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

## 1.1 Product identifier

Identification of the substance — **Formaldehyde solution** 37 %

## 1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Laboratory chemical
Laboratory and analytical use

Uses advised against: Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin. Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household). Food, drink and animal feedingstuffs.

## 1.3 Details of the supplier of the safety data sheet

6Science LTD, Unit 2, Welby Grange Business Park, Melton Mowbray
Leicestershire, LE14 3EF

**Telephone:**+(44) 115 7790196
**e-mail:** info@6science.co.uk
**Website:** www.6science.co.uk

## 1.4 Emergency telephone number

| Name | Street | Postal code/city | Telephone | Website |
|---|---|---|---|---|
| National Poisons Information Service City Hospital | Dudley Rd | B187QH Birming-ham | 844 892 0111 | |

# SECTION 2: Hazards identification

## 2.1 Classification of the substance or mixture

**Classification acc. to GHS**

| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---|---|---|---|---|
| 3.1O | Acute toxicity (oral) | 4 | Acute Tox. 4 | H302 |
| 3.1I | Acute toxicity (inhal.) | 2 | Acute Tox. 2 | H330 |
| 3.2 | Skin corrosion/irritation | 1B | Skin Corr. 1B | H314 |
| 3.3 | Serious eye damage/eye irritation | 1 | Eye Dam. 1 | H318 |

| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---|---|---|---|---|
| 3.4S | Skin sensitisation | 1 | Skin Sens. 1 | H317 |
| 3.5 | Germ cell mutagenicity | 2 | Muta. 2 | H341 |
| 3.6 | Carcinogenicity | 1B | Carc. 1B | H350 |
| 3.8R | Specific target organ toxicity - single exposure (respir-atory tract irritation) | 3 | STOT SE 3 | H335 |

### Supplemental hazard information

| Code | Supplemental hazard information |
|---|---|
| EUH071 | corrosive to the respiratory tract |

For full text of abbreviations: see SECTION 16

**The most important adverse physicochemical, human health and environmental effects**

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis.

## 2.2 Label elements

### Labelling

**Signal word** **Danger**

**Pictograms**

GHS05, GHS06, GHS08

**Hazard statements**

| | |
|---|---|
| H302 | Harmful if swallowed |
| H314 | Causes severe skin burns and eye damage |
| H317 | May cause an allergic skin reaction |
| H330 | Fatal if inhaled |
| H341 | Suspected of causing genetic defects |
| H350 | May cause cancer |

**Precautionary statements**

**Precautionary statements - prevention**

| | |
|---|---|
| P261 | Avoid breathing gas/mist/vapours/spray |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection |

**Precautionary statements - response**

| | |
|---|---|
| P301+P330+P331 | IF SWALLOWED: rinse mouth. Do NOT induce vomiting |
| 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 |
| P308+P313 | IF exposed or concerned: Get medical advice/attention |

For professional users only

**Supplemental hazard information**

EUH071 Corrosive to the respiratory tract.

**Hazardous ingredients for labelling:** Formaldehyde ...%, Methanol, Formic acid

### 2.3 Other hazards

This material is combustible, but will not ignite readily.

**Results of PBT and vPvB assessment**

Does not contain a PBT-/vPvB-substance at a concentration of ≥ 0,1%.

**Endocrine disrupting properties**

Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

not relevant (mixture)

### 3.2 Mixtures

**Description of the mixture**

| Name of substance | Identifier | Wt% | Classification acc. to GHS | Pictograms | Notes |
|---|---|---|---|---|---|
| Formaldehyde ...% | CAS No<br>50-00-0<br><br>EC No<br>200-001-8<br><br>Index No<br>605-001-00-5 | 37+ | Acute Tox. 4 / H302<br>Acute Tox. 2 / H330<br>Skin Corr. 1B / H314<br>Eye Dam. 1 / H318<br>Skin Sens. 1A / H317<br>Muta. 2 / H341<br>Carc. 1B / H350<br>STOT SE 3 / H335 |  | B<br>D<br>F<br>GHS-HC<br>IOELV |
| Methanol | CAS No<br>67-56-1<br><br>EC No<br>200-659-6<br><br>Index No<br>603-001-00-X | ≤ 2 | Flam. Liq. 2 / H225<br>Acute Tox. 3 / H301<br>Acute Tox. 3 / H311<br>Acute Tox. 3 / H331<br>STOT SE 1 / H370 |  | GHS-HC<br>IOELV |
| Formic acid | CAS No<br>64-18-6<br><br>EC No<br>200-579-1<br><br>Index No<br>607-001-00-0 | ≤ 0,2 | Flam. Liq. 3 / H226<br>Met. Corr. 1 / H290<br>Acute Tox. 4 / H302<br>Acute Tox. 3 / H331<br>Skin Corr. 1A / H314<br>Eye Dam. 1 / H318 |  | B<br>GHS-HC<br>IOELV |

