

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 1 of 12

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Hydrofluoric acid 1 mol/l - 1 M solution

UFI: 5ENX-D0D8-C00Q-QXX3

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

Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name:	Fa. Bernd Kraft GmbH	
Street:	Stempelstraße 6	
Place:	D-47167 Duisburg	
Telephone:	0203/5194-0	Telefax: 0203/5194-290
e-mail:	info@berndkraft.de	
Contact person:	Abteilung Produktsicherheit	Telephone: 0203/5194-107/117
e-mail:	produktsicherheit@berndkraft.de	
Internet:	www.berndkraft.de	
Responsible Department:	Abteilung Produktsicherheit	

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

This product is a mixture. REACH Registration Number see section 3.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute Tox. 3; H301

Acute Tox. 3; H311

Acute Tox. 4; H332

Skin Corr. 1B; H314

Eye Dam. 1; H318

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

hydrofluoric acid ~2,2 %

Signal word: Danger

Pictograms:



Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 2 of 12

Hazard statements

H301+H311 Toxic if swallowed or in contact with skin.
H314 Causes severe skin burns and eye damage.
H332 Harmful if inhaled.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
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.

Additional advice on labelling

No information available.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Mixtures in aqueous solution

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
7664-39-3	Hydrofluoric acid ... %			1 - < 5 %
	231-634-8	009-003-00-1	01-2119458860-33	
	Acute Tox. 1, Acute Tox. 2, Acute Tox. 2, Skin Corr. 1A; H310 H330 H300 H314			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
7664-39-3	231-634-8	Hydrofluoric acid ... %	1 - < 5 %
		inhalation: ATE = 0,5 mg/l (vapours); inhalation: ATE = 0,05 mg/l (dusts or mists); inhalation: LC50 = 1610 ppm (gases); dermal: ATE = 5 mg/kg; oral: ATE = 5 mg/kg Skin Corr. 1A; H314: >= 7 - 100 Skin Corr. 1B; H314: >= 1 - < 7 Eye Irrit. 2; H319: >= 0,1 - < 1	

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

First aider: Pay attention to self-protection! Remove affected person from the danger area and lay down. Call a physician immediately.

After inhalation

Provide fresh air.
If breathing is irregular or stopped, administer artificial respiration.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 3 of 12

Call a physician immediately.

After contact with skin

Rinse with plenty of water for at least 10 minutes. Immediately remove contaminated clothes. Apply calcium gluconate gel (preparation: boil 5 g of calcium gluconate in 85 ml of hot distilled water, add 10 g glycerol. Allow 5 g of Carmellose-sodium to swell in the hot solution. Stable for 6 months, store in a cool place) and massage into the skin until the pain subsides, in between rinse with water and apply fresh gel. Continue gel therapy for another 15 minutes after the pain has subsided. If no calcium gluconate gel is available, apply several dressings thoroughly moistened with 20 % calcium gluconate solution. Medical advice absolutely required!

After contact with eyes

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. Protect uninjured eye.

After ingestion

Never give anything by mouth to an unconscious person or a person with cramps.

Rinse mouth immediately and drink plenty of water.

Adverse human health effects and symptoms:

Gastric perforation

Remove casualty to fresh air and keep warm and at rest.

Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Irritant

Causes burns.

Cough

Dyspnoea

Risk of serious damage to eyes.

Gastric perforation

Circulatory collapse

Pulmonary oedema

Vomiting

seizures

Pneumonia

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Non-combustible liquids

Hazardous combustion products

In case of fire may be liberated: Hydrogen fluoride

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

In case of fire and/or explosion do not breathe fumes. Use water spray jet to protect personnel and to cool endangered containers.

Additional information

Suppress gases/vapours/mists with water spray jet.

