

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Hydrofluoric acid 48 % for analysis, ACS

Revision date: 07.02.2024

Product code: 23705

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

##### 1.1. Product identifier

Hydrofluoric acid 48 % for analysis, ACS

UFI: 36N3-42JC-V007-EH1J

##### 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:	AnalytiChem GmbH	
	ACD	
Street:	Stempelstraße 6	
Place:	D-47167 Duisburg	
Telephone:	0203/5194-0	Telefax: 0203/5194-290
E-mail:	info@analytichem.de	
Contact person:	Abteilung Produktsicherheit	Telephone: 0203/5194-107/117
E-mail:	produktsicherheit@analytichem.de	
Internet:	www.analytichem.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. 1; H310

Acute Tox. 2; H300

Acute Tox. 2; H330

Skin Corr. 1A; 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 48 %

Signal word: Danger

###### Pictograms:



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**Hazard statements**

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

**Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
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.  
P308+P311 IF exposed or concerned: 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

**Relevant ingredients**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
7664-39-3	Hydrofluoric acid ... %			45 - < 50 %
	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 ... %	45 - < 50 %
	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.

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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

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#### **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.

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**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 <sup>3</sup>	fib/cm <sup>3</sup>	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**

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

By long-term hand contact  
Trade name/designation KCL 897 Butoject®  
Recommended material: Butyl caoutchouc (butyl rubber)  
Thickness of the glove material 0,3 mm  
Wearing time with permanent contact > 480 min

By short-term hand contact

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Trade name/designation KCL 897 Butoject®  
Recommended material: Butyl caoutchouc (butyl rubber)  
Thickness of the glove material 0,3 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:	stinging
Odour threshold:	No data available
Melting point/freezing point:	~ -35 °C
Boiling point or initial boiling point and boiling range:	~106 °C
Flammability:	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
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	not determined
Dispersion stability:	No data available
Vapour pressure:	not determined
Vapour pressure:	not determined
Density:	1,16 g/cm <sup>3</sup>
Relative density:	No data available
Bulk density:	No data available
Relative vapour density:	not determined
Particle characteristics:	No data available

### 9.2. Other information

#### Information with regard to physical hazard classes

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**Explosive properties**

No data available

**Sustaining combustion:**

No data available

**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:**

No data available

**Solid content:**

not determined

**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 (NH<sub>3</sub>)

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

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**SECTION 11: Toxicological information**

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

**Toxicokinetics, metabolism and distribution**

Avoid exposure - obtain special instructions before use.

**Acute toxicity**

Fatal in contact with skin.

Fatal if swallowed.

Fatal 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) 12,50 mg/kg; ATE (dermal) 12,50 mg/kg; ATE (inhalation vapour) 1,250 mg/l; ATE (inhalation dust/mist) 0,1250 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



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#### Specific effects in experiment on an animal

No data available

#### Additional information on tests

No data available

#### Practical experience

No data available

#### 11.2. Information on other hazards

##### Endocrine disrupting properties

No data available

##### 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

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

#### 12.2. Persistence and degradability

No data available

#### 12.3. Bioaccumulative potential

No data available

#### 12.4. Mobility in soil

No data 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.

#### 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 data 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

Send to a physico-chemical treatment facility under observation of official regulations.  
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.

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**SECTION 14: Transport information**

**Land transport (ADR/RID)**

<b>14.1. UN number or ID number:</b>	UN 1790
<b>14.2. UN proper shipping name:</b>	Hydrofluoric acid
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	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)**

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

**Marine transport (IMDG)**

<b>14.1. UN number or ID number:</b>	UN 1790
<b>14.2. UN proper shipping name:</b>	Hydrofluoric acid
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	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)**

<b>14.1. UN number or ID number:</b>	UN 1790
<b>14.2. UN proper shipping name:</b>	Hydrofluoric acid
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	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**

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not applicable

**SECTION 15: Regulatory information**

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

**EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 75

Information according to Directive 2012/18/EU (SEVESO III):

H1 ACUTE TOXIC

**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):

2 - obviously 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): 1,9,12.

**Abbreviations and acronyms**

Acute Tox: Acute toxicity

Skin Corr: Skin corrosion

Eye Dam: Eye damage

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. 1; H310	Calculation method
Acute Tox. 2; H300	Calculation method
Acute Tox. 2; H330	Calculation method
Skin Corr. 1A; H314	Calculation method
Eye Dam. 1; H318	Calculation method

**Relevant H and EUH statements (number and full text)**

H300

Fatal if swallowed.

H300+H310+H330

Fatal if swallowed, in contact with skin or if inhaled.

H310

Fatal in contact with skin.

H314

Causes severe skin burns and eye damage.

H318

Causes serious eye damage.

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H330

Fatal 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 product properties and establishes no contract legal rights.

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

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