

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Tetramethylammonium hydroxide solution R React. Ph. Eur., Chapter 4.1.1

Revision: 26.11.2024

Product code: 27647

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

Tetramethylammonium hydroxide solution R React. Ph. Eur., Chapter 4.1.1

UFI: 4NJF-A2E8-8002-074V

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

Company name: AnalytiChem GmbH

ACD

Street: Stempelstraße 6

Place: D-47167 Duisburg

Telephone: 0203/5194-0

Telefax: 0203/5194-290

E-mail: info@analytichem.de

Contact person: Abteilung Produktsicherheit

Telephone: 0203/5194-107/117

E-mail: produktsicherheit@analytichem.de

Internet: www.analytichem.de

Responsible Department: Abteilung Produktsicherheit

1.4. Emergency telephone**number:**

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

This product is a mixture. REACH Registration Number see section 3.

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

Acute Tox. 1; H310

Acute Tox. 2; H300

Skin Corr. 1A; H314

Eye Dam. 1; H318

STOT SE 1; H370

STOT RE 1; H372

Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

2.2. Label elements**Regulation (EC) No 1272/2008****Hazard components for labelling**

Tetramethylammonium 5-hydrate

Signal word: Danger

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Pictograms:



Hazard statements

| | |
|-----------|--|
| H300+H310 | Fatal if swallowed or in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |
| H370 | Causes damage to organs (central nervous system). |
| H372 | Causes damage to organs (thymus, liver) through prolonged or repeated exposure in contact with skin. |
| H412 | Harmful to aquatic life with long lasting effects. |

Precautionary statements

| | |
|----------------|--|
| P201 | Obtain special instructions before use. |
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
| P264 | Wash hands 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

No data available

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

Mixtures in aqueous solution

Relevant ingredients

| CAS No | Chemical name | | | Quantity |
|------------|---|----------|------------------|-------------|
| | EC No | Index No | REACH No | |
| | Classification (Regulation (EC) No 1272/2008) | | | |
| 10424-65-4 | Tetramethylammonium 5-hydrate | | | 15 - < 20 % |
| | | | 01-2119970562-34 | |
| | Acute Tox. 1, Acute Tox. 2, Skin Corr. 1A, STOT SE 1, STOT RE 1, Aquatic Chronic 2; H310 H300 H314 H370 H372 H411 | | | |

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 | |
| 10424-65-4 | | Tetramethylammonium 5-hydrate | 15 - < 20 % |
| | | dermal: LD50 = 1000 - 2000 mg/kg; oral: LD50 = 300 - 2000 mg/kg | |

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).

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SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

Self-protection of the first aider

After inhalation

Provide fresh air.

If breathing is irregular or stopped, administer artificial respiration.

Call a physician immediately.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap.

Take off immediately all contaminated clothing and wash it before reuse.

Call a physician immediately.

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.

After ingestion

Rinse mouth.

Call a physician immediately.

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

Cough, Dyspnoea

Headache, Gastrointestinal complaints

Vomiting

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

Hazardous combustion products

In case of fire may be liberated:

Nitrogen oxides (NO_x)

Carbon monoxide

Carbon dioxide

5.3. Advice for firefighters

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

Avoid contact with skin, eyes and clothes.

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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General advice

Do not breathe vapour/aerosol.

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**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.

Take up carefully when dry. Take up dust-free and set down dust-free.

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**

Do not breathe vapour/aerosol.

Read label before use.

Use extractor hood (laboratory).

Advice on protection against fire and explosion

Usual measures for fire prevention.

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 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.

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

Store in a place accessible by authorized persons only.

Keep container tightly closed. Store in a dry place.

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Hints on joint storage

national regulations

Further information on storage conditions

Protect against: Light

Keep cool. Protect from sunlight.

