

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Colour etchant acc. to LICHTENEGGER and BLOECH**

Revision date: 27.11.2020

Product code: 18877.xxxxx

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

Colour etchant acc. to LICHTENEGGER and BLOECH

**Further trade names**

This MSDS covers the following products in all container sizes:

- REF 18877.xxxxx – Ätzmittel nach LICHTENEGGER und BLOECH

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

Use as laboratory reagent. The product is intended for research, analysis and scientific education.

**Uses advised against**

Any non-intended use. The addition of acids produces hydrofluoric acid. This is highly toxic and has a strong corrosive effect. Suitable preventive measures must therefore be taken. Possibility of hydrogen fluoride production. see section 4.

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

Company name:	MORPHISTO GmbH	
Street:	Schumannstr. 142/144	
Place:	D-63069 Offenbach	
Telephone:	+49 (0) 69 / 400 3019-60	Telefax: +49 (0) 69 / 400 3019-64
e-mail:	info@morphisto.de	
Internet:	http://www.morphisto.de	

**Supplier**

Company name:	MORPHISTO GmbH	
Street:	Schumannstr. 142/144	
Place:	D-63069 Offenbach	
Telephone:	+49 (0) 69 / 400 3019-60	Telefax: +49 (0) 69 / 400 3019-64
e-mail:	info@morphisto.de	
Internet:	http://www.morphisto.de	

**1.4. Emergency telephone number:**

Poison Information Center Mainz, Germany, Tel: +49(0)6131/19240

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

Hazard categories:

Acute toxicity: Acute Tox. 4

Skin corrosion/irritation: Skin Corr. 1B

Serious eye damage/eye irritation: Eye Dam. 1

Hazard Statements:

Harmful if swallowed.

Causes severe skin burns and eye damage.

Causes serious eye damage.

Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008 (CLP)

**2.2. Label elements****Regulation (EC) No. 1272/2008****Signal word:** Danger

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**Pictograms:**

**Hazard statements**

- H302 Harmful if swallowed.  
 H314 Causes severe skin burns and eye damage.

**Precautionary statements**

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
 P264 Wash Haut thoroughly after handling.  
 P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing 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.  
 P405 Store locked up.

**2.3. Other hazards**

Ammoniumhydrogendifluorid: This substance is identified as SVHC (substance of very high concern) and is subject to authorisation according to Annex XIV of REACH.

**SECTION 3: Composition/information on ingredients**
**3.2. Mixtures**
**Chemical characterization**

This MSDS covers the following products in all container sizes:  
 - Artikel 18871.xxxxx

**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
1341-49-7	ammonium bifluoride; ammonium hydrogen difluoride			15 - < 20 %
	215-676-4	009-009-00-4		
	Acute Tox. 3, Skin Corr. 1B; H301 H314			
16731-55-8	dipotassium disulfite			< 1 %
	240-795-3		01-2119537422-45	
	Eye Dam. 1, STOT SE 3; H318 H335 EUH031			

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

**Specific concentration limits and M-factors**

CAS No	EC No	Chemical name	Quantity
	Specific concentration limits and M-factors		
1341-49-7	215-676-4	ammonium bifluoride; ammonium hydrogen difluoride	15 - < 20 %
	Skin Corr. 1B; H314: >= 1 - 100 Skin Irrit. 2; H315: >= 0,1 - < 1 Eye Irrit. 2; H319: >= 0,1 - < 1		

**Further Information**

This mixture contains the following substances of very high concern (SVHC) which are subject to authorisation according to Annex XIV of REACH: Ammoniumhydrogendifluorid

**SECTION 4: First aid measures**

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#### 4.1. Description of first aid measures

##### General information

First aider: Pay attention to self-protection! Take off immediately all contaminated clothing. Remove affected person from the danger area and lay down. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Possibility of hydrogen fluoride production. s.4.2

##### After inhalation

Provide fresh air. If breathing is irregular or stopped, administer artificial respiration. Call a physician in any case!

##### After contact with skin

After contact with skin, wash immediately with: Water. Remove contaminated, saturated clothing immediately. Call a physician in any case!

##### After contact with eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an ophthalmologist. Danger of blindness!

##### After ingestion

Do NOT induce vomiting. Do not allow a neutralisation agent to be drunk. Rinse mouth immediately and drink plenty of water. Adverse human health effects and symptoms: Gastric perforation. Let water be drunk in little sips (dilution effect). Call a physician in any case!

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

Reizung, Ätzwirkung, Husten, Magen-Darm-Beschwerden, Übelkeit, Erbrechen, Atemnot, Durchfall, Magenperforation, Gefahr ernster Augenschäden, bei der Zugabe von Säuren weiterhin: Krämpfe, Herzrhythmusstörungen, Kreislaufkollaps.

