

## Safety Data Sheet

according to UK REACH Regulation

### Luff-Schoorl solution 0,1 N Cu and 2 N Na<sub>2</sub>CO<sub>3</sub> in citric acid solution 50g/l pH 9,4

Revision date: 29.11.2023

Product code: 21378

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

### 1.1. Product identifier

Luff-Schoorl solution 0,1 N Cu and 2 N Na<sub>2</sub>CO<sub>3</sub> in citric acid solution 50g/l pH 9,4

UFI: TE6W-C1DM-400N-441E

### 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	
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

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

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### GB CLP Regulation

Eye Irrit. 2; H319

Aquatic Chronic 2; H411

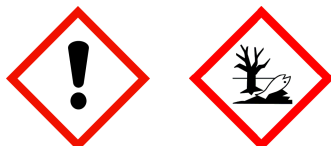
Full text of hazard statements: see SECTION 16.

### 2.2. Label elements

#### GB CLP Regulation

Signal word: Warning

Pictograms:



#### Hazard statements

H319

Causes serious eye irritation.

H411

Toxic to aquatic life with long lasting effects.

#### Precautionary statements

P273

Avoid release to the environment.

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P280  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P391 Collect spillage.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

#### 2.3. Other hazards

No information 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 (GB CLP Regulation)	
497-19-8	sodium carbonate	10 - < 15 %
	207-838-8	
	011-005-00-2	
	01-2119485498-19	
	Eye Irrit. 2; H319	
5949-29-1	Citric acid 1-hydrate	1 - < 5 %
	201-069-1	
	01-2119457026-42	
	Eye Irrit. 2, STOT SE 3; H319 H335	
7758-99-8	copper sulphate pentahydrate	1 - < 5 %
	231-847-6	
	029-023-00-4	
	01-2119520566-40	
	Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1; H302 H315 H318 H400 H410	

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	
497-19-8	207-838-8	sodium carbonate	10 - < 15 %
		dermal: LD50 = > 2000 mg/kg; oral: LD50 = 2800 mg/kg	
5949-29-1	201-069-1	Citric acid 1-hydrate	1 - < 5 %
		dermal: LD50 = > 2000 mg/kg; oral: LD50 = 5400 mg/kg	
7758-99-8	231-847-6	copper sulphate pentahydrate	1 - < 5 %
		dermal: LD50 = > 2000 mg/kg; oral: ATE 481 mg/kg Aquatic Acute 1; H400: M=10 Aquatic Chronic 1; H410: M=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

No data available

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#### After inhalation

Provide fresh air.  
Call a doctor if you feel unwell.

#### After contact with skin

Wash immediately with: Water  
In case of skin irritation, consult a physician.  
Take off immediately all contaminated clothing and wash it before reuse.

#### After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.  
Remove contact lenses, if present and easy to do. Continue rinsing.

#### After ingestion

Rinse mouth immediately and drink plenty of water.  
Call a physician immediately.

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

No data available

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

No data available

### 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:  
Sulphur oxides

#### **5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus.

#### **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**

##### **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.

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#### **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**

- Handle and open container with care.
- Keep container tightly closed.
- Provide adequate ventilation.
- Avoid contact with skin, eyes and clothes.

##### **Advice on protection against fire and explosion**

- No special fire protection measures are necessary.

##### **Advice on general occupational hygiene**

- 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**

- Wash contaminated clothing before reuse.
- Wash hands before breaks and after work.

#### **7.2. Conditions for safe storage, including any incompatibilities**

##### **Requirements for storage rooms and vessels**

- Keep container tightly closed.

##### **Hints on joint storage**

- TRGS 510 No data available

##### **Further information on storage conditions**

- Store in a dry place.

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

- Laboratory chemicals

## **SECTION 8: Exposure controls/personal protection**

#### **8.1. Control parameters**

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**DNEL/DMEL values**

CAS No	Substance	Exposure route	Effect	Value
497-19-8	sodium carbonate			
Worker DNEL, long-term		inhalation	local	10 mg/m <sup>3</sup>
Consumer DNEL, long-term		inhalation	local	10 mg/m <sup>3</sup>
Consumer DNEL, acute		inhalation	local	10 mg/m <sup>3</sup>

**PNEC values**

CAS No	Substance	Environmental compartment	Value
5949-29-1	Citric acid 1-hydrate	Freshwater	0,44 mg/l
		Marine water	0,044 mg/l
		Freshwater sediment	34,6 mg/kg
		Marine sediment	3,46 mg/kg
		Micro-organisms in sewage treatment plants (STP)	1000 mg/l
		Soil	33,1 mg/kg
7758-99-8	copper sulphate pentahydrate	Freshwater	0,0078 mg/l
		Marine water	0,0052 mg/l
		Freshwater sediment	87 mg/kg
		Marine sediment	676 mg/kg
		Micro-organisms in sewage treatment plants (STP)	0,23 mg/l
		Soil	65 mg/kg

**8.2. Exposure controls**

**Appropriate engineering controls**

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.