**Notes**

B: Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid ... %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.

D: Certain substances which are susceptible to spontaneous polymerisation or decomposition are generally placed on the market in a stabilised form. It is in this form that they are listed in Part 3. However, such substances are sometimes placed on the market in a non-stabilised form. In this case, the supplier must state on the label the name of the substance followed by the words 'non-stabilised'.

F: This substance may contain a stabiliser. If the stabiliser changes the hazardous properties of the substance, as indicated by the classification in Part 3, classification and labelling should be provided in accordance with the rules for classification and labelling of hazardous mixtures.

GHS-HC: Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI)

IOELV: Substance with a community indicative occupational exposure limit value

| Name of substance | Identifier | Specific Conc. Limits | M-Factors | ATE | Exposure route |
|---|---|---|---|---|---|
| Formaldehyde ...% | CAS No 50-00-0<br><br>EC No 200-001-8 | Skin Corr. 1B; H314: C ≥ 25 %<br>Skin Irrit. 2; H315: 5 % ≤ C < 25 %<br>Eye Dam. 1; H318: C ≥ 25 %<br>Eye Irrit. 2; H319: 5 % ≤ C < 25 %<br>STOT SE 3; H335: C ≥ 5 % | - | 500 $^{mg}/_{kg}$<br>100 $^{ppmV}/_{4h}$<br>0,5 $^{mg}/_{l}$/4h | oral<br>inhalation: gas<br>inhalation: vapour |
| Methanol | CAS No 67-56-1<br><br>EC No 200-659-6 | STOT SE 1; H370: C ≥ 10 %<br>STOT SE 2; H371: 3 % ≤ C < 10 % | - | 100 $^{mg}/_{kg}$<br>300 $^{mg}/_{kg}$<br>3 $^{mg}/_{l}$/4h | oral<br>dermal<br>inhalation: vapour |
| Formic acid | CAS No 64-18-6<br><br>EC No 200-579-1 | Skin Corr. 1A; H314: C ≥ 90 %<br>Skin Corr. 1B; H314: 10 % ≤ C < 90 %<br>Skin Irrit. 2; H315: 2 % ≤ C < 10 %<br>Eye Dam. 1; H318: C ≥ 10 %<br>Eye Irrit. 2; H319: 2 % ≤ C < 10 % | - | 730 $^{mg}/_{kg}$<br>7,85 $^{mg}/_{l}$/4h | oral<br>inhalation: vapour |

**Remarks**
For full text of abbreviations: see SECTION 16

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

**General notes**
Take off immediately all contaminated clothing. Self-protection of the first aider.

**Following inhalation**
Call a physician immediately. If breathing is irregular or stopped, administer artificial respiration.

**Following skin contact**
After contact with skin, wash immediately with plenty of water. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure. In case of skin reactions, consult a physician.

**Following eye contact**
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. Protect uninjured eye.

**Following ingestion**
Rinse mouth immediately and drink plenty of water. Rinse mouth with water (only if the person is conscious). If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects). In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Call a doctor.

### 4.2 Most important symptoms and effects, both acute and delayed
Vomiting, Corrosion, Gastric perforation, Allergic reactions, Irritation, Cough, Dyspnoea, Headache, Vertigo, Dizziness, Unconsciousness, Spasms, Risk of serious damage to eyes, Risk of blindness

### 4.3 Indication of any immediate medical attention and special treatment needed
none

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media**

co-ordinate firefighting measures to the fire surroundings!
water spray, alcohol resistant foam, dry extinguishing powder, BC-powder, carbon dioxide ($CO_2$)

**Unsuitable extinguishing media**

water jet

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

Ingredients of the mixture combustible. The product itself does not burn. Vapours may form explosive mixtures with air.

