

## Safety Data Sheet

according to UK REACH Regulation

### CARNOY fixing solution (formaldehyde-alcohol-acetic acid)

Revision date: 08.02.2024

Product code: 10162.xxxxx

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

##### 1.1. Product identifier

CARNOY fixing solution (formaldehyde-alcohol-acetic acid)

UFI: TF4W-H0UD-G00A-VFXP

##### 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.

##### 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

###### GB CLP Regulation

Flam. Liq. 3; H226  
Acute Tox. 4; H302  
Acute Tox. 4; H312  
Acute Tox. 4; H332  
Skin Irrit. 2; H315  
Eye Irrit. 2; H319  
Skin Sens. 1; H317  
Muta. 2; H341  
Carc. 1B; H350  
STOT SE 2; H371  
STOT SE 3; H335

Full text of hazard statements: see SECTION 16.

##### 2.2. Label elements

###### GB CLP Regulation

###### Hazard components for labelling

formaldehyde%  
methanol

Signal word: Danger

Pictograms:



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#### Hazard statements

|                |   |
|----------------|---|
| H226           | Flammable liquid and vapour.                              |
| H302+H312+H332 | Harmful if swallowed, in contact with skin or if inhaled. |
| H315           | Causes skin irritation.                                   |
| H317           | May cause an allergic skin reaction.                      |
| H319           | Causes serious eye irritation.                            |
| H335           | May cause respiratory irritation.                         |
| H341           | Suspected of causing genetic defects.                     |
| H350           | May cause cancer.   |
| H371           | May cause damage to organs.                               |

#### Precautionary statements

|           |  |
|-----------|--|
| P201      | Obtain special instructions before use.  |
| P210      | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P260      | Do not breathe mist/vapours/spray.   |
| P280      | Wear protective gloves/protective clothing/eye protection/face protection.                     |
| P308+P313 | IF exposed or concerned: Get medical advice/attention.   |

#### Special labelling of certain mixtures

Restricted to professional users.

#### Labelling of packages where the contents do not exceed 125 ml

Signal word: Danger

Pictograms:



#### Hazard statements

H317-H341-H350

#### Precautionary statements

P201-P280

#### 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

#### 3.2. Mixtures

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**Relevant ingredients**

| CAS No  | Chemical name  |              |                  | Quantity    |
|---------|--|--------------|------------------|-------------|
|         | EC No  | Index No     | REACH No         |             |
|         | Classification (GB CLP Regulation)   |              |                  |             |
| 64-17-5 | Ethanol  |              |                  | 50 - < 55 % |
|         | 200-578-6  | 603-002-00-5 | 01-2119457610-43 |             |
|         | Flam. Liq. 2, Eye Irrit. 2; H225 H319  |              |                  |             |
| 50-00-0 | formaldehyde%  |              |                  | 10 - < 15 % |
|         | 200-001-8  | 605-001-00-5 | 01-2119488953-20 |             |
|         | Carc. 1B, Muta. 2, Acute Tox. 3, Acute Tox. 3, Acute Tox. 3, Skin Corr. 1B, Skin Sens. 1; H350 H341 H331 H311 H301 H314 H317 |              |                  |             |
| 64-19-7 | Acetic acid%   |              |                  | 10 - < 15 % |
|         | 200-580-7  | 607-002-00-6 | 01-2119475328-30 |             |
|         | Flam. Liq. 3, Skin Corr. 1A; H226 H314   |              |                  |             |
| 67-56-1 | methanol   |              |                  | 1 - < 5 %   |
|         | 200-659-6  | 603-001-00-X | 01-2119433307-44 |             |
|         | Flam. Liq. 2, Acute Tox. 3, Acute Tox. 3, Acute Tox. 3, STOT SE 1; H225 H331 H311 H301 H370                                  |              |                  |             |
| 78-93-3 | butanone   |              |                  | < 1 %       |
|         | 201-159-0  | 606-002-00-3 | 01-2119457290-43 |             |
|         | Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336 EUH066   |              |                  |             |