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water. Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 4 of 12

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

- Provide adequate ventilation.
- Use personal protection equipment.
- Avoid contact with skin, eyes and clothes.
- Remove persons to safety.
- Emergency procedures
- Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment

- Cover drains.
- Prevent spread over a wide area (e.g. by containment or oil barriers).
- Collect in closed and suitable containers for disposal.
- Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

- Provide adequate ventilation.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

- Safe handling: see section 7
- Personal protection equipment: see section 8
- Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

- Avoid exposure - obtain special instructions before use.
- Read label before use. Handle and open container with care.
- When using do not eat, drink, smoke, sniff. Keep container tightly closed.
- Use personal protection equipment. Use extractor hood (laboratory).
- Provide adequate ventilation.
- Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion

Usual measures for fire prevention.

Advice on general occupational hygiene

- Keep away from food, drink and animal feedingstuffs. Make available sufficient washing facilities
- Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.
- Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Further information on handling

- Draw up and observe skin protection programme.
- Wash hands and face before breaks and after work and take a shower if necessary.
- Take off immediately all contaminated clothing and wash it before reuse.
- If handled uncovered, arrangements with local exhaust ventilation have to be used.

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 5 of 12

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaust at critical locations.
storage temperature +5°C - +30°C

Further information on storage conditions

Store in a dry place.
Suitable container/equipment material: plastic
Unsuitable container/equipment material: Metal Glass

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
7664-39-3	Hydrogen fluoride (as F)	1.8	1.5		TWA (8 h)	
		3	2.5		STEL (15 min)	

Biological limit values

CAS No	Substance	Parameter	Value	Test material	Sampling time
7664-39-3	Hydrogen fluoride	Fluoride	3 mg/L	Urine	End of shift

8.2. Exposure controls

Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.
Technical measures and the application of suitable work processes have priority over personal protection equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection:
goggles
Face protection umbrella

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact
Trade name/designation: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with permanent contact: > 480 min

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 6 of 12

By short-term hand contact
Trade name/designation: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet (>, <)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Wear suitable protective clothing.
Take off immediately all contaminated clothing.
Wash hands before breaks and after work.

Respiratory protection

Respiratory protection necessary at: aerosol or mist formation

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid	
Colour:	colourless	
Odour:	odourless	
Odour threshold:	No data available	
Melting point/freezing point:		No data available
Boiling point or initial boiling point and boiling range:		No data available
Flammability		
Solid/liquid:		not applicable
Gas:		not applicable
Lower explosion limits:		not determined
Upper explosion limits:		not determined
Flash point:		X
Auto-ignition temperature:		No data available
Decomposition temperature:		not determined
pH-Value:		acidic
Viscosity / kinematic:		not determined
Water solubility:		Soluble in: Water
Solubility in other solvents		
not determined		
Partition coefficient n-octanol/water:		not determined
Vapour pressure:		not determined
Vapour pressure:		not determined
Density:		1,007 g/cm ³
Bulk density:		No data available
Relative vapour density:		not determined

9.2. Other information

Information with regard to physical hazard classes

Explosive properties
No data available

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 7 of 12

Self-ignition temperature

Solid:

not applicable

Gas:

not applicable

Oxidizing properties

Not oxidising.

Other safety characteristics

Evaporation rate:

not determined

Solvent separation test:

No data available

Solvent content:

0

Solid content:

0

Sublimation point:

No data available

Softening point:

No data available

Pour point:

No data available

No data available:

Viscosity / dynamic:

not determined

Flow time:

not determined

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Alkali metals

Fluorine

permanganates, e.g. potassium permanganate

Alkali (lye)

Metal

Nitric acid

Acetic anhydride

Ammonia (NH₃)

sulphuric acid

Sodium and potassium hydroxide

10.4. Conditions to avoid

Radiant heat.

10.5. Incompatible materials

Metal

Glass

The product develops hydrogen in an aqueous solution in contact with metals.

10.6. Hazardous decomposition products

In case of fire:

SECTION 5: Firefighting measures

Further information

No data available

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 8 of 12

Toxicokinetics, metabolism and distribution

Avoid exposure - obtain special instructions before use.

Acute toxicity

Toxic if swallowed.

Toxic in contact with skin.