**Hazardous combustion products**

Carbon monoxide (CO), Carbon dioxide ($CO_2$)

### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.

## SECTION 6: Accidental release measures

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

**For non-emergency personnel**

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

### 6.3 Methods and material for containment and cleaning up

**Advice on how to contain a spill**

Covering of drains.

**Advice on how to clean up a spill**

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

**Other information relating to spills and releases**

Place in appropriate containers for disposal. Ventilate affected area.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Provision of sufficient ventilation. Use extractor hood (laboratory). Handle and open container with care. Avoid exposure. Clear contaminated areas thoroughly.

**Measures to prevent fire as well as aerosol and dust generation**
Keep away from sources of ignition - No smoking.

**Advice on general occupational hygiene**
Wash hands before breaks and after work.

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

Store in a well-ventilated place. Keep container tightly closed. May cause decomposition by long-term light influence.

**Incompatible substances or mixtures**
Observe hints for combined storage. Incompatible materials: see section 10.

**Protect against external exposure, such as**
high temperatures, direct light irradiation

**Consideration of other advice:**
Store locked up.

**Ventilation requirements**
Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted.

**Specific designs for storage rooms or vessels**
Recommended storage temperature: 15 – 25 °C

### 7.3 Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**National limit values**

**Occupational exposure limit values (Workplace Exposure Limits)**

| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m³] | STEL [ppm] | STEL [mg/m³] | Ceiling-C [ppm] | Ceiling-C [mg/m³] | Notation | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EU | formaldehyde | 50-00-0 | IOELV | 0,3 | 0,37 | 0,6 | 0,74 | | | sect | 2019/983/EU |
| EU | formic acid | 64-18-6 | IOELV | 5 | 9 | | | | | | 2006/15/EC |
| EU | methanol | 67-56-1 | IOELV | 200 | 260 | | | | | H | 2006/15/EC |
| GB | formaldehyde | 50-00-0 | WEL | 2 | 2,5 | 2 | 2,5 | | | | EH40/2005 |
| GB | formic acid | 64-18-6 | WEL | 5 | 9,6 | | | | | | EH40/2005 |
| GB | methanol | 67-56-1 | WEL | 200 | 266 | 250 | 333 | | | H | EH40/2005 |

**Notation**

| | |
|---|---|
| Ceiling-C | Ceiling value is a limit value above which exposure should not occur |
| H | Absorbed through the skin |
| sect | Limit value of 0,62 mg/m3 or 0,5 ppm for the health care, funeral and embalming sectors until 11 July 2024 |
| STEL | Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified) |
| TWA | Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified) |

**Relevant DNELs of components**

| Name of substance | CAS No | End-point | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
|---|---|---|---|---|---|---|
| Formaldehyde ...% | 50-00-0 | DNEL | 9 mg/m³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Formaldehyde ...% | 50-00-0 | DNEL | 0,375 mg/m³ | human, inhalatory | worker (industry) | chronic - local effects |
| Formaldehyde ...% | 50-00-0 | DNEL | 0,75 mg/m³ | human, inhalatory | worker (industry) | acute - local effects |
| Formaldehyde ...% | 50-00-0 | DNEL | 240 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| Formaldehyde ...% | 50-00-0 | DNEL | 37 µg/cm² | human, dermal | worker (industry) | chronic - local effects |
| Methanol | 67-56-1 | DNEL | 130 mg/m³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Methanol | 67-56-1 | DNEL | 130 mg/m³ | human, inhalatory | worker (industry) | acute - systemic effects |
| Methanol | 67-56-1 | DNEL | 130 mg/m³ | human, inhalatory | worker (industry) | chronic - local effects |
| Methanol | 67-56-1 | DNEL | 130 mg/m³ | human, inhalatory | worker (industry) | acute - local effects |
| Methanol | 67-56-1 | DNEL | 20 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| Methanol | 67-56-1 | DNEL | 20 mg/kg bw/day | human, dermal | worker (industry) | acute - systemic effects |
| Formic acid | 64-18-6 | DNEL | 9,5 mg/m³ | human, inhalatory | worker (industry) | chronic - local effects |

