

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



VOC - Standard Solution ROTI®Star 14 components in methanol

article number: **20K9**
Version: **1.0 en**

date of compilation: 2023-03-06

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

1.1 Product identifier

| | |
|---------------------------------|--|
| Identification of the substance | VOC - Standard Solution ROTI®Star 14 components in methanol |
| Article number | 20K9 |
| Registration number (REACH) | not relevant (mixture) |

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

| | |
|---------------------------|---|
| Relevant identified uses: | Laboratory and analytical use Laboratory chemical |
| Uses advised against: | Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household). |

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet: :Department Health, Safety and Environment

e-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

| Name | Street | Postal code/city | Telephone | Website |
|--|---------------|------------------|-------------|---|
| National Poisons Information Centre Beaumont Hospital | Beaumont Road | Dublin 9 | 01 809 2166 | https://www.poisons.ie/ |

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

| Section | Hazard class | Category | Hazard class and category | Hazard statement |
|---------|-------------------------|----------|---------------------------|------------------|
| 2.6 | Flammable liquid | 2 | Flam. Liq. 2 | H225 |
| 3.10 | Acute toxicity (oral) | 3 | Acute Tox. 3 | H301 |
| 3.1D | Acute toxicity (dermal) | 3 | Acute Tox. 3 | H311 |
| 3.1I | Acute toxicity (inhal.) | 3 | Acute Tox. 3 | H331 |
| 3.5 | Germ cell mutagenicity | 1B | Muta. 1B | H340 |

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| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---------|--|-----------|---------------------------|------------------|
| 3.6 | Carcinogenicity | 1A | Carc. 1A | H350 |
| 3.8 | Specific target organ toxicity - single exposure | 1 | STOT SE 1 | H370 |
| 5.1 | Hazardous to the ozone layer | 1 | Ozone 1 | H420 |

Supplemental hazard information

| Code | Supplemental hazard information |
|--------|--|
| EUH208 | contains Tetrachloroethylene. May produce an allergic reaction |

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Immediate effects can be expected after short-term exposure. The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word

Danger

Pictograms

GHS02, GHS06,
GHS08



Hazard statements

H225 Highly flammable liquid and vapour
H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled
H340 May cause genetic defects
H350 May cause cancer
H370 Causes damage to organs (eye)
H420 Harms public health and the environment by destroying ozone in the upper atmosphere

Precautionary statements

Precautionary statements - prevention

P280 Wear protective gloves/protective clothing/eye protection/face protection

For professional users only

Supplemental hazard information

EUH208 Contains Tetrachloroethylene. May produce an allergic reaction.

Hazardous ingredients for labelling:

Methanol, Benzene, Trichloroethylene, Carbon tetrachloride

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

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Symbol(s)



H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
H340 May cause genetic defects.
H350 May cause cancer.
H370 Causes damage to organs (eye).
H420 Harms public health and the environment by destroying ozone in the upper atmosphere.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
EUH208 Contains Tetrachloroethylene. May produce an allergic reaction.
contains: Methanol, Benzene, Trichloroethylene, Carbon tetrachloride

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Endocrine disrupting properties

Contains an endocrine disruptor (EDC) in a concentration of $\geq 0,1\%$.

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 |
|-----------------------|---|------------|---|------------|----------------------|
| Methanol | CAS No 67-56-1 EC No 200-659-6 Index No 603-001-00-X | 95 - < 100 | Flam. Liq. 2 / H225 Acute Tox. 3 / H301 Acute Tox. 3 / H311 Acute Tox. 3 / H331 STOT SE 1 / H370 | | GHS-HC IOELV |
| Carbon tetrachloride | CAS No 56-23-5 EC No 200-262-8 Index No 602-008-00-5 | 0,1 | Acute Tox. 3 / H301 Acute Tox. 3 / H311 Acute Tox. 3 / H331 Carc. 2 / H351 STOT RE 1 / H372 Aquatic Chronic 3 / H412 Ozone 1 / H420 | | GHS-HC IOELV |
| 1,1,1-Trichloroethane | CAS No 71-55-6 EC No 200-756-3 Index No 602-013-00-2 | 0,1 | Acute Tox. 4 / H332 Ozone 1 / H420 | | F GHS-HC IOELV |
















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| Name of substance | Identifier | Wt% | Classification acc. to GHS | Pictograms | Notes |
|---------------------|--|-----|--|--|--|
| Toluene | CAS No 108-88-3 EC No 203-625-9 Index No 601-021-00-3 | 0,1 | Flam. Liq. 2 / H225 Skin Irrit. 2 / H315 Repr. 2 / H361d STOT SE 3 / H336 STOT RE 2 / H373 Asp. Tox. 1 / H304 Aquatic Chronic 3 / H412 |    | GHS-HC IOELV |
| Tetrachloroethylene | CAS No 127-18-4 EC No 204-825-9 Index No 602-028-00-4 | 0,1 | Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Skin Sens. 1 / H317 Carc. 2 / H351 STOT SE 3 / H336 Aquatic Chronic 2 / H411 |    | GHS-HC IOELV |
| Trichloromethane | CAS No 67-66-3 EC No 200-663-8 Index No 602-006-00-4 | 0,1 | Acute Tox. 4 / H302 Acute Tox. 3 / H331 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Carc. 2 / H351 Repr. 2 / H361d STOT RE 1 / H372 |   | GHS-HC IOELV |
| Benzene | CAS No 71-43-2 EC No 200-753-7 Index No 601-020-00-8 | 0,1 | Flam. Liq. 2 / H225 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Muta. 1B / H340 Carc. 1A / H350 STOT RE 1 / H372 Asp. Tox. 1 / H304 Aquatic Chronic 3 / H412 |    | GHS-HC IOELV |
| Dichloromethane | CAS No 75-09-2 EC No 200-838-9 Index No 602-004-00-3 | 0,1 | Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Carc. 2 / H351 STOT SE 3 / H336 |   | GHS-HC IARC: 2A IOELV |
| Trichloroethylene | CAS No 79-01-6 EC No 201-167-4 Index No 602-027-00-9 | 0,1 | Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Muta. 2 / H341 Carc. 1B / H350 STOT SE 3 / H336 Aquatic Chronic 3 / H412 |   | GHS-HC IARC: 1 IOELV RoC "Known" |

Notes

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)

IARC: 1: IARC group 1: carcinogenic to humans (International Agency for Research on Cancer)

IARC: 2A: IARC group 2A: probably carcinogenic to humans (International Agency for Research on Cancer)

2A:

IOELV: Substance with a community indicative occupational exposure limit value

RoC NTP-RoC: Known To Be A Human Carcinogen

"Known"

:

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| Name of substance | Identifier | Specific Conc. Limits | M-Factors | ATE | Exposure route |
|-----------------------|---|--|-----------|-------------------------------------|--------------------------------------|
| Methanol | CAS No 67-56-1 EC No 200-659-6 Index No 603-001-00-X | STOT SE 1; H370: C ≥ 10 % STOT SE 2; H371: 3 % ≤ C < 10 % | - | 100 mg/kg 300 mg/kg 3 mg/l/4h | oral dermal inhalation: vapour |
| Carbon tetrachloride | CAS No 56-23-5 EC No 200-262-8 Index No 602-008-00-5 | STOT RE 1; H372: C ≥ 1 % STOT RE 2; H373: 0,2 % ≤ C < 1 % | - | 100 mg/kg 300 mg/kg 3 mg/l/4h | oral dermal inhalation: vapour |
| Trichloromethane | CAS No 67-66-3 EC No 200-663-8 Index No 602-006-00-4 | - | - | 908 mg/kg 3 mg/l/4h | oral inhalation: vapour |
| 1,1,1-Trichloroethane | CAS No 71-55-6 EC No 200-756-3 Index No 602-013-00-2 | - | - | 11 mg/l/4h | inhalation: vapour |

Substance of Very High Concern (SVHC)

| Name of substance | Name acc. to inventory | CAS No | EC No | Listed in | Remarks |
|-------------------|------------------------|---------|-----------|-----------|----------|
| Trichloroethylene | trichloroethylene | 79-01-6 | 201-167-4 | Annex XIV | Carc. 1B |

Legend

annex XIV List of substances subject to authorisation
Carc. 1B Carcinogenic (category 1B)

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.