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****DNEL/DMEL values**

| CAS No | Substance | | | |
|--------------------------|-------------------------------|----------------|----------|--------------------|
| DNEL type | | Exposure route | Effect | Value |
| 10424-65-4 | Tetramethylammonium 5-hydrate | | | |
| Worker DNEL, long-term | | inhalation | systemic | 0,49 mg/m³ |
| Worker DNEL, long-term | | dermal | systemic | 0,14 mg/kg bw/day |
| Consumer DNEL, long-term | | inhalation | systemic | 0,29 mg/m³ |
| Consumer DNEL, long-term | | dermal | systemic | 0,083 mg/kg bw/day |
| Consumer DNEL, long-term | | oral | systemic | 0,042 mg/kg bw/day |

PNEC values

| CAS No | Substance | |
|--|-------------------------------|--|
| Environmental compartment | Value | |
| 10424-65-4 | Tetramethylammonium 5-hydrate | |
| Freshwater | 0,0005 mg/l | |
| Freshwater (intermittent releases) | 0,03 mg/l | |
| Marine water | 0,00005 mg/l | |
| Freshwater sediment | 0,03 mg/kg | |
| Marine sediment | 0,003 mg/kg | |
| Micro-organisms in sewage treatment plants (STP) | 5 mg/l | |
| Soil | 0,0057 mg/kg | |

8.2. Exposure controls**Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Suitable eye protection:

goggles

Face protection umbrella

Hand protection

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

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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.

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

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

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.

Wear full chemical protective clothing.

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.

Thermal hazards

No data available

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: | characteristic | |
| 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: | | No data available |
| Lower explosion limits: | | No data available |
| Upper explosion limits: | | No data available |
| Flash point: | | No data available |

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| | |
|--|-------------------|
| Auto-ignition temperature: | No data available |
| Decomposition temperature: | No data available |
| pH-Value: | No data available |
| Viscosity / kinematic: | No data available |
| Water solubility: | No data available |
| Solubility in other solvents | |
| No data available | |
| Dissolution rate: | No data available |
| Partition coefficient n-octanol/water: | No data available |
| Dispersion stability: | No data available |
| Vapour pressure: | No data available |
| Vapour pressure: | No data available |
| Density: | No data available |
| Bulk density: | No data available |
| Relative vapour density: | No data available |
| Particle characteristics: | No data available |

9.2. Other information**Information with regard to physical hazard classes**

| | |
|---------------------------|-------------------|
| Sustained combustibility: | No data available |
| Self-ignition temperature | |
| Solid: | No data available |
| Gas: | No data available |
| Oxidizing properties | |
| No data available | |

Other safety characteristics

| | |
|--------------------------|-------------------|
| Evaporation rate: | No data available |
| Solvent separation test: | No data available |
| Solvent content: | No data available |
| Solid content: | No data available |
| 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 data available

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.
Protect against: Light

10.3. Possibility of hazardous reactions

Violent reaction with:
Oxidising agent, strong
Acids

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10.4. Conditions to avoid

Light

10.5. Incompatible materials

No data available

10.6. Hazardous decomposition products

In case of fire may be liberated:

Nitrogen oxides (NO_x)

Carbon monoxide

Carbon dioxide

Further information

No data available

SECTION 11: Toxicological information**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008****Toxicokinetics, metabolism and distribution**

There are no data available on the mixture itself.

Acute toxicity

Fatal in contact with skin.

Fatal if swallowed.

ATEmix calculated

ATE (oral) 25,20 mg/kg; ATE (dermal) 25,20 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

| CAS No | Chemical name | | | | |
|------------|-------------------------------|------------------------|---------|---------------------|--------------------|
| | Exposure route | Dose | Species | Source | Method |
| 10424-65-4 | Tetramethylammonium 5-hydrate | | | | |
| | oral | LD50 300 - 2000 mg/kg | Rat | Study report (2005) | OECD Guideline 423 |
| | dermal | LD50 1000 - 2000 mg/kg | Rat | Study report (2005) | OECD Guideline 402 |

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

Causes damage to organs. (Tetramethylammonium 5-hydrate)

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure. (Tetramethylammonium 5-hydrate)

Aspiration hazard

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

Information on likely routes of exposure

There are no data available on the mixture itself.

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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

Cough, Dyspnoea

Headache, Gastrointestinal complaints

Vomiting

Further information

There are no data available on the mixture itself.