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  |               |             |
| 64-17-5 | 200-578-6   | Ethanol       | 50 - < 55 % |
|         | inhalation: LC50 = 124,7 mg/l (vapours); dermal: LD50 = >2000 mg/kg; oral: LD50 = >5000 mg/kg Eye Irrit. 2; H319: >= 50 - 100   |               |             |
| 50-00-0 | 200-001-8   | formaldehyde% | 10 - < 15 % |
|         | inhalation: LC50 = 3 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); dermal: LD50 = 292 mg/kg; oral: LD50 = 100 mg/kg Skin Corr. 1B; H314: >= 25 - 100 Skin Irrit. 2; H315: >= 5 - < 25 Eye Irrit. 2; H319: >= 5 - < 25 Skin Sens. 1; H317: >= 0,2 - 100 STOT SE 3; H335: >= 5 - 100 |               |             |
| 64-19-7 | 200-580-7   | Acetic acid%  | 10 - < 15 % |
|         | inhalation: LC50 = >40 mg/l (vapours); oral: LD50 = 3530 mg/kg Skin Corr. 1A; H314: >= 90 - 100 Skin Corr. 1B; H314: >= 25 - < 90 Skin Irrit. 2; H315: >= 10 - < 25 Eye Irrit. 2; H319: >= 10 - < 25  |               |             |
| 67-56-1 | 200-659-6   | methanol      | 1 - < 5 %   |
|         | inhalation: LC50 = 3 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); dermal: LD50 = 300 mg/kg; oral: LD50 = 100 mg/kg STOT SE 1; H370: >= 10 - 100 STOT SE 2; H371: >= 3 - < 10  |               |             |
| 78-93-3 | 201-159-0   | butanone      | < 1 %       |
|         | dermal: LD50 = >2000 mg/kg; oral: LD50 = 2054 mg/kg   |               |             |

**Further Information**

This product contains no substances of very high concern (SVHC) (&gt;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**

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**General information**

First aider: Pay attention to self-protection! 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. If unconscious but breathing normally, place in recovery position and seek medical advice. In case of allergic symptoms, especially in the breathing area, seek medical advice immediately. If breathing is irregular or stopped, administer artificial respiration.

**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. In case of skin irritation, seek medical treatment.

**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**

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Observe risk of aspiration if vomiting occurs. Rinse mouth thoroughly with water. Let water be drunk in little sips (dilution effect).

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

Acute effects: Mucous membrane irritation after eye contact or inhalation.

Delayed effects: Impairment of inhibitory functions of the central nervous system, skin redness, nausea after ingestion of large amounts.

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

Treat symptomatically.

**SECTION 5: Firefighting measures****5.1. Extinguishing media****Suitable extinguishing media**

Water spray jet, Carbon dioxide (CO<sub>2</sub>), Foam, Extinguishing powder.  
Co-ordinate fire-fighting measures to the fire surroundings.

**Unsuitable extinguishing media**

High power water jet.

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

Flammable. Vapours can form explosive mixtures with air. In case of fire may be liberated: Carbon monoxide  
Carbon dioxide (CO<sub>2</sub>). Formaldehyde

**5.3. Advice for firefighters**

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit. In case of fire and/or explosion do not breathe fumes.

**Additional information**

Use water spray jet to protect personnel and to cool endangered containers. 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****General advice**

Remove all sources of ignition. Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment. (refer to chapter 8) Special danger of slipping by leaking/spilling product.

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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.

**For non-emergency personnel**

Ventilate affected area. Clear danger zone. Follow emergency plan. Consult an expert.

**For emergency responders**

Move undamaged containers from immediate hazard area if it can be done safely. Special protective equipment for firefighters Stop and contain spill/release if it can be done safely. If this cannot be done, allow fire to burn under control.

**6.2. Environmental precautions**

Do not allow uncontrolled discharge of product into the environment. Explosion risk. Do not allow to enter into surface water or drains. Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches. 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****For containment**

Cover drains. Collect, embank and pump out. Observe possible material restrictions (section 10).

**For cleaning up**

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal. Ventilate affected area. Clear contaminated areas thoroughly.

**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. Do not breathe gas/fumes/vapour/spray. Provide adequate ventilation as well as local exhaustion at critical locations. Use extractor hood (laboratory). Avoid contact with skin, eyes and clothes. Always close containers tightly after the removal of product. Wear personal protection equipment. (See section 8.)

**Advice on protection against fire and explosion**

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Vapours can form explosive mixtures with air. Flammable vapours can accumulate in head space of closed systems. Use only antistatically equipped (spark-free) tools. Wear anti-static footwear and clothing Have fire-extinguishers in readiness before opening containers.

**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, drink, smoke, sniff. Contaminated work clothing should not be allowed out of the workplace. 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

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

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaustion at critical locations. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep/Store only in original container. Ensure adequate ventilation of the storage area. Concentrated vapours are heavier than air.

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Make sure spills can be contained, e.g. in sump pallets or kerbed areas.

Suitable material for Container: Stainless steel.iron.solvent resistant plastics. Unsuitable materials for

Container: Aluminium. Rubber. various plastics.

#### Hints on joint storage

Do not store together with: Oxidizing agent. Pyrophoric or self-heating substances. Do not store together with: food and feed. pharmaceuticals. Infectious substances. Radioactive substances. Explosive substances.