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Following skin contact

Rinse skin with water/shower. After contact with skin, wash immediately with plenty of water.

Following eye contact

Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

Following ingestion

Rinse mouth immediately and drink plenty of water. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

4.2 Most important symptoms and effects, both acute and delayed

Following inhalation: Cough, Vertigo, Headache,

Following skin contact: Has degreasing effect on the skin,

After eye contact: Conjunctival redness of the eyes, Conjunctivitis (pink eye),

Following ingestion: Abdominal pain, Malaise, Vomiting, Poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness, Loss of righting reflex, and ataxia, Serious physical decay of vision, Risk of blindness, Large doses may result in coma and death

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, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture. Solvent vapours are heavier than air and may spread along floors. Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours may form explosive mixtures with air.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂), May produce toxic fumes of carbon monoxide if burning.

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.

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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. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Danger of explosion.

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.

Take precautionary measures against static discharge. Due to danger of explosion, prevent leakage

of vapours into cellars, flues and ditches.

Advice on general occupational hygiene

When using do not eat or drink. Thorough skin-cleansing after handling the product. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Keep in a cool place.

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Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Store locked up. Ground/bond container and receiving equipment.

Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation.

Specific designs for storage rooms or vessels

Recommended storage temperature: -20 °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/m ³] | STEL [ppm] | STEL [mg/m ³] | Ceiling-C [ppm] | Ceiling-C [mg/m ³] | Notation | Source |
|---------|---|----------|------------|-----------|--------------------------|------------|---------------------------|-----------------|--------------------------------|------------------|-------------|
| EU | ethylbenzene | 100-41-4 | IOELV | 100 | 442 | 200 | 884 | | | H | 2000/39/EC |
| EU | p-xylene | 106-42-3 | IOELV | 50 | 221 | 100 | 442 | | | H | 2000/39/EC |
| EU | m-xylene | 108-38-3 | IOELV | 50 | 221 | 100 | 442 | | | H | 2000/39/EC |
| EU | toluene | 108-88-3 | IOELV | 50 | 192 | 100 | 384 | | | H | 2006/15/EC |
| EU | tetrachloroethylene | 127-18-4 | IOELV | 20 | 138 | 40 | 275 | | | H | 2017/164/EU |
| EU | carbon tetrachloride (tetrachloromethane) | 56-23-5 | IOELV | 1 | 6,4 | 5 | 32 | | | H | 2017/164/EU |
| EU | methanol | 67-56-1 | IOELV | 200 | 260 | | | | | H | 2006/15/EC |
| EU | chloroform | 67-66-3 | IOELV | 2 | 10 | | | | | H | 2000/39/EC |
| EU | benzene | 71-43-2 | IOELV | 0,2 | 0,66 | | | | | H, benzene-limit | 2022/431/EU |
| EU | 1,1,1-trichloroethane | 71-55-6 | IOELV | 100 | 555 | 200 | 1.110 | | | | 2000/39/EC |
| EU | methylene chloride (dichloromethane) | 75-09-2 | IOELV | 100 | 353 | 200 | 706 | | | H | 2017/164/EU |
| EU | trichloroethylene | 79-01-6 | IOELV | 10 | 54,7 | 30 | 164,1 | | | | 2019/130/EU |

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| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Ceiling-C [ppm] | Ceiling-C [mg/m ³] | Notation | Source |
|---------|-----------------------|----------|------------|-----------|--------------------------|------------|---------------------------|-----------------|--------------------------------|----------|----------------------|
| EU | o-xylene | 95-47-6 | IOELV | 50 | 221 | 100 | 442 | | | H | 2000/39/EC |
| IE | ethylbenzene | 100-41-4 | OELV | 100 | 442 | 200 | 884 | | | H | S.I. No. 619 of 2001 |
| IE | p-xylene | 106-42-3 | OELV | 50 | 221 | 100 | 442 | | | H | S.I. No. 619 of 2001 |
| IE | m-xylene | 108-38-3 | OELV | 50 | 221 | 100 | 442 | | | H | S.I. No. 619 of 2001 |
| IE | toluene | 108-88-3 | OELV | 50 | 192 | 100 | 384 | | | H | S.I. No. 619 of 2001 |
| IE | tetrachloroethylene | 127-18-4 | OELV | 20 | 138 | 40 | 275 | | | H | S.I. No. 619 of 2001 |
| IE | carbon tetrachloride | 56-23-5 | OELV | 1 | 6,4 | 5 | 32 | | | H | S.I. No. 619 of 2001 |
| IE | methanol | 67-56-1 | OELV | 200 | 260 | | | | | H | S.I. No. 619 of 2001 |
| IE | chloroform | 67-66-3 | OELV | 2 | 9,8 | | | | | H | S.I. No. 619 of 2001 |
| IE | benzene | 71-43-2 | OELV | 1 | 3,25 | | | | | H | S.I. No. 619 of 2001 |
| IE | 1,1,1-trichloroethane | 71-55-6 | OELV | 100 | 555 | 200 | 1.110 | | | | S.I. No. 619 of 2001 |
| IE | dichloromethane | 75-09-2 | OELV | 100 | 353 | 200 | 706 | | | H | S.I. No. 619 of 2001 |
| IE | trichloroethylene | 79-01-6 | OELV | 10 | 54,7 | 30 | 164,1 | | | H | S.I. No. 619 of 2001 |
| IE | o-xylene | 95-47-6 | OELV | 50 | 221 | 100 | 442 | | | H | S.I. No. 619 of 2001 |

Notation

| | |
|---------------|--|
| benzene-limit | Limit value 1 ppm (3,25 mg/m ³) until 5 April 2024. Limit value 0,5 ppm (1,65 mg/m ³) from 5 April 2024 until 5 April 2026. |
| Ceiling-C | Ceiling value is a limit value above which exposure should not occur |
| H | Absorbed through the skin |
| 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) |