**Relevant PNECs of components**

| Name of substance | CAS No | End-point | Threshold level | Organism | Environmental compartment | Exposure time |
|---|---|---|---|---|---|---|
| Formaldehyde ...% | 50-00-0 | PNEC | 0,44 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Formaldehyde ...% | 50-00-0 | PNEC | 0,44 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Formaldehyde ...% | 50-00-0 | PNEC | 0,19 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Formaldehyde ...% | 50-00-0 | PNEC | 2,3 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Formaldehyde ...% | 50-00-0 | PNEC | 2,3 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Formaldehyde ...% | 50-00-0 | PNEC | 0,2 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| Methanol | 67-56-1 | PNEC | 20,8 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Methanol | 67-56-1 | PNEC | 2,08 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Methanol | 67-56-1 | PNEC | 100 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Methanol | 67-56-1 | PNEC | 77 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |

**Relevant PNECs of components**

| Name of substance | CAS No | End-point | Threshold level | Organism | Environmental compartment | Exposure time |
|---|---|---|---|---|---|---|
| Methanol | 67-56-1 | PNEC | 7,7 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Methanol | 67-56-1 | PNEC | 100 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| Formic acid | 64-18-6 | PNEC | 2 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Formic acid | 64-18-6 | PNEC | 0,2 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Formic acid | 64-18-6 | PNEC | 7,2 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Formic acid | 64-18-6 | PNEC | 13,4 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Formic acid | 64-18-6 | PNEC | 1,34 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Formic acid | 64-18-6 | PNEC | 1,5 mg/kg | terrestrial organisms | soil | short-term (single instance) |

## 8.2 Exposure controls

### Individual protection measures (personal protective equipment)

**Eye/face protection**

Use safety goggle with side protection. Wear face protection.

**Skin protection**

**• hand protection**

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. 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. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

**• type of material**

NBR (Nitrile rubber)

**• material thickness**

0,4 mm

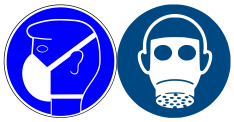
**• breakthrough times of the glove material**

>480 minutes (permeation: level 6)

**• other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

**Respiratory protection**



Respiratory protection necessary at: Aerosol or mist formation. Type: ABEK (combined filters against gases and vapours, colour code: Brown/Grey/Yellow/Green).

**Environmental exposure controls**

Keep away from drains, surface and ground water.

## 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 | -15 °C |
| Boiling point or initial boiling point and boiling range | 97 °C |
| Flammability | non-combustible |
| Lower and upper explosion limit | 7 vol% (LEL) - 73 vol% (UEL) (anhydrous) |
| Flash point | 66 – 73 °C |
| Auto-ignition temperature | >300 °C |
| Decomposition temperature | not relevant |
| pH (value) | 3,5 – 4,5 (20 °C) |
| Kinematic viscosity | 2,11 $^{mm^2}/_{s}$ at 20 °C |
| Dynamic viscosity | 1,8 – 2,3 mPa s at 20 °C |
| <u>Solubility(ies)</u> | |
| Water solubility | miscible in any proportion |
| <u>Partition coefficient</u> | |
| Partition coefficient n-octanol/water (log value): | this information is not available |
| Vapour pressure | not determined |
| <u>Density and/or relative density</u> | |
| Density | 1,09 $^{g}/_{cm^3}$ at 20 °C |
| Relative vapour density | Information on this property is not available. |
| Particle characteristics | not relevant (liquid) |

Other safety parameters

| | |
|---|---|
| Oxidising properties | none |

### 9.2 Other information

| | |
|---|---|
| Information with regard to physical hazard classes: | hazard classes acc. to GHS (physical hazards): not relevant |
| Other safety characteristics: | |
| Miscibility | completely miscible with water |

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Danger of polymerisation.

**If heated**

Vapours may form explosive mixtures with air.

### 10.2 Chemical stability

May cause decomposition by long-term light influence.
To stabilise: Methanol.

### 10.3 Possibility of hazardous reactions

**Exothermic reaction with:** Alkalis, Permanganates, strong oxidiser, Aniline,
**Violent reaction with:** Acids, Phenol, Nitric acid, Hydrogen peroxide,
=> Explosive properties

### 10.4 Conditions to avoid

Direct light irradiation. Keep away from heat.