Oxidizing substances. Oxidizing liquids. Organic peroxides. Self-reactive substances and mixtures. Pyrophoric solids. Substances which in contact with water form flammable gases. Ammonium nitrate and preparations containing ammonium nitrate. Gas. Flammable solids. Pyrophoric liquids and solids. Substances or mixtures which, in contact with water, emit flammable gases. Non-combustible toxic substances.

#### Further information on storage conditions

Recommended storage temperature: 15-25 °C.

Protect against: UV-radiation/sunlight. heat. Cold.Protect from direct sunlight.

#### 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 |
|---------|-----------------------------------|------|-------------------|-----------|---------------|--------|
| 64-19-7 | Acetic acid                       | 10   | 25                |           | TWA (8 h)     | WEL    |
|         |                                   | 20   | 50                |           | STEL (15 min) | WEL    |
| 78-93-3 | Butan-2-one (methyl ethyl ketone) | 200  | 600               |           | TWA (8 h)     | WEL    |
|         |                                   | 300  | 899               |           | STEL (15 min) | WEL    |
| 64-17-5 | Ethanol                           | 1000 | 1920              |           | TWA (8 h)     | WEL    |
| 50-00-0 | Formaldehyde                      | 2    | 2.5               |           | TWA (8 h)     | WEL    |
|         |                                   | 2    | 2.5               |           | STEL (15 min) | WEL    |
| 67-56-1 | Methanol                          | 200  | 266               |           | TWA (8 h)     | WEL    |
|         |                                   | 250  | 333               |           | STEL (15 min) | WEL    |

#### Biological Monitoring Guidance Values (EH40)

| CAS No  | Substance   | Parameter   | Value     | Test material | Sampling time |
|---------|-------------|-------------|-----------|---------------|---------------|
| 78-93-3 | Butan-2-one | butan-2-one | 70 µmol/L | urine         | Post shift    |

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**DNEL/DMEL values**

| CAS No                   | Substance     | Exposure route | Effect   | Value                    |
|--------------------------|---------------|----------------|----------|--------------------------|
| 64-17-5                  | Ethanol       |                |          |                          |
| Worker DNEL, acute       |               | inhalation     | local    | 1900 mg/m <sup>3</sup>   |
| Worker DNEL, long-term   |               | dermal         | systemic | 343 mg/kg bw/day         |
| Worker DNEL, long-term   |               | inhalation     | systemic | 950 mg/m <sup>3</sup>    |
| Consumer DNEL, acute     |               | inhalation     | local    | 950 mg/m <sup>3</sup>    |
| Consumer DNEL, long-term |               | dermal         | systemic | 206 mg/kg bw/day         |
| Consumer DNEL, long-term |               | inhalation     | systemic | 114 mg/m <sup>3</sup>    |
| Consumer DNEL, long-term |               | oral           | systemic | 87 mg/kg bw/day          |
| 50-00-0                  | formaldehyde% |                |          |                          |
| Worker DNEL, acute       |               | inhalation     | systemic | 1 mg/m <sup>3</sup>      |
| Worker DNEL, long-term   |               | dermal         | systemic | 240 mg/kg bw/day         |
| Worker DNEL, long-term   |               | inhalation     | systemic | 0,5 mg/m <sup>3</sup>    |
| Worker DNEL, long-term   |               | inhalation     | local    | 0,375 mg/m <sup>3</sup>  |
| Worker DNEL, acute       |               | inhalation     | local    | 0,75 mg/m <sup>3</sup>   |
| Worker DNEL, long-term   |               | dermal         | local    | 0,037 mg/cm <sup>2</sup> |
| 64-19-7                  | Acetic acid%  |                |          |                          |
| Worker DNEL, long-term   |               | inhalation     | local    | 25 mg/m <sup>3</sup>     |
| Worker DNEL, acute       |               | inhalation     | local    | 25 mg/m <sup>3</sup>     |
| Consumer DNEL, long-term |               | inhalation     | local    | 25 mg/m <sup>3</sup>     |
| Consumer DNEL, acute     |               | inhalation     | local    | 25 mg/m <sup>3</sup>     |
| 67-56-1                  | methanol      |                |          |                          |
| Worker DNEL, acute       |               | inhalation     | local    | 260 mg/m <sup>3</sup>    |
| Worker DNEL, acute       |               | dermal         | systemic | 40 mg/kg bw/day          |
| Worker DNEL, acute       |               | inhalation     | systemic | 260 mg/m <sup>3</sup>    |
| Worker DNEL, long-term   |               | inhalation     | local    | 260 mg/m <sup>3</sup>    |
| Worker DNEL, long-term   |               | dermal         | systemic | 40 mg/kg bw/day          |
| Worker DNEL, long-term   |               | inhalation     | systemic | 260 mg/m <sup>3</sup>    |
| 78-93-3                  | butanone      |                |          |                          |
| Worker DNEL, long-term   |               | inhalation     | systemic | 600 mg/m <sup>3</sup>    |
| Worker DNEL, long-term   |               | dermal         | systemic | 1161 mg/kg bw/day        |