Skin contact with hydrogen fluoride causes very painful redness and blisters. The hydrofluoric acid formed with the skin moisture penetrates the skin together with the ions of hydrogen fluoride formed from autoprotolysis and leads to fatal injuries. Inhalation first causes a burning sensation, then neck and respiratory problems. The formation of a pulmonary hemorrhage is possible, which can lead to death with a delayed effect.

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

Treat symptomatically. To supervise the blood circulation.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

##### Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings. Carbon dioxide (CO<sub>2</sub>). Dry extinguishing powder. alcohol resistant foam. Atomized water.

##### Unsuitable extinguishing media

High power water jet.

#### 5.2. Special hazards arising from the substance or mixture

Non-flammable. Can be released in case of fire: Carbon monoxide Carbon dioxide (CO<sub>2</sub>). Hydrogen fluoride

#### 5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit. Fight fire with normal precautions from a reasonable distance.

##### Additional information

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

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Provide adequate ventilation. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Do not breathe gas/fumes/vapour/spray. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

**6.2. Environmental precautions**

Do not allow to enter into surface water or drains. Eliminate leaks immediately. Prevent spread over a wide area (e.g. by containment or oil barriers). In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

**6.3. Methods and material for containment and cleaning up**

Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal. Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Clean contaminated objects and areas thoroughly observing environmental regulations. Avoid: Staubentwicklung

**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**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Avoid dust formation. Do not breathe dust. The addition of acids produces hydrofluoric acid. This is highly toxic and has a strong corrosive effect. Suitable preventive measures must therefore be taken. Use extractor hood (laboratory). Wear suitable protective clothing. (See section 8.) Avoid exposure. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Clear contaminated areas thoroughly.

Possibility of hydrogen fluoride production. Skin contact with hydrogen fluoride causes very painful redness and blisters. The hydrofluoric acid formed with the skin moisture penetrates the skin together with the ions of hydrogen fluoride formed from autoprotolysis and leads to fatal injuries. Inhalation first causes a burning sensation, then neck and respiratory problems. The formation of a pulmonary hemorrhage is possible, which can lead to death with a delayed effect. The addition of acids produces hydrofluoric acid. This is highly toxic and has a strong corrosive effect. Suitable preventive measures must therefore be taken. Informations for personal protective equipment see chapter 8.

**Advice on protection against fire and explosion**

Usual measures for fire prevention.

**Further information on handling**

General protection and hygiene measures: refer to chapter 8. When using do not eat, drink, smoke, sniff. Thorough skin-cleansing after handling the product. When diluting/dissolving, always have the water ready first, then slowly stir in the product. Do not store in glass containers. Do not allow to come into contact with glass during use. The material is glass etching.

**7.2. Conditions for safe storage, including any incompatibilities****Requirements for storage rooms and vessels**

Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaust at critical locations. Keep container tightly closed in a cool, well-ventilated place. Store in a dry place.

**Hints on joint storage**

Do not store together with: Explosives. Gas. Oxidizing liquids. Self-reactive substances and mixtures. Organic peroxides. Ammonium nitrate. Combustible toxic substances. Radioactive substances. Infectious substances. Acids. Do not store in glass containers. Do not allow to come into contact with glass during use. The material is glass etching.

**Further information on storage conditions**

Keep the packing dry and well sealed to prevent contamination and absorption of humidity.

Recommended storage temperature: 15-25°C

Protect against: frost. UV-radiation/sunlight. heat. Humidity. Acids

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#### 7.3. Specific end use(s)

See section 1.

### 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
16984-48-8	Fluoride (inorganic as F)	-	2.5		TWA (8 h)	WEL

##### DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
16731-55-8	dipotassium disulfite			
Worker DNEL, long-term		inhalation	systemic	263 mg/m <sup>3</sup>
Consumer DNEL, long-term		inhalation	systemic	78 mg/m <sup>3</sup>
Consumer DNEL, long-term		oral	systemic	10 mg/kg bw/day

##### PNEC values

CAS No	Substance	Value
Environmental compartment		
16731-55-8	dipotassium disulfite	
Freshwater		1,17 mg/l
Marine water		0,12 mg/l
Micro-organisms in sewage treatment plants (STP)		88,1 mg/l

#### 8.2. Exposure controls



##### Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe dust. Provide adequate ventilation as well as local exhaustion at critical locations. Process within closed systems. Use extractor hood (laboratory).