Harmful if inhaled.

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

Causes poorly healing wounds.

Irritant

Causes burns.

Cough

Dyspnoea

Risk of serious damage to eyes.

Gastric perforation

Circulatory collapse

Pulmonary oedema

Vomiting

seizures

Pneumonia

ATEmix calculated

ATE (oral) 229,6 mg/kg; ATE (dermal) 229,6 mg/kg; ATE (inhalation dust/mist) 2,296 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
7664-39-3	Hydrofluoric acid ... %				
	oral	ATE 5 mg/kg			
	dermal	ATE 5 mg/kg			
	inhalation vapour	ATE 0,5 mg/l			
	inhalation dust/mist	ATE 0,05 mg/l			
	inhalation (1 h) gas	LC50 1610 ppm	Rat		

Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 9 of 12

Practical experience

No data available

11.2. Information on other hazards

Other information

No data available

Further information

Following ingestion gastric perforation
Liver and kidney damage
Risk of serious damage to eyes.

SECTION 12: Ecological information

12.1. Toxicity

No information available.

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

No information available.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.
No information available.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

Further information

Avoid release to the environment.
Do not allow to enter into surface water or drains.
Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Dispose of waste according to applicable legislation.
Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Do not allow to enter into surface water or drains.

Contaminated packaging

This material and its container must be disposed of as hazardous waste.
Handle contaminated packages in the same way as the substance itself.
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: UN 1790
14.2. UN proper shipping name: Hydrofluoric acid
14.3. Transport hazard class(es): 8

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 10 of 12

14.4. Packing group: II
 Hazard label: 8+6.1
 Classification code: CT1
 Limited quantity: 1 L
 Excepted quantity: E2
 Transport category: 2
 Hazard No: 86
 Tunnel restriction code: E

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 1790
14.2. UN proper shipping name: Hydrofluoric acid
14.3. Transport hazard class(es): 8
14.4. Packing group: II
 Hazard label: 8+6.1
 Classification code: CT1
 Special Provisions: 802
 Limited quantity: 1 L
 Excepted quantity: E2

Marine transport (IMDG)

14.1. UN number or ID number: UN 1790
14.2. UN proper shipping name: Hydrofluoric acid
14.3. Transport hazard class(es): 8
14.4. Packing group: II
 Hazard label: 8+6.1
 Special Provisions: -
 Limited quantity: 1 L
 Excepted quantity: E2
 EmS: F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 1790
14.2. UN proper shipping name: Hydrofluoric acid
14.3. Transport hazard class(es): 8
14.4. Packing group: II
 Hazard label: 8+6.1
 Limited quantity Passenger: 0.5 L
 Passenger LQ: Y840
 Excepted quantity: E2
 IATA-packing instructions - Passenger: 851
 IATA-max. quantity - Passenger: 1 L
 IATA-packing instructions - Cargo: 855
 IATA-max. quantity - Cargo: 30 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: Toxic. strongly corrosive.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

EU regulatory information

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 11 of 12

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 75

National regulatory information

Employment restrictions:

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D):

1 - slightly hazardous to water

Skin resorption/Sensitization:

Permeates easily through outer skin and causes poisoning.

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 2,7,9,11.

Abbreviations and acronyms

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service
- LC50: Lethal concentration, 50%
- LD50: Lethal dose, 50%

Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]

Classification	Classification procedure
Acute Tox. 3; H301	Calculation method
Acute Tox. 3; H311	Calculation method
Acute Tox. 4; H332	Calculation method
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method

Relevant H and EUH statements (number and full text)

- H300 Fatal if swallowed.
- H301 Toxic if swallowed.
- H301+H311 Toxic if swallowed or in contact with skin.
- H310 Fatal in contact with skin.
- H311 Toxic in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H330 Fatal if inhaled.
- H332 Harmful if inhaled.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Hydrofluoric acid 1 mol/l - 1 M solution

Revision date: 06.09.2022

Product code: 10709

Page 12 of 12

product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)