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| Relevant DNELs of components of the mixture | | | | | | |
|---|----------|-----------|-------------------------|------------------------------------|-------------------|----------------------------|
| Name of substance | CAS No | End-point | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
| Methanol | 67-56-1 | DNEL | 130 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Methanol | 67-56-1 | DNEL | 130 mg/m ³ | human, inhalatory | worker (industry) | acute - systemic effects |
| Methanol | 67-56-1 | DNEL | 130 mg/m ³ | human, inhalatory | worker (industry) | chronic - local effects |
| Methanol | 67-56-1 | DNEL | 130 mg/m ³ | 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 |
| Carbon tetrachloride | 56-23-5 | DNEL | 1,29 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Carbon tetrachloride | 56-23-5 | DNEL | 0,91 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| Dichloromethane | 75-09-2 | DNEL | 706 mg/m ³ | human, inhalatory | worker (industry) | acute - systemic effects |
| Dichloromethane | 75-09-2 | DNEL | 176 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Dichloromethane | 75-09-2 | DNEL | 12 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| Toluene | 108-88-3 | DNEL | 192 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Toluene | 108-88-3 | DNEL | 384 mg/m ³ | human, inhalatory | worker (industry) | acute - systemic effects |
| Toluene | 108-88-3 | DNEL | 192 mg/m ³ | human, inhalatory | worker (industry) | chronic - local effects |
| Toluene | 108-88-3 | DNEL | 384 mg/m ³ | human, inhalatory | worker (industry) | acute - local effects |
| Toluene | 108-88-3 | DNEL | 384 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| Trichloroethylene | 79-01-6 | DNEL | 54,7 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Trichloroethylene | 79-01-6 | DNEL | 164,1 mg/m ³ | human, inhalatory | worker (industry) | acute - systemic effects |
| Trichloroethylene | 79-01-6 | DNEL | 7,8 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| Trichloromethane | 67-66-3 | DNEL | 2,5 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Trichloromethane | 67-66-3 | DNEL | 333 mg/m ³ | human, inhalatory | worker (industry) | acute - systemic effects |
| Trichloromethane | 67-66-3 | DNEL | 2,5 mg/m ³ | human, inhalatory | worker (industry) | chronic - local effects |

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|---|---------|-----------|-------------------|------------------------------------|-------------------|----------------------------|
| Name of substance | CAS No | End-point | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
| Trichloromethane | 67-66-3 | DNEL | 0,94 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |

| Relevant PNECs of components of the mixture | | | | | | |
|---|---------|-----------|-----------------|-----------------------|------------------------------|------------------------------|
| Name of substance | CAS No | End-point | Threshold level | Organism | Environmental compartment | Exposure time |
| 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) |
| 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) |
| Benzene | 71-43-2 | PNEC | 80 µg/l | aquatic organisms | freshwater | short-term (single instance) |
| Benzene | 71-43-2 | PNEC | 8 µg/l | aquatic organisms | marine water | short-term (single instance) |
| Benzene | 71-43-2 | PNEC | 39 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Benzene | 71-43-2 | PNEC | 1,36 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Benzene | 71-43-2 | PNEC | 0,136 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Benzene | 71-43-2 | PNEC | 0,225 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| Carbon tetrachloride | 56-23-5 | PNEC | 0,22 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Carbon tetrachloride | 56-23-5 | PNEC | 0,022 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Carbon tetrachloride | 56-23-5 | PNEC | 30 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Dichloromethane | 75-09-2 | PNEC | 0,31 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Dichloromethane | 75-09-2 | PNEC | 0,031 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Dichloromethane | 75-09-2 | PNEC | 26 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Dichloromethane | 75-09-2 | PNEC | 2,57 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |

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|---|----------|-----------|-----------------|-----------------------|------------------------------|------------------------------|
| Name of substance | CAS No | End-point | Threshold level | Organism | Environmental compartment | Exposure time |
| Dichloromethane | 75-09-2 | PNEC | 0,26 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Dichloromethane | 75-09-2 | PNEC | 0,33 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| Toluene | 108-88-3 | PNEC | 0,68 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Toluene | 108-88-3 | PNEC | 0,68 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Toluene | 108-88-3 | PNEC | 13,61 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Toluene | 108-88-3 | PNEC | 16,39 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Toluene | 108-88-3 | PNEC | 16,39 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Toluene | 108-88-3 | PNEC | 2,89 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| Trichloroethylene | 79-01-6 | PNEC | 0,115 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Trichloroethylene | 79-01-6 | PNEC | 0,011 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Trichloroethylene | 79-01-6 | PNEC | 2,6 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Trichloroethylene | 79-01-6 | PNEC | 2,04 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Trichloroethylene | 79-01-6 | PNEC | 0,204 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Trichloroethylene | 79-01-6 | PNEC | 0,344 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| Trichloromethane | 67-66-3 | PNEC | 0,146 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Trichloromethane | 67-66-3 | PNEC | 0,015 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Trichloromethane | 67-66-3 | PNEC | 0,048 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Trichloromethane | 67-66-3 | PNEC | 0,45 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Trichloromethane | 67-66-3 | PNEC | 0,09 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Trichloromethane | 67-66-3 | PNEC | 0,56 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| 1,1,1-Trichloroethane | 71-55-6 | PNEC | 0,13 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| 1,1,1-Trichloroethane | 71-55-6 | PNEC | 0,013 mg/l | aquatic organisms | marine water | short-term (single instance) |

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8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side 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

Butyl caoutchouc (butyl rubber)

• material thickness

0,7mm

• breakthrough times of the glove material

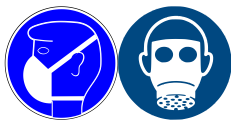
>480 minutes (permeation: level 6)

• other protection measures

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

Flame-retardant protective clothing.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: AX (gas filters and combined filters against low-boiling point organic compounds, colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|--|--|
| Physical state | liquid |
| Colour | colourless - clear |
| Odour | like: - methanol |
| Melting point/freezing point | -98 °C |
| Boiling point or initial boiling point and boiling range | 65 °C at 1.013 hPa |
| Flammability | flammable liquid in accordance with GHS criteria |
| Lower and upper explosion limit | 5,5 vol% (LEL) - 44 vol% (UEL) |
| Flash point | 10 °C at 1.013 Pa |
| Auto-ignition temperature | 455 °C |
| Decomposition temperature | not relevant |
| pH (value) | not determined |
| Kinematic viscosity | not determined |

Solubility(ies)

Water solubility (soluble)

Partition coefficient

Partition coefficient n-octanol/water (log value): this information is not available

Vapour pressure 128 hPa at 20 °C

Density and/or relative density

Density 0,79 g/cm³ 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: There is no additional information.

Other safety characteristics:

Temperature class (EU, acc. to ATEX) T1
Maximum permissible surface temperature on the equipment: 450°C

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SECTION 10: Stability and reactivity

10.1 Reactivity

The mixture contains reactive substance(s). Risk of ignition. Vapours may form explosive mixtures with air.

