Safety relevant basic data

pH:	< 1 (20 °C)
Melting point/freezing point:	-37 °C
Initial boiling point and boiling range:	108.7 °C (1013 hPa)
Flash point:	no data available
Evaporation rate:	no data available
Flammability:	Not applicable
Lower and upper explosion limit	
Lower explosion limit:	no data available
Upper explosion limit:	no data available
Vapor pressure:	no data available
Relative vapour density:	1.86 (20 °C)
Density:	1.198 g/cm ³ (20 °C)
Solubility(ies)	
Water solubility:	soluble (20°C)
Soluble (g/L) in Ethanol:	no data available
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Decomposition temperature:	Not applicable
Viscosity	
Kinematic viscosity:	no data available
Dynamic viscosity:	no data available
Explosive properties:	Not applicable
Oxidising properties:	Not applicable

Other information

Bulk density:	no data available
Refraction index:	no data available
Dissociation constant:	no data available
Surface tension:	no data available
Henry's Law Constant:	no data available

SECTION 10: Stability and reactivity

Reactivity

Corrosive to metals

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

Possibility of hazardous reactions

Explosive reaction with:

Alkali metals

Alkaline earth metal

Alkali (lye)

Violent reaction with:

light metals

Powdered metals

Exothermic reaction with:

Water.

Substance, organic

Conditions to avoid

Humidity

Heat

Protect from sunlight.

Incompatible materials:

Metal.

Hazardous decomposition products:

no data available

SECTION 11: Toxicological information
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Information on hazard classes as defined in Regulation**Acute effects**

Acute oral toxicity:

Fatal if swallowed.

Acute dermal toxicity:

Fatal in contact with skin.

Acute inhalation toxicity:

Fatal if inhaled.

Irritant and corrosive effects:

Primary irritation to the skin:

Causes severe skin burns and eye damage.

Irritation to eyes:

Causes serious eye damage.

Irritation to respiratory tract:

Not applicable

Respiratory or skin sensitisation

In case of skin contact: not sensitizing

In case of inhalation: not sensitizing

STOT-single exposure

Causes damage to organs.

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**Carcinogenicity**

Mixtures: No indication of human carcinogenicity.

IARC Monographs on the Identification of Carcinogenic Hazards to Humans:

Not listed

Occupational Safety and Health Administration (OSHA, 29 CFR Part 1910.1003):

Not listed

National Toxicology Program (NTP) Report:

Not listed

Germ cell mutagenicity

Mixtures: No indications of human germ cell mutagenicity exist.

Reproductive toxicity

Mixtures: No indications of human reproductive toxicity exist.

Aspiration hazard

Not applicable

Other adverse effects

no data available

SECTION 12: Ecological information

Toxicity**Fish toxicity:**

Hydrofluoric acid% - LC50: 51 mg/l (96 h) - Oncorhynchus mykiss - Janssen (1989)

Hydrofluoric acid% - NOEC: 4 mg/l (21 d) - Oncorhynchus mykiss - ECHA

Daphnia toxicity:

Hydrofluoric acid% - EC50: > 10,5 mg/l - Daphnia magna - ECHA

Hydrofluoric acid% - NOEC: 8,9 mg/l - Daphnia magna - ECHA

Algae toxicity:

Hydrofluoric acid% - EC50: 43 mg/l - ECHA

Hydrofluoric acid% - NOEC: 50 mg/l - ECHA

Bacteria toxicity:

no data available

Persistence and degradability

no data available

Bioaccumulative potential

Partition coefficient: n-octanol/water: no data available

Mobility in soil:

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations**Waste treatment methods****Appropriate disposal / Product**

This material and its container must be disposed of as hazardous waste. Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal. No discharge of substance into waste water. Avoid release to the environment. The waste code has to be identified in agreement with the disposal company or the competent authority.

Appropriate disposal / Package

This material and its container must be disposed of as hazardous waste. Dispose according to legislation. Handle contaminated packages in the same way as the substance itself. Empty containers may contain product residues (liquids and/or vapors) and pose a hazard. Uncleaned empty containers may contain product gases which form explosive mixtures with air.

SECTION 14: Transport information**Land transport (DOT)**

UN number or ID number:	UN1790
UN proper shipping name:	HYDROFLUORIC ACID
Transport hazard class(es):	8 (6.1)
Hazard label(s):	8+6.1
Packing group:	II
Environmental hazards:	No
Marine pollutant:	No
Special precautions for user:	

Sea transport (IMDG)

UN number or ID number:	1790
UN proper shipping name:	HYDROFLUORIC ACID
Transport hazard class(es):	8 (6.1)
Hazard label(s):	8+6.1
Packing group:	II
Environmental hazards:	No
Marine pollutant:	No
Special precautions for user:	
Segregation group:	1
EmS-No.	F-A S-B

Maritime transport in bulk according to IMO instruments
not relevant

Air transport (ICAO-TI/IATA-DGR)

UN number or ID number:	1790
UN proper shipping name:	HYDROFLUORIC ACID
Transport hazard class(es):	8 (6.1)
Classification code:	
Hazard label(s):	8+6.1
Packing group:	II
Special precautions for user:	

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Toxic Substances Control Act (TSCA)

- Hydrofluoric acid% - CAS No.: 7664-39-3
- Water - CAS No.: 7732-18-5

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Does not contain listed substances.

SARA 313 Components

- Hydrofluoric acid% - CAS No.: 7664-39-3

US State Regulations

Massachusetts Right To Know Components

- Hydrofluoric acid% - CAS No.: 7664-39-3

Pennsylvania Right To Know Components

- Hydrofluoric acid% - CAS No.: 7664-39-3

New Jersey Right To Know Components

- Hydrofluoric acid% - CAS No.: 7664-39-3

California Prop. 65 Components

Does not contain listed substances.

SECTION 16: Other information

Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygienists
DOT - Department of Transportation
IARC - International Agency for Research on Cancer
IATA-DGR - International Air Transport Association-Dangerous Goods Regulations
ICAO-TI - International Civil Aviation Organization-Technical Instructions
IMDG - International Maritime Code for Dangerous Goods
LTV - Long Term Value
NIOSH - National Institute for Occupational Safety and Health
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PBT - Persistent, Bioaccumulative and Toxic
PEL - Permissible Exposure Limit
STV - Short Term Value
SVHC - Substances of Very High Concern
TDG - Transport of Dangerous Goods
TLV - Threshold Limit Value
vPvB - very Persistent, very Bioaccumulative

Key literature references and sources for data

This Safety Data Sheet has been prepared based on information available for public as TOXNET information, European Chemicals Agency (ECHA) substance dossier, papers from international cancer research institutes (IARC Monographs), U.S. National Toxicology Program data, U.S. Agency for Toxic Substances and Disease Control (ATSDR), PubChem websites and SDS from our raw material manufacturers.

Revision date	Version	Print date
24.03.2026	1.7	2026-03-24

Additional information

Indication of changes:

general update

If you need an explanation of the change, contact the supplier (SDS@avantorsciences.com).

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