

**Hydrofluoric acid 47–51%**

Revision: 02.01.2025

Product code: AC12.00565

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Hydrofluoric acid 47–51%

UFI: EX9U-P1C8-J00M-NN6G

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

Reagents and laboratory chemicals

Only for laboratory and analysis purposes.

**Uses advised against**

Do not use for private purposes (household).

**1.3. Details of the supplier of the safety data sheet****Details of the supplier of the safety data sheet**

Company name: AnalytiChem Services, Unipessoal, Lda  
Street: Rua de Júlio Dinis 676 7º  
Place: N-4050-320 Porto  
Telephone: +351 226002917  
E-mail: info@analytichem.com  
Contact person: SDS service department  
E-mail: SDS@analytichem.com  
Internet: www.analytichem.com  
Responsible Department: SDS service department

**Supplier or manufacturer details**

Company name: AnalytiChem Belgium NV  
Street: Industriezone "De Arend" 2  
Place: B-8210 Zedelgem  
Telephone: +32 50 28 83 20  
E-mail: info.be@analytichem.com  
Contact person: SDS service department  
E-mail: SDS@analytichem.com  
Responsible Department: AnalytiChem  
EU-Belgium: AnalytiChem Belgium, Industriezone "De Arend" 2, 8210 Zedelgem, Belgium, +32 50 28 83 20  
EU-Germany: AnalytiChem Germany, Stempelstrasse 6, 47167 Duisburg, Germany, +49 203 51 94 – 200  
EU-Netherlands: AnalytiChem Netherlands, Communicatieweg 7, 3641 SG Mijdrecht, The Netherlands, +31 297 286848  
UK: AnalytiChem UK, Unit 7 Launton Business Center, Murdock Road, Bicester, OX26 4XB, England, +44 1869 355 500  
USA: AnalytiChem USA, 227 China Road, Winslow, Maine, 04901, United States, +1 800-244-8378  
Canada: AnalytiChem Canada, 21800 Clark Graham Avenue, Baie d'Urfe, H9X 4B6, Canada, +1 514-457-0701  
Australia: ORE Research & Exploration Pty Ltd, 37A Hosie Street, Bayswater North, 3153, Australia, +61 3 9729 0333

**1.4. Emergency telephone number:**

+44 20 3807 3798 (CHEMTREC)

**Further Information**

inapplicable, this product is a mixture REACH registration number see section 3

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**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

Acute Tox. 1; H310

Acute Tox. 2; H330

Acute Tox. 2; H300

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 47-51 %

**Signal word:** Danger**Pictograms:****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 and eye protection/face protection.

P262 Do not get in eyes, on skin, or on clothing.

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

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.

**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

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## Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
7664-39-3	Hydrofluoric acid ... %			50 - < 55 %
	231-634-8	009-003-00-1	01-2119458860-33	
		Acute Tox. 1, Acute Tox. 2, Acute Tox. 2, Skin Corr. 1A, Eye Dam. 1; H310 H330 H300 H314 H318		

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 ... %	50 - < 55 %
	inhalation: ATE = 0,5 mg/l (vapours); inhalation: ATE = 0,05 mg/l (dusts or mists); inhalation: LC50 = 2240 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. fast help required

## After inhalation

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

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**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

**4.3. Indication of any immediate medical attention and special treatment needed**

It is recommended to consult a doctor with experience in the treatment of lesions caused by hydrofluoric acid

**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****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  
Consult an expert  
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**

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**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. Do not inhale fog/steam/aerosol.  
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.

**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 exhaustion at critical locations.  
storage temperature +5°C - +30°C

**Hints on joint storage**

Take national regulations into account.

**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)**

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Laboratory chemicals

## SECTION 8: Exposure controls/personal protection

**8.1. Control parameters****Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
7664-39-3	Hydrogen fluoride (as F)	1.8 3	1.5 2.5		TWA (8 h) STEL (15 min)	WEL WEL

**DNEL/DMEL values**

CAS No	Substance	DNEL type	Exposure route	Effect	Value
7664-39-3	Hydrofluoric acid ... %				
	Worker DNEL, long-term		inhalation	systemic	1,5 mg/m <sup>3</sup>
	Worker DNEL, acute		inhalation	systemic	2,5 mg/m <sup>3</sup>
	Worker DNEL, long-term		inhalation	local	1,5 mg/m <sup>3</sup>
	Worker DNEL, acute		inhalation	local	2,5 mg/m <sup>3</sup>
	Consumer DNEL, long-term		inhalation	systemic	0,03 mg/m <sup>3</sup>
	Consumer DNEL, acute		inhalation	systemic	0,03 mg/m <sup>3</sup>
	Consumer DNEL, long-term		inhalation	local	0,2 mg/m <sup>3</sup>
	Consumer DNEL, acute		inhalation	local	1,25 mg/m <sup>3</sup>
	Consumer DNEL, long-term		oral	systemic	0,01 mg/kg bw/day
	Consumer DNEL, acute		oral	systemic	0,01 mg/kg bw/day

**PNEC values**

CAS No	Substance	Environmental compartment	Value
7664-39-3	Hydrofluoric acid ... %		
		Freshwater	0,89 mg/l
		Marine water	0,089 mg/l
		Freshwater sediment	3,38 mg/kg
		Marine sediment	0,338 mg/kg
		Micro-organisms in sewage treatment plants (STP)	51 mg/l
		Soil	10,6 mg/kg

**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:

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goggles

Face protection umbrella

**Hand protection**

Suitable examples are gloves of KCL GmbH, D-36124 Eichenzell, e-mail: vertrieb@kcl.de with the following specification (test according to EN 374):

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

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](http://www.kcl.de)).