##### Protective and hygiene measures

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, drink, smoke, sniff. Wash contaminated clothing prior to re-use. Street clothing should be stored separately from work clothing.

##### Eye/face protection

Suitable eye protection: goggles. Suitable eye protection: Safety goggles with side protection. In case of increased risk add protective face shield.

##### Hand protection

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. When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits.

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Use safety gloves of following materials: NBR (nitrile) / neopren / viton (permeationslevel 5 - 6), Cat. II according to norm EN 347/EN 388.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

When working with acids: PPE category: PPE cat. III - Protective equipment for high risk standards: EN 420, EN 388, EN 374, EN 407, Material: neoprene, neoprene on knitted fabric, liquid-tight. HF-resistant gloves (closed to the acid protection suit or to the overall apron, i.e. taped or with a sealing system - labyrinth or coupling.

Before using check leak tightness / impermeability. In the case of wanting to use the gloves again, clean them before taking off and air them well. Protect skin by using skin protective cream.

#### Skin protection

Use of protective clothing. Suitable protective clothing: Lab apron. Acid protective suit or work clothing with apron

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500 (D).

#### Respiratory protection

In case of inadequate ventilation wear respiratory protection. Suitable respiratory protective equipment: Combination filtering device (EN 14387); Type : EN 143, A-P3

When working with acids: Respiratory protection is required at: aerosol or mist formation. Type: ABEK (combination filter for gases and vapours, identification colour: brown/grey/yellow/green).

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

#### Environmental exposure controls

Do not allow uncontrolled discharge of product into the environment. Do not empty into drains.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	colourless
Odour:	characteristic
Odour threshold:	not determined
pH-Value:	not determined

#### Changes in the physical state

Melting point:	not determined
Initial boiling point and boiling range:	not determined
Sublimation point:	not determined
Softening point:	not determined
Pour point:	not determined
Flash point:	not determined
Sustaining combustion:	Not sustaining combustion

#### Flammability

Solid:	not determined
Gas:	not applicable

#### Explosive properties

The product is not: Explosive.

Lower explosion limits:	not determined
Upper explosion limits:	not determined
Ignition temperature:	not determined

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**Auto-ignition temperature**Solid: not determined  
Gas: not determined

Decomposition temperature: not determined

**Oxidizing properties**

none

Vapour pressure: not determined

Density (at 20 °C): 1,3-1,5 g/cm<sup>3</sup>

Bulk density: not determined

Water solubility: not determined

**Solubility in other solvents**

not determined

Partition coefficient: not determined

Viscosity / dynamic: not determined

Viscosity / kinematic: not determined

Flow time: not determined

Vapour density: not determined

Evaporation rate: not determined

Solvent separation test: not determined

Solvent content: 83,00 %

**9.2. Other information**

Solid content: not determined

The addition of acids produces hydrofluoric acid. This is highly toxic and has a strong corrosive effect. Suitable preventive measures must therefore be taken. Possibility of hydrogen fluoride production. Skin contact with hydrogen fluoride causes very painful redness and blisters. The hydrofluoric acid formed with the skin moisture penetrates the skin together with the ions of hydrogen fluoride formed from autoprotolysis and leads to fatal injuries. Inhalation first causes a burning sensation, then neck and respiratory problems. The formation of a pulmonary hemorrhage is possible, which can lead to death with a delayed effect.

**SECTION 10: Stability and reactivity****10.1. Reactivity**

This material is considered to be non-reactive under normal use conditions. The addition of acids produces hydrofluoric acid. This is highly toxic and has a strong corrosive effect. Suitable preventive measures must therefore be taken.

**10.2. Chemical stability**

The product is chemically stable under recommended conditions of storage, use and temperature. Possibility of hydrogen fluoride production.

**10.3. Possibility of hazardous reactions**

Release of an acutely toxic gas. Fluorine. Hydrogen fluoride Skin contact with hydrogen fluoride causes very painful redness and blisters. The hydrofluoric acid formed with the skin moisture penetrates the skin together with the ions of hydrogen fluoride formed from autoprotolysis and leads to fatal injuries. Inhalation first causes a burning sensation, then neck and respiratory problems. The formation of a pulmonary hemorrhage is possible, which can lead to death with a delayed effect. The addition of acids produces hydrofluoric acid. This is highly toxic and has a strong corrosive effect. Suitable preventive measures must therefore be taken.

Do not store in glass containers. Do not allow to come into contact with glass during use. The material is glass etching.

Violent reaction with: Water. Acids.

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**10.4. Conditions to avoid**

Protect against: UV-radiation/sunlight. heat.

**10.5. Incompatible materials**

Materials to avoid: metals glass Water.