**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.

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

By long-term hand contact

Trade name/designation: KCL 741 Dermatril® L

Recommended material: NBR (Nitrile rubber) 0,11 mm

Wearing time with permanent contact: > 480 min

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By short-term hand contact

Trade name/designation: KCL 741 Dermatril® L

Recommended material: NBR (Nitrile rubber) 0,11 mm

Wearing time with occasional contact (splashes): > 480 min

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

#### Skin protection

Wear suitable protective clothing.

#### Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

#### 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:	blue	
Odour:	odourless	
Odour threshold:	No data available	
Melting point/freezing point:		No data available
Boiling point or initial boiling point and boiling range:		No data available
Flammability:		not applicable 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:		9,5
Viscosity / kinematic:		No data available
Solubility in other solvents		
not determined		
Partition coefficient n-octanol/water:		No data available
Vapour pressure:		No data available
Vapour pressure:		No data available
Density (at 20 °C):		1,1520 g/cm <sup>3</sup>
Bulk density:		No data available
Relative vapour density:		not determined

### 9.2. Other information

#### Information with regard to physical hazard classes

Explosive properties

No data available

Sustaining combustion:

No data available

Self-ignition temperature

Solid:

not applicable

Gas:

not applicable

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Oxidizing properties  
Not oxidising.

#### Other safety characteristics

Evaporation rate:	not determined
Solvent separation test:	No data available
Solvent content:	0
Solid content:	0
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
No data available:	
Viscosity / dynamic:	No data available
Flow time:	No data available

#### Further Information

No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

### 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

### 10.3. Possibility of hazardous reactions

No known hazardous reactions.

### 10.4. Conditions to avoid

none

### 10.5. Incompatible materials

No information available.

### 10.6. Hazardous decomposition products

In case of fire may be liberated:  
SECTION 5: Firefighting measures

#### Further information

No data available

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in GB CLP Regulation

#### Toxicokinetics, metabolism and distribution

There are no data available on the mixture itself.

#### Acute toxicity

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

#### ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
497-19-8	sodium carbonate				
	oral	LD50 2800 mg/kg	Rat	Study report (1978)	Groups of 5 male and 5 female rats were
	dermal	LD50 > 2000 mg/kg	Rabbit	Study report (1978)	other: EPA 16 CFR 1500.40
5949-29-1	Citric acid 1-hydrate				
	oral	LD50 5400 mg/kg	Mouse	Study report (1981)	OECD Guideline 401
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2006)	OECD Guideline 402
7758-99-8	copper sulphate pentahydrate				
	oral	ATE 481 mg/kg			
	dermal	LD50 > 2000 mg/kg	Rat	Study report (1993)	OECD Guideline 402

**Irritation and corrosivity**

Causes serious eye irritation.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

**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**

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**

**Other information**

There are no data available on the mixture itself.

**Further information**

There are no data available on the mixture itself.

**SECTION 12: Ecological information**

**12.1. Toxicity**

There are no data available on the mixture itself.