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

Harmful to aquatic life with long lasting effects.

| CAS No | Chemical name | | | | | |
|------------|-------------------------------|----------------------|-----------|---|--|--------------------|
| | Aquatic toxicity | Dose | [h] [d] | Species | Source | Method |
| 10424-65-4 | Tetramethylammonium 5-hydrate | | | | | |
| | Acute fish toxicity | LC50 462 mg/l | 96 h | Pimephales promelas | Center for Lake Superior Environmental S | OECD Guideline 203 |
| | Acute algae toxicity | ErC50 96,3 mg/l | 72 h | Pseudokirchneriella subcapitata | Study report (2005) | OECD Guideline 201 |
| | Acute crustacea toxicity | EC50 3 mg/l | 48 h | Daphnia magna | Study report (2001) | OECD Guideline 202 |
| | Acute bacteria toxicity | EC50 > 1000 mg/l () | 3 h | activated sludge of a predominantly domestic sewage | Study report (2013) | OECD Guideline 209 |

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 |
|------------|-------------------------------|---------|
| 10424-65-4 | Tetramethylammonium 5-hydrate | < 0,036 |

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 REACH, annex XIII.

12.6. Endocrine disrupting properties

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

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12.7. Other adverse effects

Discharge into the environment must be avoided.

Further information

Do not allow to enter into surface water or drains.

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

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

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

Do not empty into drains.

Contaminated packaging

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

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 1835 |
| 14.2. UN proper shipping name: | TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION |
| 14.3. Transport hazard class(es): | 8 |
| 14.4. Packing group: | II |
| Hazard label: | 8 |
| Classification code: | C7 |
| 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 or ID number: | UN 1835 |
| 14.2. UN proper shipping name: | TETRAMETHYLAMMONIUM HYDROXIDE, SOLUTION |
| 14.3. Transport hazard class(es): | 8 |
| 14.4. Packing group: | II |
| Hazard label: | 8 |
| Classification code: | C7 |
| Limited quantity: | 1 L |
| Excepted quantity: | E2 |

Marine transport (IMDG)

| | |
|--|--|
| 14.1. UN number or ID number: | UN 1835 |
| 14.2. UN proper shipping name: | TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION |
| 14.3. Transport hazard class(es): | 8 |
| 14.4. Packing group: | II |
| Hazard label: | 8 |
| Special Provisions: | - |
| Limited quantity: | 1 L |
| Excepted quantity: | E2 |
| EmS: | F-A, S-B |

Air transport (ICAO-TI/IATA-DGR)

| | |
|--------------------------------------|---------|
| 14.1. UN number or ID number: | UN 1835 |
|--------------------------------------|---------|

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14.2. UN proper shipping name: TETRAMETHYLAMMONIUM HYDROXIDE, SOLUTION**14.3. Transport hazard class(es):** 8**14.4. Packing group:** 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: Yes

Danger releasing substance: Tetramethylammonium-5-hydrat

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

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

Information according to Directive H1 ACUTE TOXIC

2012/18/EU (SEVESO III):

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

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 1,3,6,8,9,12.

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Abbreviations and acronyms

Acute Tox. 1: Acute toxicity, hazard category 1
Skin Corr. 1A: Skin corrosion, sub-category 1A
Eye Dam. 1: Serious eye damage, hazard category 1
STOT SE 1: Specific target organ toxicity - single exposure, hazard category 1
STOT RE 1: Specific target organ toxicity - repeated exposure, hazard category 1
Aquatic Chronic 2: Hazardous to the aquatic environment, long-term hazard category: Chronic 2
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%

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

| Classification | Classification procedure |
|-------------------------|--------------------------|
| Acute Tox. 1; H310 | Calculation method |
| Acute Tox. 2; H300 | Calculation method |
| Skin Corr. 1A; H314 | Calculation method |
| Eye Dam. 1; H318 | Calculation method |
| STOT SE 1; H370 | Calculation method |
| STOT RE 1; H372 | Calculation method |
| Aquatic Chronic 3; H412 | Calculation method |

Relevant H and EUH statements (number and full text)

| | |
|-----------|--|
| H300 | Fatal if swallowed. |
| H300+H310 | Fatal if swallowed or in contact with skin. |
| H310 | Fatal in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| H370 | Causes damage to organs (central nervous system). |
| H370 | Causes damage to organs. |
| H372 | Causes damage to organs (thymus, liver) through prolonged or repeated exposure in contact with skin. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H411 | Toxic to aquatic life with long lasting effects. |
| H412 | Harmful 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. The receiver of our product is singularly responsible for adhering to existing laws and regulations. Provide appropriate information, instructions and training to users

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