

Safety Data Sheet

according to Regulation (EC) No 1907/2006 and (EU) No 2020/878

ammonium hydrogendifluoride

Revision date: 07.05.2025

Product code: 18871.xxxxx

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

1.1. Product identifier

ammonium hydrogendifluoride

Substance name: ammonium hydrogen difluoride
REACH Registration Number: 01-2119489180-38-XXXX
CAS No: 1341-49-7
Index No: 009-009-00-4
EC No: 215-676-4
UFI: 958P-G10N-X008-SHWJ

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.

1.3. Details of the supplier of the safety data sheet

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
Contact person: Morphisto GmbH
E-mail: gefahrstoffmanagement@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

Acute Tox. 3; H301
Skin Corr. 1B; H314

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Signal word: Danger

Pictograms:



Hazard statements

H301 Toxic if swallowed.
H314 Causes severe skin burns and eye damage.

Precautionary statements

P260 Do not breathe gas.

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- P280 Wear protective gloves/protective clothing and eye protection/face protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
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.

Labelling of packages where the contents do not exceed 125 ml

Signal word:

Danger

Pictograms:



Hazard statements

H301-H314

Precautionary statements

P303+P361+P353-P305+P351+P338-P310

2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB) at levels of 0.1% or higher. Ecological information: The substance/mixture does not contain any components that are considered to be hazardous according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in amounts of 0.1 % or more have endocrine disrupting properties. Toxicological information: The substance/mixture does not contain any components that are to be classified according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in quantities of 0.1 % or more have endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical characterization

Solid matter

Sum formula: (NH₄)HF₂

Molecular weight: 57,04 g/mol g/mol

Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
1341-49-7	ammonium hydrogen difluoride			100 %
	215-676-4	009-009-00-4	01-2119489180-38-XXXX	
	Acute Tox. 3, Skin Corr. 1B; H301 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		
1341-49-7	215-676-4	ammonium hydrogen difluoride	100 %
	oral: LD50 = 130 mg/kg Skin Corr. 1B; H314: >= 1 - 100 Skin Irrit. 2; H315: >= 0.1 - < 1 Eye Irrit. 2; H319: >= 0.1 - < 1		

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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.

This mixture contains no substances of very high concern (SVHC) (> 0,1%) which are included in the Candidate List according to Article 59 of REACH.

SECTION 4: First aid measures**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).

After inhalation

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

After contact with skin

Take off immediately all contaminated clothing and wash it before reuse. Medical treatment necessary. After contact with skin, wash immediately with: Water. Call a physician in any case!

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. Rinse cautiously with water for several minutes.

After ingestion

Rinse mouth immediately and drink plenty of water. Adverse human health effects and symptoms: Gastric perforation. Let water be drunken in little sips (dilution effect). Call a physician in any case!

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

Irritation, corrosion, cough, gastrointestinal complaints, nausea, vomiting, shortness of breath, diarrhea, gastric perforation, risk of serious eye damage, with the addition of acids: cramps, cardiac arrhythmias, circulatory collapse

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 (CO₂). Dry extinguishing powder. alcohol resistant foam. Water spray

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Non-flammable. In case of fire may be liberated: Carbon monoxide Carbon dioxide (CO₂). Hydrogen fluoride. Vapours are heavier than air, spread along floors and form explosive mixtures with air.

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

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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General advice

Provide adequate ventilation. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Ventilate affected area. 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**Other information**

Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal.
Clean contaminated objects and areas thoroughly observing environmental regulations. Avoid: dust formation

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.

Advice on protection against fire and explosion

Usual measures for fire prevention.

Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff. Draw up and observe skin protection programme. Always close containers tightly after the removal of product. Wash contaminated clothing prior to re-use. Street clothing should be stored separately from work clothing.

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**

Keep locked up. Store in a place accessible by authorized persons only. 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.

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Recommended storage temperature: 15-25°C

Protect against: frost. UV-radiation/sunlight. heat. HumidityAcids

7.3. Specific end use(s)

See section 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limit values

CAS No	Name of agent	ppm	mg/m ³	fib/cm ³	Category	Origin
-	Fluorides, inorganic	-	2.5		TWA (8 h)	

8.2. Exposure controls



Appropriate engineering controls

Do not breathe dust. Provide adequate ventilation as well as local exhaust at critical locations. Process within closed systems. Use extractor hood (laboratory).

Individual protection measures, such as personal protective equipment

Eye/face protection

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

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.

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

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

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must be used.

Details on the requirements for use and maximum concentrations can be found in the "Rules for the use of respiratory protective devices" (BGR 190).