**10.6. Hazardous decomposition products**

 with reference to paragraph: 5. Can be released in case of fire: Carbon monoxide Carbon dioxide (CO<sub>2</sub>).Hydrogen fluoride

**SECTION 11: Toxicological information**
**11.1. Information on toxicological effects**
**Toxicokinetics, metabolism and distribution**
**Acute toxicity**

Harmful if swallowed.

**ATEmix calculated**

ATE (oral) 783,1 mg/kg

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
1341-49-7	ammonium bifluoride; ammonium hydrogen difluoride				
	oral	LD50 130 mg/kg	Rat		
16731-55-8	dipotassium disulfite				
	oral	LD50 >2000 mg/kg	Rat	ECHA Dossier	
	dermal	LD50 >2000 mg/kg	Rat	ECHA Dossier	
	inhalation (4 h) aerosol	LC50 >5,5 mg/l	Rat	ECHA Dossier	

**Irritation and corrosivity**

Causes severe skin burns and eye damage.

Causes serious eye damage.

Skin contact with hydrogen fluoride causes very painful redness and blisters. The hydrofluoric acid formed with the skin moisture penetrates the skin together with the ions of hydrogen fluoride formed from autoprotolysis and leads to fatal injuries. Inhalation first causes a burning sensation, then neck and respiratory problems. The formation of a pulmonary hemorrhage is possible, which can lead to death with a delayed effect.

**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.

**Specific effects in experiment on an animal**
**Additional information on tests**

Classification according to Regulation (EC) No 1272/2008 [CLP]:Special hazards arising from the substance or



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mixture health hazard properties

**Further information**

The addition of acids produces hydrofluoric acid. This is highly toxic and has a strong corrosive effect. Suitable preventive measures must therefore be taken. Release of an acutely toxic gas. Symptoms may occur even many hours after exposure.

**SECTION 12: Ecological information**
**12.1. Toxicity**

Toxic to aquatic life with long lasting effects.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
1341-49-7	ammonium bifluoride; ammonium hydrogen difluoride					
	Acute fish toxicity	LC50	237 mg/l	96 h	Brachydanio rerio	
16731-55-8	dipotassium disulfite					
	Acute fish toxicity	LC50	464-1000 mg/l	96 h	Danio rerio	ECHA Dossier
	Fish toxicity	NOEC	>= 316 mg/l	34 d	Danio rerio	ECHA Dossier
	Crustacea toxicity	NOEC	>10 mg/l	21 d	Daphnia magna	ECHA Dossier

**12.2. Persistence and degradability**

The product has not been tested.

**12.3. Bioaccumulative potential**

No indication of bioaccumulation potential.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
1341-49-7	ammonium bifluoride; ammonium hydrogen difluoride	-4,37
16731-55-8	dipotassium disulfite	-4

**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.

**Further information**

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Self-classification (mixture; calculation rule): strongly hazardous to water (WGK 3)

**SECTION 13: Disposal considerations**
**13.1. Waste treatment methods**
**Disposal recommendations**

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation. Observe in addition any national regulations! Consult the local waste disposal expert about waste disposal.

According to (EWC) European Waste Catalogue, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

Control report for waste code/ waste marking according to (EWC) European Waste Catalogue:

**List of Wastes Code - residues/unused products**

060704 WASTES FROM INORGANIC CHEMICAL PROCESSES; wastes from the MFSU of halogens and halogen chemical processes; solutions and acids, for example contact acid; hazardous waste

**List of Wastes Code - used product**

060704 WASTES FROM INORGANIC CHEMICAL PROCESSES; wastes from the MFSU of halogens and halogen chemical processes; solutions and acids, for example contact acid; hazardous waste

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**List of Wastes Code - contaminated packaging**

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances; hazardous waste

**Contaminated packaging**

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself. Hazardous waste according to Directive 2008/98/EC (waste framework directive).

**SECTION 14: Transport information**
**Land transport (ADR/RID)**

**14.1. UN number:** UN 3264  
**14.2. UN proper shipping name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
 Hazard label: 8



Classification code: C1  
 Special Provisions: 274  
 Limited quantity: 1 L  
 Excepted quantity: E2  
 Transport category: 2  
 Hazard No: 80  
 Tunnel restriction code: E

**Inland waterways transport (ADN)**

**14.1. UN number:** UN 3264  
**14.2. UN proper shipping name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
 Hazard label: 8



Classification code: C1  
 Special Provisions: 274  
 Limited quantity: 1 L  
 Excepted quantity: E2

**Marine transport (IMDG)**

**14.1. UN number:** UN 3264  
**14.2. UN proper shipping name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
 Hazard label: 8



