

# Safety Data Sheet

According to Hazardous Products Regulation (SOR/2015-17)

Revision date: 28.03.2024

Version: 1.0

Print date: 28.03.2024

## SECTION 1: Identification

### Product identifier

Trade name/designation:	Hydrofluoric acid 48 - 51% ACS
Product No.:	BDH3042-2.5LP, BDH3042-3.8LP, CABDH30422.5LP
Synonyms:	none
CAS No.:	7664-39-3
Other means of identification:	

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

Recommended use:	For Further Manufacturing Use Only
Uses advised against:	Not for Human or Animal Drug Use

### Details of the supplier of the safety data sheet

#### Supplier

##### **VWR International**

Street	2360 Argentia Road
Postal code/City	Mississauga, Ontario
	Canada L5N 5Z7
Telephone	+1-800-932-5000 toll-free within US/Canada
Telefax	+1-610-728-2103

### Emergency phone number

Telephone +1-613-996-6666 (Canutec, 24 hrs/day, 7 days/week, Canada)

### Preparation Information

VWR International - Product Information Compliance

E-mail SDS@avantorsciences.com

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

#### Classification according to Hazardous Products Regulation (SOR/2015-17)

Hazard classes and hazard categories	Hazard statements
Acute toxicity, category 2, oral and inhalation	H300+H330
Acute toxicity, category 1, dermal	H310
Skin corrosion, category 1A	H314
Serious eye damage, category 1	H318

### 2.2 Label elements

#### Labelling in accordance with (SOR/2015-17)

#### Hazard pictograms



Signal word: Danger

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

Precautionary statements	
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P262	Do not get in eyes, on skin, or on clothing.
P284	[In case of inadequate ventilation] wear respiratory protection.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P330	Rinse mouth.
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.
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.
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.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Hazard(s) not otherwise classified (HNOC)**

none

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

not applicable

### 3.2 Mixtures

**Hazardous ingredients GHS Classification in accordance with (SOR/2015-17)**

Substance name	Concentration	Identifier	Hazard classes and hazard categories
Hydrofluoric acid	48 - 51%	CAS No.: 7664-39-3	Acute Tox. 1 - H310 Acute Tox. 2 - H300 Acute Tox. 2 - H330 Skin Corr. 1A - H314

## SECTION 4: First aid measures

### 4.1 Description of 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 breathe 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. Transport to the ophthalmologist or eye clinic as soon as possible. Continue 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.

#### Self-protection of the first aider

First aider: Pay attention to self-protection! No mouth-to-mouth or mouth-to-nose resuscitation. Use Ambu bag or ventilator.

### 4.2 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: Hypocalcämie Depression of central nervous system.

### 4.3 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 cautiously with water for several minutes. 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

### 5.1 Extinguishing media

#### Suitable extinguishing media

ABC-powder  
Carbon dioxide (CO<sub>2</sub>).  
Dry sand  
Nitrogen

#### Extinguishing media which must not be used for safety reasons

Water spray.  
Full water jet

### 5.2 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

### 5.3 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

### 6.1 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.

### 6.2 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.

### 6.3 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.

### 6.4 Reference to other sections

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

## SECTION 7: Handling and storage

### 7.1 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.

## 7.2 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

## 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

# SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

Ingredient (Designation)	Source	Country	parameter	Limit value
Hydrofluoric acid	CNESST	CA	VECD	2.6 mg/m <sup>3</sup> (1) - 3 ppm (1)

## 8.2 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

### 9.1 Information on basic physical and chemical properties

Appearance

Physical state:	liquid
Color:	colorless
Odor:	no data available

#### Safety relevant basic data

pH:	no data available
Melting point/freezing point:	no data available
Initial boiling point and boiling range:	no data available
Flash point:	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:	no data available
Density and/or relative density	
Density:	no data available
Solubility(ies)	
Water solubility:	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
Particle characteristics:	does not apply to liquids

### 9.2 Other information

Evaporation rate:	no data available
Explosive properties:	no data available
Oxidising properties:	Not applicable
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

### 10.1 Reactivity

Corrosive to metals

### 10.2 Chemical stability

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

### 10.3 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

### 10.4 Conditions to avoid

Humidity

Heat

Protect from sunlight.

### 10.5 Incompatible materials:

Metal.

### 10.6 Hazardous decomposition products

no data available

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute effects

*Acute oral toxicity:*

Hydrofluoric acid - ATE: 5 mg/kg - ATE - (Acute Toxicity Estimates (CLP))

*Acute dermal toxicity:*

Hydrofluoric acid - ATE: 5 mg/kg - ATE - (Acute Toxicity Estimates (CLP))

*Acute inhalation toxicity:*

Hydrofluoric acid - LC50: 0.79 mg/l - Rat - (Japan GHS Basis for Classification Data)

**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 sensitization**

In case of skin contact: not sensitizing

In case of inhalation: not sensitizing

**STOT-single exposure**

Not applicable

**STOT-repeated exposure**

Not applicable

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

**Carcinogenicity**

No indication of human carcinogenicity.

**Germ cell mutagenicity**

No indications of human germ cell mutagenicity exist.

**Reproductive toxicity**

No indications of human reproductive toxicity exist.

**Aspiration hazard**

Not applicable

**Other adverse effects**

no data available

**Additional information**

no data available

## SECTION 12: Ecological information

### 12.1 Toxicity

**Fish toxicity:**

no data available

**Daphnia toxicity:**

no data available

**Algae toxicity:**

no data available

**Bacteria toxicity:**  
no data available

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

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

### 12.4 Mobility in soil:

no data available

### 12.5 Results of PBT/vPvB assessment

Not applicable

### 12.6 Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to the environment.

### 12.7 Other adverse effects

no data available

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Appropriate disposal / Product

Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal.

Waste code product: no data available

#### Appropriate disposal / Package

Dispose according to legislation. Handle contaminated packages in the same way as the substance itself.

#### Additional information

none

No further relevant information available.

## SECTION 14: Transport information

### Land transport (TDG)

UN-No.:	1790
Proper Shipping Name:	HYDROFLUORIC ACID
Class(es):	8 (6.1)
Packing group:	II
Environmental hazards:	No
Marine pollutant:	No
Special precautions for user:	

### Sea transport (IMDG)

UN-No.:	1790
Proper Shipping Name:	HYDROFLUORIC ACID
Class(es):	8 (6.1)
Classification code:	
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
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	not relevant

### Air transport (ICAO-TI / IATA-DGR)

UN-No.:	1790
Proper Shipping Name:	HYDROFLUORIC ACID
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

Domestic Substance List:

## 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
28.03.2024	1.0	28.03.2024

### Additional information

Indication of changes          none/none

*The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guidance. The information in this document is based on the present state knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. VWR International and his Affiliates shall not be held liable for any damage resulting from handling.*