### 10.5 Incompatible materials

different metals

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Test data are not available for the complete mixture.

**Classification procedure**

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

**Classification acc. to GHS**

**Acute toxicity**

Harmful if swallowed. Fatal if inhaled.

**Acute toxicity estimate (ATE) of components**

| Name of substance | CAS No | Exposure route | ATE |
|---|---|---|---|
| Formaldehyde ...% | 50-00-0 | oral | 500 $^{mg}/_{kg}$ |
| Formaldehyde ...% | 50-00-0 | inhalation: gas | 100 $^{ppmV}/_{4h}$ |
| Formaldehyde ...% | 50-00-0 | inhalation: vapour | 0,5 $^{mg}/_{l}$/4h |
| Methanol | 67-56-1 | oral | 100 $^{mg}/_{kg}$ |

| Acute toxicity estimate (ATE) of components | | | |
|---|---|---|---|
| **Name of substance** | **CAS No** | **Exposure route** | **ATE** |
| Methanol | 67-56-1 | dermal | 300 $^{mg}/_{kg}$ |
| Methanol | 67-56-1 | inhalation: vapour | 3 $^{mg}/_{l}$/4h |
| Formic acid | 64-18-6 | oral | 730 $^{mg}/_{kg}$ |
| Formic acid | 64-18-6 | inhalation: vapour | 7,85 $^{mg}/_{l}$/4h |

| Acute toxicity of components | | | | | |
|---|---|---|---|---|---|
| **Name of substance** | **CAS No** | **Exposure route** | **Endpoint** | **Value** | **Species** |
| Formic acid | 64-18-6 | oral | LD50 | 730 $^{mg}/_{kg}$ | rat |
| Formic acid | 64-18-6 | inhalation: vapour | LC50 | 7,85 $^{mg}/_{l}$/4h | rat |

**Skin corrosion/irritation**
Causes severe skin burns and eye damage.

**Serious eye damage/eye irritation**
Causes serious eye damage.

**Respiratory or skin sensitisation**
May cause an allergic skin reaction.

**Germ cell mutagenicity**
Suspected of causing genetic defects.

**Carcinogenicity**
May cause cancer.

**Reproductive toxicity**
Shall not be classified as a reproductive toxicant.

**Specific target organ toxicity - single exposure**
May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**
Shall not be classified as a specific target organ toxicant (repeated exposure).

**Aspiration hazard**
Shall not be classified as presenting an aspiration hazard.

**Endocrine disruptor for human health**
Shall not be classified as an endocrine disruptor for human health.

**Symptoms related to the physical, chemical and toxicological characteristics**

- **If swallowed**

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects)

- **If in eyes**

causes burns, Causes serious eye damage, risk of blindness

- **If inhaled**

vertigo, headache, Irritation to respiratory tract, corrosive to the respiratory tract, cough, Dyspnoea

- **If on skin**

causes severe burns, causes poorly healing wounds, May produce an allergic reaction, pruritis, localised redness

• **Other information**

Other adverse effects: Spasms, Blood pressure drop, Liver and kidney damage, Dizziness, Unconsciousness

### 11.2 Information on other hazards

There is no additional information.

## SECTION 12: Ecological information

### 12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

**Aquatic toxicity (acute) of components**

| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
|---|---|---|---|---|---|
| Formaldehyde ...% | 50-00-0 | LC50 | 6,7 mg/l | fish | 96 h |
| Formaldehyde ...% | 50-00-0 | EC50 | 5,8 mg/l | aquatic invertebrates | 48 h |
| Formaldehyde ...% | 50-00-0 | ErC50 | 4,89 mg/l | algae | 72 h |
| Methanol | 67-56-1 | ErC50 | 22.000 mg/l | algae | 96 h |
| Methanol | 67-56-1 | LC50 | 15.400 mg/l | bluegill (Lepomis macrochirus) | 96 h |
| Methanol | 67-56-1 | EC50 | 18.260 mg/l | daphnia magna | 96 h |
| Formic acid | 64-18-6 | LC50 | 130 mg/l | fish | 96 h |
| Formic acid | 64-18-6 | EC50 | 365 mg/l | aquatic invertebrates | 48 h |
| Formic acid | 64-18-6 | ErC50 | 1.240 mg/l | algae | 72 h |