If heated

Risk of ignition.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Danger of explosion: Oxidisers, Perchlorates, Nitrogen oxides (NO_x), Chlorates, Halogenated hydrocarbons, Hydrogen peroxide, Nitric acid, Sulphuric acid,

Exothermic reaction with: Reducing agents, Acids, Chlorine, Chloroform, Acid chlorides, inorganic,

Dangerous/dangerous reactions with: Fluorine, Alkali metals, Alkaline earth metal, strong oxidiser

10.4 Conditions to avoid

UV-radiation/sunlight. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

aluminium, iron, zinc, different plastics, Rubber articles

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

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 according to GHS (1272/2008/EC, CLP)

Acute toxicity

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

| Acute toxicity estimate (ATE) of components of the mixture | | | |
|--|---------|--------------------|-----------|
| Name of substance | CAS No | Exposure route | ATE |
| Methanol | 67-56-1 | oral | 100 mg/kg |
| Methanol | 67-56-1 | dermal | 300 mg/kg |
| Methanol | 67-56-1 | inhalation: vapour | 3 mg/l/4h |
| Carbon tetrachloride | 56-23-5 | oral | 100 mg/kg |
| Carbon tetrachloride | 56-23-5 | dermal | 300 mg/kg |
| Carbon tetrachloride | 56-23-5 | inhalation: vapour | 3 mg/l/4h |

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| Acute toxicity estimate (ATE) of components of the mixture | | | |
|--|---------|--------------------|------------|
| Name of substance | CAS No | Exposure route | ATE |
| Trichloromethane | 67-66-3 | oral | 908 mg/kg |
| Trichloromethane | 67-66-3 | inhalation: vapour | 3 mg/l/4h |
| 1,1,1-Trichloroethane | 71-55-6 | inhalation: vapour | 11 mg/l/4h |

| Acute toxicity of components of the mixture | | | | | |
|---|----------|--------------------|----------|------------------------------|---------|
| Name of substance | CAS No | Exposure route | Endpoint | Value | Species |
| Methanol | 67-56-1 | inhalation: vapour | LC50 | 131 mg/l/4h | rat |
| Methanol | 67-56-1 | oral | LD50 | 5.628 mg/kg | rat |
| Methanol | 67-56-1 | oral | LDLo | 143 mg/kg | human |
| Methanol | 67-56-1 | dermal | LD50 | 15.800 mg/kg | rabbit |
| Benzene | 71-43-2 | oral | LD50 | >2.000 mg/kg | rat |
| Benzene | 71-43-2 | inhalation: vapour | LC50 | 43.767 mg/m ³ /4h | rat |
| Carbon tetrachloride | 56-23-5 | oral | LD50 | 2.500 mg/kg | rat |
| Dichloromethane | 75-09-2 | oral | LD50 | >2.000 mg/kg | rat |
| Dichloromethane | 75-09-2 | dermal | LD50 | >2.000 mg/kg | rat |
| Tetrachloroethylene | 127-18-4 | oral | LD50 | 3.835 mg/kg | rat |
| Toluene | 108-88-3 | oral | LD50 | 5.580 mg/kg | rat |
| Toluene | 108-88-3 | inhalation: vapour | LC50 | 28,1 mg/l/4h | rat |
| Toluene | 108-88-3 | dermal | LD50 | >5.000 mg/kg | rabbit |
| Trichloroethylene | 79-01-6 | oral | LD50 | 4.920 mg/kg | rat |
| Trichloroethylene | 79-01-6 | dermal | LD50 | 20.000 mg/kg | rabbit |
| Trichloromethane | 67-66-3 | oral | LD50 | 908 mg/kg | rat |

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation

Contains Tetrachloroethylene. May produce an allergic reaction.

Germ cell mutagenicity

May cause genetic defects.

Carcinogenicity

May cause cancer.

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Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Causes damage to organs (eye).

| Hazard category | Target organ | Exposure route |
|-----------------|--------------|----------------|
| 1 | eye | if exposed |

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.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

abdominal pain, vomiting, loss of righting reflex, and ataxia, poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness, risk of blindness, large doses may result in coma and death

• If in eyes

conjunctivitis (pink eye)

• If inhaled

vertigo, cough, headache

• If on skin

has degreasing effect on the skin

• Other information

none

11.2 Endocrine disrupting properties

Contains an endocrine disruptor (EDC) in a concentration of $\geq 0,1\%$.

| Endocrine disrupting chemicals (EDC) | | | | |
|--------------------------------------|----------|-------------------|-----------------------|-------------------|
| Name of substance | CAS No | Combined category | Human health category | Wildlife category |
| Tetrachloroethylene | 127-18-4 | CAT2 | CAT2 | CAT3 |

Legend

CAT2 Category 2 - at least some in vitro evidence of biological activity related to endocrine disruption
CAT3 Category 3 - no evidence of endocrine disruption or no data available

11.3 Information on other hazards

There is no additional information.

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SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

| Aquatic toxicity (acute) of components of the mixture | | | | | |
|---|----------|----------|-------------|-----------------------|---------------|
| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
| Methanol | 67-56-1 | LC50 | 15.400 mg/l | fish | 96 h |
| Methanol | 67-56-1 | ErC50 | 22.000 mg/l | algae | 96 h |
| Benzene | 71-43-2 | LC50 | 5,3 mg/l | fish | 96 h |
| Benzene | 71-43-2 | EC50 | 10 mg/l | aquatic invertebrates | 48 h |
| Benzene | 71-43-2 | ErC50 | 100 mg/l | algae | 72 h |
| Carbon tetrachloride | 56-23-5 | LC50 | 24,3 mg/l | fish | 96 h |
| Carbon tetrachloride | 56-23-5 | ErC50 | 20 mg/l | algae | 72 h |
| Dichloromethane | 75-09-2 | LC50 | 193 mg/l | fish | 96 h |
| Tetrachloroethylene | 127-18-4 | LC50 | 5 mg/l | fish | 96 h |
| Tetrachloroethylene | 127-18-4 | EC50 | 8,5 mg/l | aquatic invertebrates | 48 h |
| Tetrachloroethylene | 127-18-4 | ErC50 | 3,64 mg/l | algae | 72 h |
| Toluene | 108-88-3 | LC50 | 5,5 mg/l | fish | 96 h |
| Toluene | 108-88-3 | EC50 | 84 mg/l | microorganisms | 24 h |
| Trichloroethylene | 79-01-6 | LC50 | 28,3 mg/l | fish | 96 h |
| Trichloroethylene | 79-01-6 | ErC50 | 36,5 mg/l | algae | 72 h |
| Trichloromethane | 67-66-3 | EC50 | 152,5 mg/l | aquatic invertebrates | 48 h |
| Trichloromethane | 67-66-3 | ErC50 | 13,3 mg/l | algae | 72 h |
| 1,1,1-Trichloroethane | 71-55-6 | LC50 | 52,8 mg/l | fish | 96 h |
| 1,1,1-Trichloroethane | 71-55-6 | ErC50 | 41 mg/l | algae | 72 h |

| Aquatic toxicity (chronic) of components of the mixture | | | | | |
|---|----------|----------|------------|-----------------------|---------------|
| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
| Dichloromethane | 75-09-2 | LC50 | 471 mg/l | fish | 8 d |
| Dichloromethane | 75-09-2 | EC50 | 2.590 mg/l | microorganisms | 40 min |
| Toluene | 108-88-3 | LC50 | 3,78 mg/l | aquatic invertebrates | 2 d |
| Toluene | 108-88-3 | EC50 | 3,23 mg/l | aquatic invertebrates | 7 d |
| Trichloroethylene | 79-01-6 | EC50 | 260 mg/l | microorganisms | 3 h |
| Trichloromethane | 67-66-3 | EC50 | 0,48 mg/l | microorganisms | 24 h |

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Aquatic toxicity (chronic) of components of the mixture

| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
|-----------------------|---------|----------|----------|----------------|---------------|
| 1,1,1-Trichloroethane | 71-55-6 | EC50 | 360 mg/l | microorganisms | 30 min |