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**PNEC values**

| CAS No   | Substance     | Value       |
|--|---------------|-------------|
| Environmental compartment                        |               |             |
| 64-17-5  | Ethanol       |             |
| Freshwater                                       |               | 0,96 mg/l   |
| Freshwater (intermittent releases)               |               | 2,75 mg/l   |
| Marine water                                     |               | 0,79 mg/l   |
| Marine water (intermittent releases)             |               | 2,75 mg/l   |
| Freshwater sediment                              |               | 3,6 mg/kg   |
| Marine sediment                                  |               | 2,9 mg/kg   |
| Secondary poisoning                              |               | 0,72 mg/kg  |
| Micro-organisms in sewage treatment plants (STP) |               | 580 mg/l    |
| Soil   |               | 0,63 mg/kg  |
| 50-00-0  | formaldehyde% |             |
| Freshwater                                       |               | 0,44 mg/l   |
| Freshwater (intermittent releases)               |               | 4,44 mg/l   |
| Marine water                                     |               | 0,44 mg/l   |
| Freshwater sediment                              |               | 2,3 mg/kg   |
| Marine sediment                                  |               | 2,3 mg/kg   |
| Micro-organisms in sewage treatment plants (STP) |               | 0,19 mg/l   |
| Soil   |               | 0,2 mg/kg   |
| 64-19-7  | Acetic acid%  |             |
| Freshwater                                       |               | 3,058 mg/l  |
| Freshwater (intermittent releases)               |               | 30,58 mg/l  |
| Marine water                                     |               | 0,306 mg/l  |
| Freshwater sediment                              |               | 11,36 mg/kg |
| Marine sediment                                  |               | 1,136 mg/kg |
| Micro-organisms in sewage treatment plants (STP) |               | 85 mg/l     |
| Soil   |               | 0,47 mg/kg  |
| 67-56-1  | methanol      |             |
| Freshwater                                       |               | 20,8 mg/l   |
| Marine water                                     |               | 2,08 mg/l   |
| Marine water (intermittent releases)             |               | 1540 mg/l   |
| Freshwater sediment                              |               | 77 mg/kg    |
| Marine sediment                                  |               | 7,7 mg/kg   |
| Micro-organisms in sewage treatment plants (STP) |               | 100 mg/l    |
| Soil   |               | 3,18 mg/kg  |
| 78-93-3  | butanone      |             |
| Freshwater                                       |               | 55,8 mg/l   |
| Freshwater (intermittent releases)               |               | 55,8 mg/l   |
| Marine water                                     |               | 55,8 mg/l   |
| Freshwater sediment                              |               | 284,7 mg/kg |
| Marine sediment                                  |               | 284,7 mg/kg |



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| Micro-organisms in sewage treatment plants (STP) | 709 mg/l   |
| Soil   | 22,5 mg/kg |

**8.2. Exposure controls**

**Appropriate engineering controls**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. Technical measures and the application of suitable work processes have priority over personal protection equipment. Provide adequate ventilation as well as local exhaustion at critical locations. Process within closed systems.: Use extractor hood (laboratory). Provide washing facilities at the workplace, provide an eye shower or eyewash bottle and mark them. Have fire-extinguishers in readiness before opening containers.

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

Suitable eye protection: goggles. Tightly sealed safety glasses. EN 166.

**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. Tested protective gloves are to be worn:

Recommended material:

Butyl rubber. (0,7 mm, Breakthrough time  $\geq 480$  min,

FKM (fluoro rubber) (0,4 mm, Breakthrough time  $\geq 480$  min.

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

Before using check leak tightness / impermeability.

**Skin protection**

Use of protective clothing. Lab 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. With correct and proper use, and under normal conditions, breathing protection is not required.

Respiratory protection necessary at:

Insufficient ventilation.

exceeding exposure limit values

generation/formation of aerosols

Suitable respiratory protective equipment: gas filtering equipment (EN 141).A; Identification color: brown. or Self-contained respirator (breathing apparatus).

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

**Thermal hazards**

Flame-retardant protective clothing. Wear anti-static footwear and clothing

**Environmental exposure controls**

Do not allow to enter into surface water or drains. Do not allow uncontrolled discharge of product into the environment.