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:	solid
Colour:	whitish
Odour:	stinging
Melting point/freezing point:	125-126 °C
Boiling point or initial boiling point and boiling range:	239-240 °C
Flammability:	not determined
Lower explosion limits:	not determined
Upper explosion limits:	not determined
Flash point:	not determined
Auto-ignition temperature:	not determined
Decomposition temperature:	not determined
pH-Value (at 20 °C):	3,5(5,7 g/l)
Viscosity / kinematic:	not determined
Water solubility:	>600 g/l
(at 20 °C)	
Solubility in other solvents	
not determined	
Partition coefficient n-octanol/water:	not determined
Vapour pressure:	not determined
Density (at 20 °C):	1,5 g/cm ³
Bulk density (at 20 °C):	700-750 kg/m ³
Relative vapour density:	not determined

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

The product is not: Explosive.

Sustained combustibility:

No sustained combustibility

Self-ignition temperature

Solid:

not determined

Gas:

not determined

Oxidizing properties

none

Other safety characteristics

Evaporation rate:

not determined

Solvent separation test:

not determined

Solvent content:

not determined

Solid content:

not determined

Sublimation point:

not determined

Softening point:

not determined

Pour point:

not determined

Viscosity / dynamic:

not determined

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Flow time:

not determined

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.

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.

10.3. Possibility of hazardous reactions

Release of an acutely toxic gas. 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.

10.4. Conditions to avoid

Protect against: UV-radiation/sunlight. heat. Decomposition takes place from temperatures above: 240°C.

10.5. Incompatible materials

Materials to avoid: metals Glass

10.6. Hazardous decomposition products

with reference to paragraph: 5. In case of fire may be liberated: Carbon monoxide Carbon dioxide (CO₂).
Hydrogen fluoride

SECTION 11: Toxicological information**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Toxic if swallowed.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
1341-49-7	ammonium hydrogen difluoride				
	oral	LD50 130 mg/kg	Rat	ECHA	OECD 401

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.

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Aspiration hazard

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

11.2. Information on other hazards

Endocrine disrupting properties

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

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

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

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
1341-49-7	ammonium hydrogen difluoride					
	Acute fish toxicity	LC50	237 mg/l	96 h	Brachydanio rerio	ECHA

12.2. Persistence and degradability

The product has not been tested.

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
1341-49-7	ammonium hydrogen difluoride	-4,37

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

The product has not been tested.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. slightly hazardous to water

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. Hazardous waste according to the Waste List Ordinance (AVV). 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:

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List of Wastes Code - residues/unused products

160902 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; oxidising substances; chromates, for example potassium chromate, potassium or sodium dichromate; hazardous waste

List of Wastes Code - used product

160902 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; oxidising substances; chromates, for example potassium chromate, potassium or sodium dichromate; hazardous waste

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

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

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:

UN 1727

14.2. UN proper shipping name:

AMMONIUM HYDROGENDIFLUORIDE, SOLID

14.3. Transport hazard class(es):

8

14.4. Packing group:

II

Hazard label:

8



Classification code:

C2

Limited quantity:

1 kg

Excepted quantity:

E2

Transport category:

2

Hazard No:

80

Tunnel restriction code:

E

Inland waterways transport (ADN)

14.1. UN number or ID number:

UN 1727

14.2. UN proper shipping name:

AMMONIUM HYDROGENDIFLUORIDE, SOLID

14.3. Transport hazard class(es):

8

14.4. Packing group:

II

Hazard label:

8



Classification code:

C2

Limited quantity:

1 kg

Excepted quantity:

E2

Marine transport (IMDG)

14.1. UN number or ID number:

UN 1727

14.2. UN proper shipping name:

AMMONIUM HYDROGENDIFLUORIDE, SOLID

14.3. Transport hazard class(es):

8

14.4. Packing group:

II

Hazard label:

8

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Special Provisions: -
Limited quantity: 1 kg
Excepted quantity: E2
EmS: F-A, S-B
Segregation group: 1 - acids

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 1727
14.2. UN proper shipping name: AMMONIUM HYDROGENDIFLUORIDE, SOLID
14.3. Transport hazard class(es): 8
14.4. Packing group: II
Hazard label: 8



Limited quantity Passenger: 5 kg
Passenger LQ: Y844
Excepted quantity: E2
IATA-packing instructions - Passenger: 859
IATA-max. quantity - Passenger: 15 kg
IATA-packing instructions - Cargo: 863
IATA-max. quantity - Cargo: 50 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: strongly corrosive. refer to chapter 6-8

14.7. Maritime transport in bulk according to IMO instruments

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, Entry 75

Directive 2010/75/EU on industrial emissions: No information available.

Directive 2004/42/EC on VOC in paints and varnishes: No information available.

Information according to Directive 2012/18/EU (SEVESO III): H2 ACUTE TOXIC

Additional information: E2

Additional information

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

National regulatory information

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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

Additional information

The product is subject to the Chemicals Prohibition Ordinance (ChemVerbotsV). Observe the requirements and restrictions for handling and dispensing in Section 3 of the ChemVerbotsV, among others.

15.2. Chemical safety assessment

For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 1,2,3,4,5,6,7,8,9,10,11,12,14,15,16.
Rev. 1,2; Verification

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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

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 wassergefährdender Stoffe

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

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

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

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. 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 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.