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Marine pollutant:	-
Special Provisions:	274
Limited quantity:	1 L
Excepted quantity:	E2
EmS:	F-A, S-B
Segregation group:	ammonium compounds

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

<b>14.1. UN number:</b>	UN 3264
<b>14.2. UN proper shipping name:</b>	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
<b>14.3. Transport hazard class(es):</b>	8
<b>14.4. Packing group:</b>	II
Hazard label:	8



Special Provisions:	A3 A803
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: strongly corrosive. Refer to section 6-8

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

not relevant

**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 65: ammonium bifluoride; ammonium hydrogen difluoride

2010/75/EU (VOC): No information available.

2004/42/EC (VOC): No information available.

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

**Additional information**

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

REACH 1907/2006 Appendix XVII, No (mixture): 3

**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. Observe employment restrictions for women of child-bearing age.
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Water hazard class (D): 3 - strongly hazardous to water

**Additional information****15.2. Chemical safety assessment**

For this substance a chemical safety assessment has not been carried out.

**SECTION 16: Other information****Changes**

Rev. 1.0; Initial release: 04.05.2017

Rev. 1.1; Revision:10.06.2020

Rev. 1.2; Revision : 27.11.2020

**Abbreviations and acronyms**

ADR: Accord européen sur le transport des marchandises dangereuses par Route

AwSV: Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen

AGW: Arbeitsplatzgrenzwert

AVV: Abfallverzeichnisverordnung

CAS Chemical Abstracts Service

CLP: Classification, Labelling and Packaging of substances and mixtures

DNEL: Derived No Effect Level

d: day(s)

EAKV: Europäisches Abfallverzeichnis gemäß Entwurf Abfallverzeichnisverordnung

EINECS: European INventory of Existing Commercial chemical Substances

ELINCS: European List of Notified Chemical Substances

ECHA: European Chemicals Agency

EWC: European Waste Catalogue

IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)

h: hour

LOAEL: Lowest observed adverse effect level

LOAEC: Lowest observed adverse effect concentration

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NOAEL: No observed adverse effect level

NOAEC: No observed adverse effect level

NLP: No-Longer Polymers

N/A: not applicable

OECD: Organisation for Economic Co-operation and Development

PNEC: predicted no effect concentration

PBT: Persistent bioaccumulative toxic

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail )

REACH: Registration, Evaluation, Authorisation of Chemicals

SVHC: substance of very high concern

TRGS Technische Regeln fuer Gefahrstoffe

UN: United Nations

VOC: Volatile Organic Compounds

VwVwS: Verwaltungsvorschrift wassergefaehrdender Stoffe

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Colour etchant acc. to LICHTENEGGER and BLOECH**

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WGK: Wassergefährdungsklasse  
 CLP: Classification, labelling and Packaging  
 REACH: Registration, Evaluation and Authorization of Chemicals  
 GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals  
 UN: United Nations  
 CAS: Chemical Abstracts Service  
 DNEL: Derived No Effect Level  
 DMEL: Derived Minimal Effect Level  
 PNEC: Predicted No Effect Concentration  
 ATE: Acute toxicity estimate  
 LL50: Lethal loading, 50%  
 EL50: Effect loading, 50%  
 EC50: Effective Concentration 50%  
 ErC50: Effective Concentration 50%, growth rate  
 NOEC: No Observed Effect Concentration  
 BCF: Bio-concentration factor  
 PBT: persistent, bioaccumulative, toxic  
 vPvB: very persistent, very bioaccumulative  
 ADR: Accord européen sur le transport des marchandises dangereuses par Route  
 (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 RID: Regulations concerning the international carriage of dangerous goods by rail  
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
 (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation  
 intérieures)  
 EmS: Emergency Schedules  
 MFAG: Medical First Aid Guide  
 MARPOL: International Convention for the Prevention of Marine Pollution from Ships  
 IBC: Intermediate Bulk Container  
 For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

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

Classification	Classification procedure
Acute Tox. 4; H302	Calculation method
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method

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

H301 Toxic if swallowed.  
 H302 Harmful if swallowed.  
 H314 Causes severe skin burns and eye damage.  
 H318 Causes serious eye damage.  
 H335 May cause respiratory irritation.  
 EUH031 Contact with acids liberates toxic gas.

**Further Information**

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 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. Classification according to Regulation (EC) No 1272/2008 [CLP] - Classification procedure:

Health hazards: Calculation method.

Environmental hazards: Calculation method.

Physical hazards: On basis of test data and / or calculated and / or estimated.

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

## Safety Data Sheet

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