12.2 Persistence and degradability

Degradability of components of the mixture

| Name of substance | CAS No | Process | Degradation rate | Time | Method | Source |
|-------------------|----------|------------------|------------------|------|--------|--------|
| Methanol | 67-56-1 | biotic/abiotic | 99 % | 30 d | | |
| Methanol | 67-56-1 | oxygen depletion | 69 % | 5 d | | ECHA |
| Dichloromethane | 75-09-2 | biotic/abiotic | 5 - 26 % | 28 d | | |
| Dichloromethane | 75-09-2 | oxygen depletion | 68 % | 28 d | | ECHA |
| Toluene | 108-88-3 | biotic/abiotic | 86 % | 20 d | | IUCLID |
| Trichloroethylene | 79-01-6 | oxygen depletion | 19 % | 28 d | | ECHA |
| Trichloromethane | 67-66-3 | biotic/abiotic | 0 % | 14 d | | |

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components of the mixture

| Name of substance | CAS No | BCF | Log KOW | BOD5/COD |
|-----------------------|----------|---------------|----------------------------|----------|
| Methanol | 67-56-1 | | -0,77 | |
| Benzene | 71-43-2 | 13 | 2,13 (pH value: 7, 25 °C) | |
| Carbon tetrachloride | 56-23-5 | ≥14,5 - ≤20,3 | 2,83 (pH value: 7, 25 °C) | |
| Dichloromethane | 75-09-2 | 39 | 1,25 (pH value: 7, 20 °C) | |
| Tetrachloroethylene | 127-18-4 | 49 | 2,53 (pH value: ~7, 23 °C) | |
| Toluene | 108-88-3 | 90 | 2,73 (pH value: 7, 20 °C) | |
| Trichloroethylene | 79-01-6 | 17 | 2,53 (pH value: ~7, 20 °C) | |
| Trichloromethane | 67-66-3 | | 1,97 (25 °C) | |
| 1,1,1-Trichloroethane | 71-55-6 | 9 | 2,49 (pH value: 7, 20 °C) | |

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

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Contains an endocrine disruptor (EDC) in a concentration of $\geq 0,1\%$.

| Endocrine disrupting chemicals (EDC) | | | | |
|--------------------------------------|----------|-------------------|-----------------------|-------------------|
| Name of substance | CAS No | Combined category | Human health category | Wildlife category |
| Tetrachloroethylene | 127-18-4 | CAT2 | CAT2 | CAT3 |

Legend

CAT2 Category 2 - at least some in vitro evidence of biological activity related to endocrine disruption
CAT3 Category 3 - no evidence of endocrine disruption or no data available

12.7 Other adverse effects

Classified as hazardous to the ozone layer.

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.

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 3 flammable
HP 5 specific target organ toxicity (STOT)/aspiration toxicity
HP 6 acute toxicity
HP 7 carcinogenic
HP 11 mutagenic
HP 14 ecotoxic

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.

SECTION 14: Transport information

14.1 UN number or ID number

| | |
|-----------|---------|
| ADRRID | UN 1230 |
| IMDG-Code | UN 1230 |
| ICAO-TI | UN 1230 |

14.2 UN proper shipping name

| | |
|--------|----------|
| ADRRID | METHANOL |
|--------|----------|



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| | |
|---|---|
| IMDG-Code | METHANOL |
| ICAO-TI | Methanol |
| 14.3 Transport hazard class(es) | |
| ADRRID | 3 (6.1) |
| IMDG-Code | 3 (6.1) |
| ICAO-TI | 3 (6.1) |
| 14.4 Packing group | |
| ADRRID | II |
| IMDG-Code | II |
| ICAO-TI | II |
| 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 | METHANOL |
| Particulars in the transport document | UN1230, METHANOL, 3 (6.1), II, (D/E) |
| Classification code | FT1 |
| Danger label(s) | 3+6.1 |
|  | |
| Special provisions (SP) | 279, 802(ADN) |
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 1 L |
| Transport category (TC) | 2 |
| Tunnel restriction code (TRC) | D/E |
| Hazard identification No | 336 |
| Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)Additional information | |
| Classification code | FT1 |
| Danger label(s) | 3+6.1 |
|  | |

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Special provisions (SP) 279, 802(ADN)

Excepted quantities (EQ) E2

Limited quantities (LQ) 1 L

Transport category (TC) 2

Hazard identification No 336

International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name METHANOL

Particulars in the shipper's declaration UN1230, METHANOL, 3 (6.1), II, 10°C c.c.

Marine pollutant -

Danger label(s) 3+6.1



Special provisions (SP) 279

Excepted quantities (EQ) E2

Limited quantities (LQ) 1 L

EmS F-E, S-D

Stowage category B

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

Proper shipping name Methanol

Particulars in the shipper's declaration UN1230, Methanol, 3 (6.1), II

Danger label(s) 3+6.1



Special provisions (SP) A113

Excepted quantities (EQ) E2

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)

Restrictions according to REACH, Annex XVII

| Dangerous substances with restrictions (REACH, Annex XVII) | | | | |
|--|--|--------|-------------|----|
| Name of substance | Name acc. to inventory | CAS No | Restriction | No |
| VOC - Standard Solution | this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC | | R3 | 3 |

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| Dangerous substances with restrictions (REACH, Annex XVII) | | | | |
|--|---|----------|----------------|----|
| Name of substance | Name acc. to inventory | CAS No | Restriction | No |
| Carbon tetrachloride | substances in tattoo inks and permanent make-up | | R75 | 75 |
| Toluene | toluene | 108-88-3 | R48 | 48 |
| Toluene | flammable / pyrophoric | | R40 | 40 |
| Toluene | substances in tattoo inks and permanent make-up | | R75 | 75 |
| Tetrachloroethylene | substances in tattoo inks and permanent make-up | | R75 | 75 |
| Methanol | methanol | 67-56-1 | R69 | 69 |
| Methanol | flammable / pyrophoric | | R40 | 40 |
| Trichloromethane | chloroform | 67-66-3 | R32-38 | 32 |
| Trichloromethane | substances in tattoo inks and permanent make-up | | R75 | 75 |
| Benzene | benzene | 71-43-2 | R5 | 5 |
| Benzene | benzene | 71-43-2 | R72 R72_5mg | 72 |
| Benzene | carcinogenic | | R28-30 | 28 |
| Benzene | germ cell mutagenic (mutagenic) | | R28-30 | 29 |
| Benzene | flammable / pyrophoric | | R40 | 40 |
| Benzene | substances in tattoo inks and permanent make-up | | R75 | 75 |
| Dichloromethane | dichloromethane | 75-09-2 | R59 | 59 |
| Dichloromethane | substances in tattoo inks and permanent make-up | | R75 | 75 |
| Trichloroethylene | carcinogenic | | R28-30 | 28 |
| Trichloroethylene | substances in tattoo inks and permanent make-up | | R75 | 75 |

Legend

- R28-30 1. Shall not be placed on the market, or used,
- as substances,
- as constituents of other substances, or,
- in mixtures,
for supply to the general public when the individual concentration in the substance or mixture is equal to or greater than:
- either the relevant specific concentration limit specified in Part 3 of Annex VI to Regulation (EC) No 1272/2008, or,
- the relevant generic concentration limit specified in Part 3 of Annex I of Regulation (EC) No 1272/2008.
Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows:
'Restricted to professional users'.
2. By way of derogation, paragraph 1 shall not apply to:
(a) medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/EC;
(b) cosmetic products as defined by Directive 76/768/EEC;
(c) the following fuels and oil products:
- motor fuels which are covered by Directive 98/70/EC,
- mineral oil products intended for use as fuel in mobile or fixed combustion plants,
- fuels sold in closed systems (e.g. liquid gas bottles);
(d) artists' paints covered by Regulation (EC) No 1272/2008;
(e) the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2. Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date;
(f) devices covered by Regulation (EU) 2017/745.