**Aquatic toxicity (chronic) of components**

| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
|---|---|---|---|---|---|
| Formaldehyde ...% | 50-00-0 | EC50 | 19 mg/l | microorganisms | 3 h |
| Formaldehyde ...% | 50-00-0 | NOEC | ≥6,4 mg/l | aquatic invertebrates | 21 d |
| Formic acid | 64-18-6 | NOEC | ≥100 mg/l | aquatic invertebrates | 21 d |

### 12.2 Persistence and degradability

**Degradability of components**

| Name of substance | CAS No | Process | Degradation rate | Time | Method | Source |
|---|---|---|---|---|---|---|
| Formaldehyde ...% | 50-00-0 | DOC removal | 99 % | 28 d | | ECHA |
| Methanol | 67-56-1 | biotic/abiotic | 99 % | 30 d | | |
| Methanol | 67-56-1 | oxygen depletion | 69 % | 5 d | | ECHA Chem |
| Formic acid | 64-18-6 | biotic/abiotic | 98 % | 14 d | | |
| Formic acid | 64-18-6 | oxygen depletion | 15 % | 5 d | | ECHA |
| Formic acid | 64-18-6 | DOC removal | 4 % | 6 d | | ECHA |

### 12.3 Bioaccumulative potential

Data are not available.

**Bioaccumulative potential of components**

| Name of substance | CAS No | BCF | Log KOW | BOD5/COD |
|---|---|---|---|---|
| Methanol | 67-56-1 | | -0,77 | |
| Formic acid | 64-18-6 | | -2,1 (pH value: 7, 23 °C) | |

### 12.4 Mobility in soil

Data are not available.

### 12.5 Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of ≥ 0,1%.

### 12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.

### 12.7 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Sewage disposal-relevant information**

Do not empty into drains.

**Waste treatment of containers/packagings**

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

### 13.2 Relevant provisions relating to waste

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

**Properties of waste which render it hazardous**

**HP 4** irritant - skin irritation and eye damage
**HP 5** specific target organ toxicity (STOT)/aspiration toxicity
**HP 6** acute toxicity
**HP 7** carcinogenic
**HP 8** corrosive
**HP 11** mutagenic
**HP 13** sensitising

### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions. Non-contaminated packages may be recycled.

## SECTION 14: Transport information

### 14.1 UN number or ID number

| | |
|---|---|
| ADRRID | UN 2209 |
| IMDG-Code | UN 2209 |
| ICAO-TI | UN 2209 |

**14.2 UN proper shipping name**

| | |
|---|---|
| ADRRID | FORMALDEHYDE SOLUTION |
| IMDG-Code | FORMALDEHYDE SOLUTION |
| ICAO-TI | Formaldehyde solution |

**14.3 Transport hazard class(es)**

| | |
|---|---|
| ADRRID | 8 |
| IMDG-Code | 8 |
| ICAO-TI | 8 |

**14.4 Packing group**

| | |
|---|---|
| ADRRID | III |
| IMDG-Code | III |
| ICAO-TI | III |

**14.5 Environmental hazards** non-environmentally hazardous acc. to the dangerous goods regulations

**14.6 Special precautions for user**

Provisions for dangerous goods (ADR) should be complied within the premises.

**14.7 Maritime transport in bulk according to IMO instruments**

The cargo is not intended to be carried in bulk.

**14.8 Information for each of the UN Model Regulations**

**Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)Additional information**

| | |
|---|---|
| Proper shipping name | FORMALDEHYDE SOLUTION |
| Particulars in the transport document | UN2209, FORMALDEHYDE SOLUTION, 8, III, (E) |
| Classification code | C9 |
| Danger label(s) | 8 |

| | |
|---|---|
| Special provisions (SP) | 533 |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 L |
| Transport category (TC) | 3 |
| Tunnel restriction code (TRC) | E |
| Hazard identification No | 80 |
| **Emergency Action Code** | 2X |

**Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)Additional information**

| | |
|---|---|
| **Classification code** | C9 |
| **Danger label(s)** | 8 |

| | |
|---|---|
| **Special provisions (SP)** | 533 |
| **Excepted quantities (EQ)** | E1 |
| **Limited quantities (LQ)** | 5 L |
| **Transport category (TC)** | 3 |
| **Hazard identification No** | 80 |