**Skin protection**

Wear suitable protective clothing.

Take off immediately all contaminated clothing.

Wash hands before breaks and after work.

The choice of body protection depends on the concentration and quantity of hazardous substances. The chemical resistance of protective agents must be clarified with their suppliers.

**Respiratory protection**

Respiratory protection necessary at: aerosol or mist formation

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**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

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Auto-ignition temperature:	No data available
Decomposition temperature:	not determined
pH-Value:	<1
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

Explosive properties	
No data available	
Sustained combustibility:	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

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permanganates, e.g. potassium permanganate  
Alkali (lye)  
Metal  
Nitric acid  
Acetic anhydride  
Ammonia (NH<sub>3</sub>)  
sulphuric acid  
Sodium and potassium hydroxide

(HF) Danger of inflammation or formation of inflammatory gases or vapours with: alkali metals, fluorine, organic substances, vinyl acetate. Explosive danger with: potassium permanganate, alkali hydroxides, strong bases, fluorides, potassium, metals, sodium, methanesulfonic acid, nitric acid, with glycerin. Exothermic reaction with: acetic anhydride, ammonia, ammonium hydroxide, sodium hydroxide, oleum, phosphorus oxides, silicon compounds, ethylamine, sulphuric acid, bismuth acid.

### **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**

#### Toxicokinetics, metabolism and distribution

Avoid exposure - obtain special instructions before use.

#### Acute toxicity

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

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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 2240 ppm	Rat	Study report (1990)	OECD Guideline 403

**Irritation and corrosivity**

Skin corrosion/irritation: Causes severe skin burns and eye damage.

Serious eye damage/eye irritation: Causes serious eye damage.

**Sensitising effects**

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

**Carcinogenic/mutagenic/toxic effects for reproduction**

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

Reproductive toxicity: 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.

There are no data available on the mixture itself.

**Information on likely routes of exposure**

There are no data available on the mixture itself.

**Specific effects in experiment on an animal**

There are no data available on the mixture itself.

**Additional information on tests**

There are no data available on the mixture itself.

**Practical experience**

There are no data available on the mixture itself.

**11.2. Information on other hazards****Endocrine disrupting properties**

There are no data available on the mixture itself.

**Other information**

There are no data available on the mixture itself.

**Further information**

Following ingestion gastric perforation

Liver and kidney damage

Risk of serious damage to eyes.

Resorption (oral)

Resorption (by inhalation)

Resorption (dermal)

Symptoms may be delayed.

Other dangerous properties can not be excluded.

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## SECTION 12: Ecological information

**12.1. Toxicity**

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

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
7664-39-3	Hydrofluoric acid ... %					
	Acute fish toxicity	LC50 299 mg/l	96 h	Salmo trutta	REACH Registration Dossier	other: U.S Environmental Protection Agen
	Acute algae toxicity	ErC50 43 mg/l	96 h	various algae species	REACH Registration Dossier	Methods not detailed in the review.
	Crustacea toxicity	NOEC 3,7 mg/l	21 d	Daphnia magna	REACH Registration Dossier	The publication is a review article of v
	Acute bacteria toxicity	EC50 2930 mg/l ( )	3 h	Activated sludge	REACH Registration Dossier	ISO 8192

**12.2. Persistence and degradability**

There are no data available on the mixture itself.

**12.3. Bioaccumulative potential**

There are no data available on the mixture itself.

**BCF**

CAS No	Chemical name	BCF	Species	Source
7664-39-3	Hydrofluoric acid ... %	53 - 58	not specified	REACH Registration D

**12.4. Mobility in soil**

There are no data available on the mixture itself.

**12.5. Results of PBT and vPvB assessment**

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

**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**

There are no data available on the mixture itself.

**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.

Harmful effect due to pH shift.

Forms corrosive mixtures with water even if diluted.

## 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.

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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.

Waste codes/waste designations according to EWC/AVV

**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/ATA-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

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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**

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): 2,9,12,13.

**Abbreviations and acronyms**

Acute Tox. 1: Acute toxicity, hazard category 1

Acute Tox. 2: Acute toxicity, hazard category 2

Skin Corr. 1A: Skin corrosion, sub-category 1A

Eye Dam. 1: Serious eye damage, hazard category 1

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%

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## Classification for mixtures and used evaluation method

Classification	Classification procedure
Acute Tox. 1; H310	Calculation method
Acute Tox. 2; H330	Calculation method
Acute Tox. 2; H300	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.
H330	Fatal if inhaled.

## Further Information

Provide appropriate information, instructions and training to users

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.

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