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Legend

- R3 1. Shall not be used in:
- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- tricks and jokes,
- games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
2. Articles not complying with paragraph 1 shall not be placed on the market.
3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
— can be used as fuel in decorative oil lamps for supply to the general public, and
— present an aspiration hazard and are labelled with H304.
4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
5. Without prejudice to the implementation of other Union provisions relating to the classification, labelling and packaging of substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
(a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: "Keep lamps filled with this liquid out of the reach of children"; and, by 1 December 2010, "Just a sip of lamp oil – or even sucking the wick of lamps – may lead to life-threatening lung damage";
(b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: "Just a sip of grill lighter fluid may lead to life threatening lung damage";
(c) lamps oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.;
- R32-38 1. Shall not be placed on the market, or used,
- as substances,
- as constituents of other substances, or in mixtures in concentrations equal to or greater than 0,1 % by weight, where the substance or mixture is intended for supply to the general public and/or is intended for diffusive applications such as in surface cleaning and cleaning of fabrics.
2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures containing them in concentrations equal to or greater than 0,1 % by weight is visibly, legibly and indelibly marked as follows:
'For use in industrial installations only'.
By way of derogation this provision shall not apply to:
(a) medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/EC;
(b) cosmetic products as defined by Directive 76/768/EEC.
- R40 1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:
- metallic glitter intended mainly for decoration,
- artificial snow and frost,
- 'whoopee' cushions,
- silly string aerosols,
- imitation excrement,
- horns for parties,
- decorative flakes and foams,
- artificial cobwebs,
- stink bombs.
2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with:
'For professional users only'.
3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/324/EEC (2).
4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.
- R48 Shall not be placed on the market, or used, as a substance or in mixtures in a concentration equal to or greater than 0,1 % by weight where the substance or mixture is used in adhesives or spray paints intended for supply to the general public.
- R5 1. Shall not be used in toys or parts of toys where the concentration of benzene in the free state is greater than 5 mg/kg (0,0005 %) of the weight of the toy or part of toy.
2. Toys and parts of toys not complying with paragraph 1 shall not be placed on the market.
3. Shall not be placed on the market, or used,
- as a substance,
- as a constituent of other substances, or in mixtures, in concentrations equal to, or greater than 0,1 % by weight.
4. However, paragraph 3 shall not apply to:
(a) motor fuels which are covered by Directive 98/70/EC;
(b) substances and mixtures for use in industrial processes not allowing for the emission of benzene in quantities in excess of those laid down in existing legislation.
(c) natural gas placed on the market for use by consumers, provided that the concentration of benzene remains below 0,1 % volume/volume

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Legend

- R59 1. Paint strippers containing dichloromethane in a concentration equal to or greater than 0,1 % by weight shall not be:
- (a) placed on the market for the first time for supply to the general public or to professionals after 6 December 2010;
 - (b) placed on the market for supply to the general public or to professionals after 6 December 2011;
 - (c) used by professionals after 6 June 2012.
- For the purposes of this entry:
- (i) 'professional' means any natural or legal person, including workers and self-employed workers undertaking paint stripping in the course of their professional activity outside an industrial installation;
 - (ii) 'industrial installation' means a facility used for paint stripping activities.
2. By way of derogation from paragraph 1, Member States may allow on their territories and for certain activities the use, by specifically trained professionals, of paint strippers containing dichloromethane and may allow the placing on the market of such paint strippers for supply to those professionals.
- Member States making use of this derogation shall define appropriate provisions for the protection of the health and safety of those professionals using paint strippers containing dichloromethane and shall inform the Commission thereof.
- Those provisions shall include a requirement that a professional shall hold a certificate that is accepted by the Member State in which that professional operates, or provide other documentary evidence to that effect, or be otherwise approved by that Member State, so as to demonstrate proper training and competence to safely use paint strippers containing dichloromethane.
- The Commission shall prepare a list of the Member States which have made use of the derogation in this paragraph and make it publicly available over the Internet.
3. A professional benefiting from the derogation referred to in paragraph 2 shall operate only in Member States which have made use of that derogation. The training referred to in paragraph 2 shall cover as a minimum:
- (a) awareness, evaluation and management of risks to health, including information on existing substitutes or processes, which under their conditions of use are less hazardous to the health and safety of workers;
 - (b) use of adequate ventilation;
 - (c) use of appropriate personal protective equipment that complies with Directive 89/686/EEC.
- Employers and self-employed workers shall preferably replace dichloromethane with a chemical agent or process which, under its conditions of use, presents no risk, or a lower risk, to the health and safety of workers.
- Professional shall apply all relevant safety measures in practice, including the use of personal protective equipment.
4. Without prejudice to other Community legislation on workers protection, paint strippers containing dichloromethane in concentrations equal to or greater than 0,1 % by weight may be used in industrial installations only if the following minimum conditions are met:
- (a) effective ventilation in all processing areas, in particular for the wet processing and the drying of stripped articles: local exhaust ventilation at strip tanks supplemented by forced ventilation in those areas, so as to minimise exposure and to ensure compliance, where technically feasible, with relevant occupational exposure limits;
 - (b) measures to minimise evaporation from strip tanks comprising: lids for covering strip tanks except during loading and unloading; suitable loading and unloading arrangements for strip tanks; and wash tanks with water or brine to remove excess solvent after unloading;
 - (c) measures for the safe handling of dichloromethane in strip tanks comprising: pumps and pipework for transferring paint stripper to and from strip tanks; and suitable arrangements for safe cleaning of tanks and removal of sludge;
 - (d) personal protective equipment that complies with Directive 89/686/EEC comprising: suitable protective gloves, safety goggles and protective clothing; and appropriate respiratory protective equipment where compliance with relevant occupational exposure limits cannot be otherwise achieved;
 - (e) adequate information, instruction and training for operators in the use of such equipment.
5. Without prejudice to other Community provisions concerning the classification, labelling and packaging of substances and mixtures, by 6 December 2011 paint strippers containing dichloromethane in a concentration equal to or greater than 0,1 % by weight shall be visibly, legibly and indelibly marked as follows:
- 'Restricted to industrial use and to professionals approved in certain EU Member States - verify where use is allowed.'
- R69 Shall not be placed on the market to the general public after 9 May 2019 in windscreen washing or defrosting fluids, in a concentration equal to or greater than 0,6 % by weight.