**International Maritime Dangerous Goods Code (IMDG) - Additional information**

| | |
|---|---|
| Proper shipping name | FORMALDEHYDE SOLUTION |
| Particulars in the shipper's declaration | UN2209, FORMALDEHYDE SOLUTION, 8, III |
| Marine pollutant | - |
| Danger label(s) | 8 |

| | |
|---|---|
| Special provisions (SP) | - |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 L |
| EmS | F-A, S-B |
| Stowage category | A |

**International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information**

| | |
|---|---|
| Proper shipping name | Formaldehyde solution |
| Particulars in the shipper's declaration | UN2209, Formaldehyde solution, 8, III |
| Danger label(s) | 8 |

| | |
|---|---|
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 1 L |

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**Relevant provisions of the European Union (EU)**

### Seveso Directive

| 2012/18/EU (Seveso III) | | | | |
|---|---|---|---|---|
| **No** | **Dangerous substance/hazard categories** | **Qualifying quantity (tonnes) for the application of lower and upper-tier requirements** | | **Notes** |
| H2 | acute toxic (cat. 2 + cat. 3, inhal.) | 50 | 200 | 41) |

**Notation**
41) - Category 2, all exposure routes
- category 3, inhalation exposure route

### Deco-Paint Directive

| | |
|---|---|
| VOC content | 32,2 % |
| VOC content (Water content was discounted) | 1.354 $^{g}/_{l}$ |

### Industrial Emissions Directive (IED)

| | |
|---|---|
| VOC content | 32,2 % |
| VOC content (Water content was discounted) | 1.354 $^{g}/_{l}$ |

### Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

none of the ingredients are listed

### Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

none of the ingredients are listed

### Water Framework Directive (WFD)

| List of pollutants (WFD) | | | | |
|---|---|---|---|---|
| **Name of substance** | **Name acc. to inventory** | **CAS No** | **Listed in** | **Remarks** |
| Formaldehyde ...% | Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment | | a) | |
| Methanol | Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment | | a) | |

**Legend**
a) Indicative list of the main pollutants

### Regulation on the marketing and use of explosives precursors

none of the ingredients are listed

### Regulation on drug precursors

none of the ingredients are listed

**Regulation on substances that deplete the ozone layer (ODS)**
none of the ingredients are listed

**Regulation concerning the export and import of hazardous chemicals (PIC)**
none of the ingredients are listed

**Regulation on persistent organic pollutants (POP)**
none of the ingredients are listed

**National regulations(GB)**

**List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list**
none of the ingredients are listed

**Restrictions according to GB REACH, Annex 17**

| Dangerous substances with restrictions (GB REACH, Annex 17) | | | |
|---|---|---|---|
| **Name of substance** | **Name acc. to inventory** | **CAS No** | **No** |
| Formaldehyde solution | this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC | | 3 |
| Formaldehyde ...% | Formaldehyde | 50-00-0 | 72 |
| Formaldehyde ...% | carcinogenic | | 28 |
| Formic acid | flammable / pyrophoric | | 40 |
| Methanol | Methanol | 67-56-1 | 69 |
| Methanol | flammable / pyrophoric | | 40 |

**Other information**
Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

**National inventories**

| Country | Inventory | Status |
|---|---|---|
| AU | AIIC | all ingredients are listed |
| CA | DSL | all ingredients are listed |
| CN | IECSC | all ingredients are listed |
| EU | ECSI | all ingredients are listed |
| EU | REACH Reg. | all ingredients are listed |
| JP | CSCL-ENCS | all ingredients are listed |
| JP | ISHA-ENCS | not all ingredients are listed |
| KR | KECI | all ingredients are listed |
| MX | INSQ | all ingredients are listed |
| NZ | NZIoC | all ingredients are listed |
| PH | PICCS | all ingredients are listed |
| TR | CICR | not all ingredients are listed |
| TW | TCSI | all ingredients are listed |
| US | TSCA | all ingredients are listed (ACTIVE) |