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**SECTION 9: Physical and chemical properties**
**9.1. Information on basic physical and chemical properties**

|   |            |                        |
|---|------------|------------------------|
| Physical state:   | liquid     |                        |
| Colour:   | colourless |                        |
| Odour:  | stinging   |                        |
| Melting point/freezing point:                             |            | not determined         |
| Boiling point or initial boiling point and boiling range: |            | not determined         |
| Flammability:   |            | not determined         |
| Lower explosion limits:                                   |            | not determined         |
| Upper explosion limits:                                   |            | not determined         |
| Flash point:  |            | 24 °C                  |
| Auto-ignition temperature:                                |            | not determined         |
| Decomposition temperature:                                |            | not determined         |
| pH-Value:   |            | not determined         |
| Viscosity / kinematic:                                    |            | not determined         |
| Water solubility:   |            | completely miscible    |
| (at 20 °C)  |            |                        |
| Solubility in other solvents                              |            |                        |
| not determined  |            |                        |
| Partition coefficient n-octanol/water:                    |            | not determined         |
| Vapour pressure:  |            | 58 hPa                 |
| (at 20 °C)  |            |                        |
| Density (at 20 °C):                                       |            | 0,91 g/cm <sup>3</sup> |
| Relative vapour density:                                  |            | not determined         |
| Particle characteristics:                                 |            | not applicable         |

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

The product is not: Explosive. In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop. Vapours can travel considerable distances to a source of ignition where they can ignite, flash back, or explode.

**Self-ignition temperature**

Gas: not determined

**Oxidizing properties**

Combustible. Vapours may form explosive mixtures with air.

**Other safety characteristics**

|                          |                |
|--------------------------|----------------|
| Evaporation rate:        | not determined |
| Solvent separation test: | not determined |
| Solid content:           | not determined |
| Sublimation point:       | not determined |
| Softening point:         | not determined |
| Pour point:              | not determined |
| Viscosity / dynamic:     | not determined |
| Flow time:               | not determined |

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

Flammable. Vapours may form explosive mixtures with air.

**10.2. Chemical stability**

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Stable under normal storage and handling conditions.

**10.3. Possibility of hazardous reactions**

Chlorine, potassium, sodium, strong oxidising agents, nitric acid, calcium hypochlorite, halogen oxides, di-sulphur difluoride, acetic anhydride + salts + acids, isocyanates, potassium dioxide, perchlorates, potassium permanganate/sulphuric acid, sodium hypochlorite, sodium peroxide, nitrosyl perchlorate, peracids, perchloronitrile, mercury nitrate, oxygen (liquid), sulphuric acid + hydrogen peroxide, silver/nitric acid, silver nitrate, silver nitrate/ammonia, silver oxide/ammonia, nitrogen dioxide, hydrogen peroxide, conc. Alkali/alkaline earth metals, fluorine, reducing agents, acids, acetyl bromide, acetyl chloride, barium perchlorate, bromine trifluoride, cesium oxide, chromium trioxide, chromyl chloride, ethylene oxide, iodine heptafluoride, potassium tert-butoxide, potassium tert-butoxide, butoxide, lithium hydride, phosphorus trioxide, platinum black, nitric acid/potassium permanganate, acid anhydrides, uranium hexafluoride, zirconium (IV) chloride, zirconium (IV) iodide. Alkali metals. Alkaline earth metals.

**10.4. Conditions to avoid**

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours can form explosive mixtures with air. Keep away from heat. Protect from direct sunlight. Protect from moisture. In use may form flammable/explosive vapour-air mixture.

Heating causes rise in pressure with risk of bursting.

**10.5. Incompatible materials**

Materials to avoid: Nitrogen oxides (NO<sub>x</sub>). Nitric acid. Hydrogen peroxide. Aniline. Performic acid, perchloric acid Oxidizing agents, strong. Strong acid.

**10.6. Hazardous decomposition products**

In case of fire may be liberated: Carbon monoxide Carbon dioxide (CO<sub>2</sub>). Formaldehyde

**SECTION 11: Toxicological information****11.1. Information on hazard classes as defined in GB CLP Regulation****Acute toxicity**

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

**ATEmix calculated**

ATE (oral) 588,1 mg/kg; ATE (dermal) 1727 mg/kg; ATE (inhalation vapour) 17,64 mg/l; ATE (inhalation dust/mist) 2,940 mg/l