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Legend

- R72 1. Shall not be placed on the market after 1 November 2020 in any of the following:
- R72_5m (a) clothing or related accessories;
- g (b) textiles other than clothing which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing;
- (c) footwear;
- if the clothing, related accessory, textile other than clothing or footwear is for use by consumers and the substance is present in a concentration, measured in homogeneous material, equal to or greater than that specified for that substance in Appendix 12.
2. By way of derogation, in relation to the placing on the market of formaldehyde [CAS No 50-00-0] in jackets, coats or upholstery, the relevant concentration for the purposes of paragraph 1 shall be 300 mg/kg during the period between 1 November 2020 and 1 November 2023. The concentration specified in Appendix 12 shall apply thereafter.
3. Paragraph 1 shall not apply to:
- (a) clothing, related accessories or footwear, or parts of clothing, related accessories or footwear, made exclusively of natural leather, fur or hide;
- (b) non-textile fasteners and non-textile decorative attachments;
- (c) second-hand clothing, related accessories, textiles other than clothing or footwear
- (d) wall-to-wall carpets and textile floor coverings for indoor use, rugs and runners.
4. Paragraph 1 shall not apply to clothing, related accessories, textiles other than clothing, or footwear within the scope of Regulation (EU) 2016/425 of the European Parliament and of the Council (*) or Regulation (EU) 2017/745 of the European Parliament and of the Council (**).
5. Paragraph 1(b) shall not apply to disposable textiles. 'Disposable textiles' means textiles that are designed to be used only once or for a limited time and are not intended for subsequent use for the same or a similar purpose.
6. Paragraphs 1 and 2 shall apply without prejudice to the application of any stricter restrictions set out in this Annex or in other applicable Union legislation.
7. The Commission shall review the exemption in paragraph 3(d) and, if appropriate, modify that point accordingly.
- (*) Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC (OJ L 81, 31.3.2016, p. 51).
- (**) Regulation (EU) 2017/745 of the European Parliament and of the Council of 5 April 2017 on medical devices, amending Directive 2001/83/EC, Regulation (EC) No 178/2002 and Regulation (EC) No 1223/2009 and repealing Council Directives 90/385/EEC and 93/42/EEC (OJ L 117, 5.5.2017, p. 1).
- Appendix 12 (maximum concentration limits by weight in homogeneous materials): 5 mg/kg

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Legend

- R75
1. Shall not be placed on the market in mixtures for use for tattooing purposes, and mixtures containing any such substances shall not be used for tattooing purposes, after 4 January 2022 if the substance or substances in question is or are present in the following circumstances:
 - (a) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
 - (b) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as reproductive toxicant category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
 - (c) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin sensitiser category 1, 1A or 1B, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
 - (d) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2, or as serious eye damage category 1 or eye irritant category 2, the substance is present in the mixture in a concentration equal to or greater than:
 - (i) 0,1 % by weight, if the substance is used solely as a pH regulator;
 - (ii) 0,01 % by weight, in all other cases;
 - (e) in the case of a substance listed in Annex II to Regulation (EC) No 1223/2009 (*1), the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
 - (f) in the case of a substance for which a condition of one or more of the following kinds is specified in column g (Product type, Body parts) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight:
 - (i) "Rinse-off products";
 - (ii) "Not to be used in products applied on mucous membranes";
 - (iii) "Not to be used in eye products";
 - (g) in the case of a substance for which a condition is specified in column h (Maximum concentration in ready for use preparation) or column i (Other) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration, or in some other way, that does not accord with the condition specified in that column;
 - (h) in the case of a substance listed in Appendix 13 to this Annex, the substance is present in the mixture in a concentration equal to or greater than the concentration limit specified for that substance in that Appendix.
 2. For the purposes of this entry use of a mixture "for tattooing purposes" means injection or introduction of the mixture into a person's skin, mucous membrane or eyeball, by any process or procedure (including procedures commonly referred to as permanent make-up, cosmetic tattooing, micro-blading and micro-pigmentation), with the aim of making a mark or design on his or her body.
 3. If a substance not listed in Appendix 13 falls within more than one of points (a) to (g) of paragraph 1, the strictest concentration limit laid down in the points in question shall apply to that substance. If a substance listed in Appendix 13 also falls within one or more of points (a) to (g) of paragraph 1, the concentration limit laid down in point (h) of paragraph 1 shall apply to that substance.
 4. By way of derogation, paragraph 1 shall not apply to the following substances until 4 January 2023:
 - (a) Pigment Blue 15:3 (CI 74160, EC No 205-685-1, CAS No 147-14-8);
 - (b) Pigment Green 7 (CI 74260, EC No 215-524-7, CAS No 1328-53-6).
 5. If Part 3 of Annex VI to Regulation (EC) No 1272/2008 is amended after 4 January 2021 to classify or re-classify a substance such that the substance then becomes caught by point (a), (b), (c) or (d) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the date of application of that new or revised classification is after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect on the date of application of that new or revised classification.
 6. If Annex II or Annex IV to Regulation (EC) No 1223/2009 is amended after 4 January 2021 to list or change the listing of a substance such that the substance then becomes caught by point (e), (f) or (g) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the amendment takes effect after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect from the date falling 18 months after entry into force of the act by which that amendment was made.
 7. Suppliers placing a mixture on the market for use for tattooing purposes shall ensure that, after 4 January 2022, the mixture is marked with the following information:
 - (a) the statement "Mixture for use in tattoos or permanent make-up";
 - (b) a reference number to uniquely identify the batch;
 - (c) the list of ingredients in accordance with the nomenclature established in the glossary of common ingredient names pursuant to Article 33 of Regulation (EC) No 1223/2009, or in the absence of a common ingredient name, the IUPAC name. In the absence of a common ingredient name or IUPAC name, the CAS and EC number. Ingredients shall be listed in descending order by weight or volume of the ingredients at the time of formulation. "Ingredient" means any substance added during the process of formulation and present in the mixture for use for tattooing purposes. Impurities shall not be regarded as ingredients. If the name of a substance, used as ingredient within the meaning of this entry, is already required to be stated on the label in accordance with Regulation (EC) No 1272/2008, that ingredient does not need to be marked in accordance with this Regulation;
 - (d) the additional statement "pH regulator" for substances falling under point (d)(i) of paragraph 1;
 - (e) the statement "Contains nickel. Can cause allergic reactions." if the mixture contains nickel below the concentration limit specified in Appendix 13;
 - (f) the statement "Contains chromium (VI). Can cause allergic reactions." if the mixture contains chromium (VI) below the concentration limit specified in Appendix 13;
 - (g) safety instructions for use insofar as they are not already required to be stated on the label by Regulation (EC) No 1272/2008.The information shall be clearly visible, easily legible and marked in a way that is indelible. The information shall be written in the official language(s) of the Member State(s) where the mixture is placed on the market, unless the Member State(s) concerned provide(s) otherwise. Where necessary because of the size of the package, the information listed in the first subparagraph, except for point (a), shall be included instead in the instructions for use. Before using a mixture for tattooing purposes, the person using the mixture shall provide the person undergoing the procedure with the information marked on the package or included in the instructions for use pursuant to this paragraph.
 8. Mixtures that do not contain the statement "Mixture for use in tattoos or permanent make-up" shall not be used for tattooing purposes.

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Legend

9. This entry does not apply to substances that are gases at temperature of 20 °C and pressure of 101,3 kPa, or generate a vapour pressure of more than 300 kPa at temperature of 50 °C, with the exception of formaldehyde (CAS No 50-00-0, EC No 200-001-8).

10. This entry does not apply to the placing on the market of a mixture for use for tattooing purposes, or to the use of a mixture for tattooing purposes, when placed on the market exclusively as a medical device or an accessory to a medical device, within the meaning of Regulation (EU) 2017/745, or when used exclusively as a medical device or an accessory to a medical device, within the same meaning. Where the placing on the market or use may not be exclusively as a medical device or an accessory to a medical device, the requirements of Regulation (EU) 2017/745 and of this Regulation shall apply cumulatively.