**Legend**
AIIC Australian Inventory of Industrial Chemicals

**Legend**

| | |
|---|---|
| CICR | Chemical Inventory and Control Regulation |
| CSCL-ENCS | List of Existing and New Chemical Substances (CSCL-ENCS) |
| DSL | Domestic Substances List (DSL) |
| ECSI | EC Substance Inventory (EINECS, ELINCS, NLP) |
| IECSC | Inventory of Existing Chemical Substances Produced or Imported in China |
| INSQ | National Inventory of Chemical Substances |
| ISHA-ENCS | Inventory of Existing and New Chemical Substances (ISHA-ENCS) |
| KECI | Korea Existing Chemicals Inventory |
| NZIoC | New Zealand Inventory of Chemicals |
| PICCS | Philippine Inventory of Chemicals and Chemical Substances (PICCS) |
| REACH Reg. | REACH registered substances |
| TCSI | Taiwan Chemical Substance Inventory |
| TSCA | Toxic Substance Control Act |

### 15.2 Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

## SECTION 16: Other information

### Indication of changes (revised safety data sheet)

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---|---|---|---|
| 2.1 | | Classification acc. to GHS: change in the listing (table) | yes |
| 2.1 | | Supplemental hazard information | yes |
| 2.1 | | Supplemental hazard information: change in the listing (table) | yes |
| 2.2 | | Hazard statements: change in the listing (table) | yes |
| 2.2 | | Supplemental hazard information | yes |
| 2.2 | | Supplemental hazard information: change in the listing (table) | yes |
| 15.1 | | National inventories: change in the listing (table) | yes |

### Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|---|---|
| 2006/15/EC | Commission Directive establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC |
| 2019/983/EU | Directive of the European Parliament and of the Council amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work |
| Acute Tox. | Acute toxicity |
| ADR | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road) |
| ATE | Acute Toxicity Estimate |
| BCF | Bioconcentration factor |
| BOD | Biochemical Oxygen Demand |
| Carc. | Carcinogenicity |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| Ceiling-C | Ceiling value |
| COD | Chemical oxygen demand |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |

| Abbr. | Descriptions of used abbreviations |
|---|---|
| DNEL | Derived No-Effect Level |
| EC50 | Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval |
| EC No | The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union) |
| ED | Endocrine disruptor |
| EH40/2005 | EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| ErC50 | ≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control |
| Eye Dam. | Seriously damaging to the eye |
| Eye Irrit. | Irritant to the eye |
| Flam. Liq. | Flammable liquid |
| GB REACH | The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended) |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| ICAO-TI | Technical instructions for the safe transport of dangerous goods by air |
| IMDG | International Maritime Dangerous Goods Code |
| IMDG-Code | International Maritime Dangerous Goods Code |
| index No | The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008 |
| IOELV | Indicative occupational exposure limit value |
| LC50 | Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval |
| LD50 | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval |
| LEL | Lower explosion limit (LEL) |
| log KOW | n-Octanol/water |
| Met. Corr. | Substance or mixture corrosive to metals |
| Muta. | Germ cell mutagenicity |
| NLP | No-Longer Polymer |
| NOEC | No Observed Effect Concentration |
| PBT | Persistent, Bioaccumulative and Toxic |
| PNEC | Predicted No-Effect Concentration |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |

| Abbr. | Descriptions of used abbreviations |
|---|---|
| Skin Corr. | Corrosive to skin |
| Skin Irrit. | Irritant to skin |
| Skin Sens. | Skin sensitisation |
| STEL | Short-term exposure limit |
| STOT SE | Specific target organ toxicity - single exposure |
| TWA | Time-weighted average |
| UEL | Upper explosion limit (UEL) |
| VOC | Volatile Organic Compounds |
| vPvB | Very Persistent and very Bioaccumulative |
| WEL | Workplace exposure limit |

### Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### Classification procedure

Physical and chemical properties. The classification is based on tested mixture.
Health hazards. Environmental hazards. The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

### List of relevant phrases (code and full text as stated in section 2 and 3)

| Code | Text |
|---|---|
| H225 | Highly flammable liquid and vapour. |
| H226 | Flammable liquid and vapour. |
| H290 | May be corrosive to metals. |
| H301 | Toxic if swallowed. |
| H302 | Harmful if swallowed. |
| H311 | Toxic in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H330 | Fatal if inhaled. |
| H331 | Toxic if inhaled. |
| H335 | May cause respiratory irritation. |
| H341 | Suspected of causing genetic defects. |
| H350 | May cause cancer. |
| H370 | Causes damage to organs. |

### Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.