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| CAS No  | Chemical name           |                  |         |                |        |
|---------|-------------------------|------------------|---------|----------------|--------|
|         | Exposure route          | Dose             | Species | Source         | Method |
| 64-17-5 | Ethanol                 |                  |         |                |        |
|         | oral                    | LD50 >5000 mg/kg | Rat     | ECHA Dossier   |        |
|         | dermal                  | LD50 >2000 mg/kg | Rabbit  | ECHA Dossier   |        |
|         | inhalation (4 h) vapour | LC50 124,7 mg/l  | Rat     | ECHA Dossier   |        |
| 50-00-0 | formaldehyde%           |                  |         |                |        |
|         | oral                    | LD50 100 mg/kg   | Rat     | GESTIS         |        |
|         | dermal                  | LD50 292 mg/kg   | Rabbit  | GESTIS         |        |
|         | inhalation (4 h) vapour | LC50 3 mg/l      | Rat     | suppliers SDS. |        |
|         | inhalation dust/mist    | ATE 0,5 mg/l     |         |                |        |
| 64-19-7 | Acetic acid%            |                  |         |                |        |
|         | oral                    | LD50 3530 mg/kg  | Rat     | GESTIS         |        |
|         | inhalation (4 h) vapour | LC50 >40 mg/l    | Rat     | suppliers SDS. |        |
| 67-56-1 | methanol                |                  |         |                |        |
|         | oral                    | LD50 100 mg/kg   | Rat     | suppliers SDS. |        |
|         | dermal                  | LD50 300 mg/kg   | Rabbit  | suppliers SDS. |        |
|         | inhalation (4 h) vapour | LC50 3 mg/l      | Rat     | suppliers SDS. |        |
|         | inhalation dust/mist    | ATE 0,5 mg/l     |         |                |        |
| 78-93-3 | butanone                |                  |         |                |        |
|         | oral                    | LD50 2054 mg/kg  | Ratte   | SDB Lieferant  |        |
|         | dermal                  | LD50 >2000 mg/kg | Rabbit  | ECHA Dossier   |        |

**Irritation and corrosivity**

Causes skin irritation.

Causes serious eye irritation.

**Sensitising effects**

May cause an allergic skin reaction. (formaldehyde%)

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

Suspected of causing genetic defects. (formaldehyde%)

May cause cancer. (formaldehyde%)

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

**STOT-single exposure**

May cause damage to organs. (methanol)

May cause respiratory irritation. (formaldehyde%)

**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.

**11.2. Information on other hazards**

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**Endocrine disrupting properties**

This product does not contain any substance that has endocrine disrupting properties in humans as no ingredient meets the criteria.

**Other information**

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP]. Special hazards arising from the substance or mixture! Depending on the ingested quantity the following symptoms can be induced: a reduction of inhibitions, euphoria but also dysphoria, aggressiveness, impaired motoric skills, impaired responsiveness, blurred vision and fatigue.

**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   |
| 64-17-5 | Ethanol                  |                  |           |                                      |              |          |
|         | Acute fish toxicity      | LC50 14200 mg/l  | 96 h      | Pimephales promelas (fathead minnow) | ECHA Dossier |          |
|         | Acute algae toxicity     | ErC50 275 mg/l   | 72 h      | Chlorella vulgaris                   | ECHA Dossier |          |
|         | Acute crustacea toxicity | EC50 5012 mg/l   | 48 h      | Ceriodaphnia dubia (water flea)      | ECHA Dossier |          |
|         | Crustacea toxicity       | NOEC 9,6 mg/l    | 9 d       | Daphnia magna                        | ECHA Dossier |          |
| 50-00-0 | formaldehyde%            |                  |           |                                      |              |          |
|         | Acute fish toxicity      | LC50 24,1 mg/l   | 96 h      | Pimephales promelas                  | ECHA Dossier |          |
|         | Acute algae toxicity     | ErC50 4,89 mg/l  | 72 h      | Desmodesmus subspicatus              | ECHA Dossier |          |
|         | Acute crustacea toxicity | EC50 5,8 mg/l    | 48 h      | Daphnia pulex (water flea)           | ECHA Dossier |          |
| 64-19-7 | Acetic acid%             |                  |           |                                      |              |          |
|         | Acute fish toxicity      | LC50 >300 mg/l   | 96 h      | Oncorhynchus mykiss                  | ECHA Dossier |          |
|         | Acute algae toxicity     | ErC50 >300 mg/l  | 72 h      | Skeletonema costatum                 | ECHA Dossier |          |
|         | Acute crustacea toxicity | EC50 >300 mg/l   | 48 h      | Daphnia magna                        | ECHA Dossier |          |
| 67-56-1 | methanol                 |                  |           |                                      |              |          |
|         | Acute fish toxicity      | LC50 15400 mg/l  | 96 h      | Lepomis macrochirus                  | ECHA Dossier |          |
|         | Acute algae toxicity     | ErC50 22000 mg/l | 96 h      | Pseudokirchneriella subcapitata      | ECHA Dossier |          |
|         | Acute crustacea toxicity | EC50 >1000 mg/l  | 48 h      | Daphnia magna                        | ECHA Dossier | OECD 202 |
| 78-93-3 | butanone                 |                  |           |                                      |              |          |
|         | Acute fish toxicity      | LC50 2993 mg/l   | 96 h      | Pimephales promelas                  | ECHA Dossier | OECD 203 |
|         | Acute algae toxicity     | ErC50 1972 mg/l  | 72 h      | Pseudokirchnerella subcapitata       | ECHA Dossier | OECD 201 |
|         | Acute crustacea toxicity | EC50 308 mg/l    | 48 h      | Daphnia magna                        | ECHA Dossier | OECD 202 |