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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
497-19-8	sodium carbonate					
	Acute fish toxicity	LC50 300 mg/l	96 h	Lepomis macrochirus	Proc. 13th Ind. Waste Conf., Purdue Univ	Method: Recommendations of the Committee
	Acute crustacea toxicity	EC50 227 mg/l	48 h	Ceriodaphnia sp.	Ecotoxicol. Environ. Saf., 44, 196-206 (	Method: method developed by NSW Environm
5949-29-1	Citric acid 1-hydrate					
	Acute fish toxicity	LC50 > 100 mg/l	96 h	Pimephales promelas	Photogr. Sci. Eng. 16(5):370-377 (1972)	
	Acute crustacea toxicity	EC50 > 50 mg/l	48 h	other aquatic crustacea: Dreissena polymorpha	Environ.Toxicol.C hem. 16(9): 1930-1934 (	other: ASTM
	Algae toxicity	NOEC 425 mg/l	8 d	Scenedesmus quadricauda	Water Research 14: 231-241 (1980)	other: Bringmann and Kuhn
7758-99-8	copper sulphate pentahydrate					
	Acute fish toxicity	LC50 0,193 mg/l	96 h	Pimephales promelas	Study report (1996)	measurements were conducted by standard
	Acute algae toxicity	ErC50 0,152 mg/l	72 h	Pseudokirchneriella subcapitata	Publication (2005)	OECD Guideline 201
	Acute crustacea toxicity	EC50 0,007 mg/l	48 h	Daphnia magna	Study report (1978)	- Test were conducted on Daphnia magna t
	Fish toxicity	NOEC 0,123 mg/l	12 d	Atherinops affinis	Mar. Environ. Res. 31: 17-35 (1991)	Three tests are reported, designed to de
	Algae toxicity	NOEC 0,0102 mg/l	19 d	other aquatic plant: giant kelp Macrocystis pyrife	Mar. Ecol. Prog. Ser. 68: 147 - 156 (199	Tests were conducted to determine the ef
	Crustacea toxicity	NOEC 0,033 mg/l	14 d	Penaeus mergulensis and Penaeus monodon	Bull. Environ. Contain. Toxicol. (1995)	The effects of dissolved copper on the g

**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.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
5949-29-1	Citric acid 1-hydrate	-1,55

**BCF**

CAS No	Chemical name	BCF	Species	Source
5949-29-1	Citric acid 1-hydrate	3,2		In: (2009)
7758-99-8	copper sulphate pentahydrate	0,02 - 20	Crangon crangon	Symp. Biologica. Hun

**12.4. Mobility in soil**

There are no data available on the mixture itself.

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

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

No data available

**12.6. Endocrine disrupting properties**

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

**12.7. Other adverse effects**

There are no data available on the mixture itself.

**Further information**

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**

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.

**Contaminated packaging**

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

**SECTION 14: Transport information**

**Land transport (ADR/RID)**

<b>14.1. UN number or ID number:</b>	UN 3082
<b>14.2. UN proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (copper sulphate)
<b>14.3. Transport hazard class(es):</b>	9
<b>14.4. Packing group:</b>	III
Hazard label:	9
Classification code:	M6
Special Provisions:	274 335 375 601
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	90
Tunnel restriction code:	-

**Inland waterways transport (ADN)**

<b>14.1. UN number or ID number:</b>	UN 3082
<b>14.2. UN proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (copper sulphate)
<b>14.3. Transport hazard class(es):</b>	9
<b>14.4. Packing group:</b>	III
Hazard label:	9
Classification code:	M6
Special Provisions:	274 335 375 601
Limited quantity:	5 L
Excepted quantity:	E1

**Marine transport (IMDG)**

<b>14.1. UN number or ID number:</b>	UN 3082
<b>14.2. UN proper shipping name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (copper sulphate)
<b>14.3. Transport hazard class(es):</b>	9

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**14.4. Packing group:** III  
**Hazard label:** 9  
**Special Provisions:** 274, 335, 969  
**Limited quantity:** 5 L  
**Excepted quantity:** E1  
**EmS:** F-A, S-F

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

**14.1. UN number or ID number:** UN 3082  
**14.2. UN proper shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (copper sulphate)  
**14.3. Transport hazard class(es):** 9  
**14.4. Packing group:** III  
**Hazard label:** 9  
**Special Provisions:** A97 A158 A197 A215  
**Limited quantity Passenger:** 30 kg G  
**Passenger LQ:** Y964  
**Excepted quantity:** E1  
**IATA-packing instructions - Passenger:** 964  
**IATA-max. quantity - Passenger:** 450 L  
**IATA-packing instructions - Cargo:** 964  
**IATA-max. quantity - Cargo:** 450 L

**14.5. Environmental hazards**

**ENVIRONMENTALLY HAZARDOUS:** Yes  
**Danger releasing substance:** Copper(II) sulphate pentahydrate

**14.6. Special precautions for user**

No information available.

**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

**National regulatory information**

**Employment restrictions:** Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).  
**Water hazard class (D):** 1 - slightly hazardous to water

**Additional information**

No data available

**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): 1,4,5,6,7,8,9,10,11,12,14.

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#### Abbreviations and acronyms

Acute Tox: Acute toxicity  
Skin Irrit: Skin irritation  
Eye Dam: Eye damage  
Eye Irrit: Eye irritation  
STOT SE: Specific target organ toxicity - single exposure  
Aquatic Acute: Acute aquatic hazard  
Aquatic Chronic: Chronic aquatic hazard  
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%

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

H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

#### 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.

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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.)*