**12.2. Persistence and degradability**

The product has not been tested.

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| CAS No  | Chemical name   |       |    |                |
|---------|---|-------|----|----------------|
|         | Method  | Value | d  | Source         |
|         | Evaluation  |       |    |                |
| 64-17-5 | Ethanol   |       |    |                |
|         | other guideline   | 84%   | 20 | ECHA Dossier   |
|         | Biodegradable.  |       |    |                |
| 50-00-0 | formaldehyde%   |       |    |                |
|         | OECD Guideline 301 C  | 91 %  | 14 | ECHA Dossier   |
|         | Easily biodegradable (concerning to the criteria of the OECD) |       |    |                |
|         | OECD Guideline 301 D  | 90    | 28 | ECHA Dossier   |
|         | Product is biodegradable.                                     |       |    |                |
| 64-19-7 | Acetic acid%  |       |    |                |
|         | Other guideline   | 95%   | 5  | suppliers SDS. |
|         | Easily biodegradable (concerning to the criteria of the OECD) |       |    |                |
| 67-56-1 | methanol  |       |    |                |
|         | other guideline   | 96%   | 20 | ECHA Dossier   |
|         | Easily biodegradable (concerning to the criteria of the OECD) |       |    |                |
| 78-93-3 | butanone  |       |    |                |
|         |   | 98%   | 28 | ECHA Dossier   |
|         | Readily biodegradable (according to OECD criteria).           |       |    |                |

**12.3. Bioaccumulative potential**

The product has not been tested.

**Partition coefficient n-octanol/water**

| CAS No  | Chemical name | Log Pow |
|---------|---------------|---------|
| 64-17-5 | Ethanol       | -0,31   |
| 50-00-0 | formaldehyde% | 0,35    |
| 64-19-7 | Acetic acid%  | -0,17   |
| 67-56-1 | methanol      | -0,77   |
| 78-93-3 | butanone      | 0,3     |

**BCF**

| CAS No  | Chemical name | BCF  | Species | Source |
|---------|---------------|------|---------|--------|
| 64-19-7 | Acetic acid%  | 3,16 |         |        |
| 67-56-1 | methanol      | <10  |         |        |

**12.4. Mobility in soil**

The product has not been tested.

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

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

**12.6. Endocrine disrupting properties**

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

**12.7. Other adverse effects**

No information available.

**Further information**

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

**SECTION 13: Disposal considerations**

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**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. 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**

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

**List of Wastes Code - used product**

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; 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. Non-contaminated packages may be recycled.

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

**14.1. UN number or ID number:** UN 1170  
**14.2. UN proper shipping name:** ETHANOL SOLUTION  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** III  
 Hazard label: 3



Classification code: F1  
 Special Provisions: 144 601  
 Limited quantity: 5 L  
 Excepted quantity: E1  
 Transport category: 3  
 Hazard No: 30  
 Tunnel restriction code: D/E

**Inland waterways transport (ADN)**

**14.1. UN number or ID number:** UN 1170  
**14.2. UN proper shipping name:** ETHANOL SOLUTION  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** III  
 Hazard label: 3



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Classification code: F1  
Special Provisions: 144 601  
Limited quantity: 5 L  
Excepted quantity: E1

**Marine transport (IMDG)**

**14.1. UN number or ID number:** UN 1170  
**14.2. UN proper shipping name:** ETHANOL SOLUTION  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** III  
Hazard label: 3



Special Provisions: 144 223  
Limited quantity: 5 L  
Excepted quantity: E1  
EmS: F-E, S-D

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

**14.1. UN number or ID number:** UN 1170  
**14.2. UN proper shipping name:** ETHANOL SOLUTION  
**14.3. Transport hazard class(es):** 3  
**14.4. Packing group:** III  
Hazard label: 3



Special Provisions: A3 A58 A180  
Limited quantity Passenger: 10 L  
Passenger LQ: Y344  
Excepted quantity: E1  
IATA-packing instructions - Passenger: 355  
IATA-max. quantity - Passenger: 60 L  
IATA-packing instructions - Cargo: 366  
IATA-max. quantity - Cargo: 220 L

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**14.6. Special precautions for user**

Warning: Combustible liquid. Refer to section 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 3, Entry 40, Entry 75

Information according to Directive 2012/18/EU (SEVESO III): P5c FLAMMABLE LIQUIDS

**Additional information**

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



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#### 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):        | 3 - highly hazardous to water   |
| Skin resorption/Sensitization: | Permeates easily through outer skin and causes poisoning. Causes allergic hypersensitivity reactions.   |

#### 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 the following substances of this mixture a chemical safety assessment has been carried out:

Ethanol  
formaldehyde%  
Acetic acid%  
methanol  
butanone

### SECTION 16: Other information

#### Changes

Rev. 2,00; 08.02.2024; Individual safety data sheet based on 11874\_collect

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**Abbreviations and acronyms**

Flam. Liq: Flammable liquids  
Acute Tox: Acute toxicity  
Skin Corr: Skin corrosion  
Skin Irrit: Skin irritation  
Eye Irrit: Eye irritation  
Skin Sens: Skin sensitisation  
Muta: Germ cell mutagenicity  
Carc: Carcinogenicity  
STOT SE: Specific target organ toxicity - single exposure  
ADR: Accord européen sur le transport des marchandises dangereuses par Route  
CAS Chemical Abstracts Service  
DNEL: Derived No Effect Level  
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)  
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  
NTP: National Toxicology Program  
N/A: not applicable  
OSHA: Occupational Safety and Health Administration  
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 )  
SARA: Superfund Amendments and Reauthorization Act  
SVHC: substance of very high concern  
TRGS Technische Regeln fuerGefahrstoffe  
TSCA: Toxic Substances Control Act  
VOC: Volatile Organic Compounds  
VwVwS: Verwaltungsvorschrift wassergefaehrdender Stoffe  
WGK: Wassergefaehrdungsklasse  
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

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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>  
 For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety  
 assessment, chapter R.20 (Table of terms and abbreviations).  
 EC/EEC: European Community/European Economic Community  
 EU: European Union  
 M-factor: Multiplying factor  
 IATA: International Air Transport Association  
 DGR: Dangerous Goods Regulations  
 ICAO: International Civil Aviation Organization  
 TI: Technical Instructions  
 VOC: volatile organic compound

**Classification for mixtures and used evaluation method according to GB CLP Regulation**

| Classification      | Classification procedure |
|---------------------|--------------------------|
| Flam. Liq. 3; H226  | On basis of test data    |
| Acute Tox. 4; H302  | Calculation method       |
| Acute Tox. 4; H312  | Calculation method       |
| Acute Tox. 4; H332  | Calculation method       |
| Skin Irrit. 2; H315 | Calculation method       |
| Eye Irrit. 2; H319  | Calculation method       |
| Skin Sens. 1; H317  | Calculation method       |
| Muta. 2; H341       | Calculation method       |
| Carc. 1B; H350      | Calculation method       |
| STOT SE 2; H371     | Calculation method       |
| STOT SE 3; H335     | Calculation method       |

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

|                |   |
|----------------|---|
| H225           | Highly flammable liquid and vapour.                       |
| H226           | Flammable liquid and vapour.                              |
| H301           | Toxic if swallowed.                                       |
| H302           | Harmful if swallowed.                                     |
| H302+H312+H332 | Harmful if swallowed, in contact with skin or if inhaled. |
| H311           | Toxic in contact with skin.                               |
| H312           | Harmful in contact with skin.                             |
| H314           | Causes severe skin burns and eye damage.                  |
| H315           | Causes skin irritation.                                   |
| H317           | May cause an allergic skin reaction.                      |
| H319           | Causes serious eye irritation.                            |
| H331           | Toxic if inhaled.   |
| H332           | Harmful if inhaled.                                       |
| H335           | May cause respiratory irritation.                         |

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|        |   |
|--------|---|
| H336   | May cause drowsiness or dizziness.                    |
| H341   | Suspected of causing genetic defects.                 |
| H350   | May cause cancer.                                     |
| H370   | Causes damage to organs.                              |
| H371   | May cause damage to organs.                           |
| EUH066 | Repeated exposure may cause skin dryness or cracking. |

**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 EC regulation 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.

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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.)*