List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list

| Substance of Very High Concern (SVHC) | | | | | | |
|---------------------------------------|---------|-----------|----------|-------------------------|-------------|-------------------|
| Name acc. to inventory | CAS No | Listed in | Remarks | Latest application date | Sunset date | Date of inclusion |
| trichloroethylene | 79-01-6 | Annex XIV | Carc. 1B | 2014-10-21 | 2016-04-21 | |

Legend

annex XIV List of substances subject to authorisation
Carc. 1B Carcinogenic (category 1B)

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 | 100 % |
| VOC content (Water content was discounted) | 790 g/l |

Industrial Emissions Directive (IED)

| | |
|--|---------|
| VOC content | 100 % |
| VOC content (Water content was discounted) | 790 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)

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| Pollutant release and transfer registers (PRTR) | | | |
|---|----------|---------|---|
| Name of substance | CAS No | Remarks | Threshold for releases to air (kg/year) |
| Carbon tetrachloride | 56-23-5 | | 100 |
| 1,1,1-Trichloroethane | 71-55-6 | | 100 |
| Toluene | 108-88-3 | (11) | |
| Tetrachloroethylene | 127-18-4 | | 2 000 |
| Trichloromethane | 67-66-3 | | 500 |
| Benzene | 71-43-2 | (11) | 1 000 |
| Dichloromethane | 75-09-2 | | 1 000 |
| Trichloroethylene | 79-01-6 | | 2 000 |

Legend

(11) Single pollutants are to be reported if the threshold for BTEX (the sum parameter of benzene, toluene, ethyl benzene, xylenes) is exceeded

Water Framework Directive (WFD)

| List of pollutants (WFD) | | | | |
|--------------------------|---|---------|-----------|---------|
| Name of substance | Name acc. to inventory | CAS No | Listed in | Remarks |
| Carbon tetrachloride | Carbon tetrachloride | 56-23-5 | c) | |
| Carbon tetrachloride | Organohalogen compounds and substances which may form such compounds in the aquatic environment | | a) | |
| Carbon tetrachloride | 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) | |
| 1,1,1-Trichloroethane | Organohalogen compounds and substances which may form such compounds in the aquatic environment | | a) | |
| 1,1,1-Trichloroethane | 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) | |

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| List of pollutants (WFD) | | | | |
|--------------------------|---|----------|-----------|---------|
| Name of substance | Name acc. to inventory | CAS No | Listed in | Remarks |
| Toluene | 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) | |
| Tetrachloroethylene | tetrachloroethylene | 127-18-4 | c) | |
| Tetrachloroethylene | Organohalogen compounds and substances which may form such compounds in the aquatic environment | | a) | |
| Tetrachloroethylene | 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) | |
| Trichloromethane | trichloromethane (chloroform) | 67-66-3 | b) | |
| Trichloromethane | trichloromethane | 67-66-3 | c) | |
| Trichloromethane | Organohalogen compounds and substances which may form such compounds in the aquatic environment | | a) | |
| Trichloromethane | 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) | |
| Benzene | benzene | 71-43-2 | b) | |
| Benzene | benzene | 71-43-2 | c) | |
| Benzene | 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) | |

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| List of pollutants (WFD) | | | | |
|--------------------------|---|---------|-----------|---------|
| Name of substance | Name acc. to inventory | CAS No | Listed in | Remarks |
| Dichloromethane | dichloromethane | 75-09-2 | b) | |
| Dichloromethane | dichloromethane | 75-09-2 | c) | |
| Dichloromethane | Organohalogen compounds and substances which may form such compounds in the aquatic environment | | a) | |
| Dichloromethane | 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) | |
| Trichloroethylene | trichloroethylene | 79-01-6 | c) | |
| Trichloroethylene | Organohalogen compounds and substances which may form such compounds in the aquatic environment | | a) | |
| Trichloroethylene | 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
- B) List of priority substances in the field of water policy
- C) Environmental Quality Standards for Priority Substances and certain other pollutants

Regulation on the marketing and use of explosives precursors

none of the ingredients are listed

Regulation on drug precursors

| Name of substance | CAS No | Wt% | Classification | CN Code | Threshold level |
|-------------------|----------|-----|----------------|------------|-----------------|
| Toluene | 108-88-3 | 0,1 | Category 3 | 2902 30 00 | |

Regulation on substances that deplete the ozone layer (ODS)

| Ozone-depleting substances (ODS) | | | | |
|----------------------------------|---------|----------------------|---|---------------------------|
| Name of substance | CAS No | Type of registration | Chemical formula | Ozone-depleting potential |
| Carbon tetrachloride | 56-23-5 | Annex I - G-IV | CCl ₄ | 1.1 |
| 1,1,1-Trichloroethane | 71-55-6 | Annex I - G-V | C ₂ H ₃ Cl ₃ | 0.1 |

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Regulation concerning the export and import of hazardous chemicals (PIC)

chemicals subject to the international prior informed consent (PIC) procedure (the 'PIC procedure').

| Name of substance | Name acc. to inventory | CAS No | Wt% | Category / subcategory | Use limitation |
|-----------------------|--|---------|-----|------------------------|----------------|
| Carbon tetrachloride | carbon tetrachloride | 56-23-5 | 0,1 | i(2) | b |
| 1,1,1-Trichloroethane | 1,1,1-trichloroethane | 71-55-6 | 0,1 | i(2) | b |
| Trichloromethane | chloroform | 67-66-3 | 0,1 | i(2) | b |
| Benzene | benzene | 71-43-2 | 0,1 | i(2) | sr |
| Benzene | Benzene as a constituent of other substances in concentrations equal to, or greater than 0,1 % by weight | | 0,1 | i(2) | sr |

Legend

- b Use limitation: ban (for the sub-category or sub-categories concerned) according to Union legislation
i(2) Sub-category: i(2) - industrial chemical for public use
sr Use limitation: severe restriction (for the sub-category or sub-categories concerned) according to Union legislation

Regulation on persistent organic pollutants (POP)

none of the ingredients are listed

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.

UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances

| Name of substance | CAS No | Listed in | HS code |
|-------------------|----------|-----------|---------|
| Toluene | 108-88-3 | Table II | 2902.30 |

National inventories

| Country | Inventory | Status |
|---------|------------|--------------------------------|
| AU | AIIC | all ingredients are listed |
| CA | DSL | not all ingredients are listed |
| CA | NDSL | not all ingredients are listed |
| CN | IECSC | all ingredients are listed |
| EU | ECSI | all ingredients are listed |
| EU | REACH Reg. | not 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 | not all ingredients are listed |
| NZ | NZIoC | all ingredients are listed |
| PH | PICCS | not all ingredients are listed |
| TR | CICR | not all ingredients are listed |

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| Country | Inventory | Status |
|---------|-----------|--|
| TW | TCSI | all ingredients are listed |
| US | TSCA | all ingredients are listed as "ACTIVE" |

Legend

| | |
|------------|---|
| AIIC | Australian Inventory of Industrial Chemicals |
| 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 |
| NDSL | Non-domestic Substances List (NDSL) |
| 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

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|-----------------|--|
| 2000/39/EC | Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC |
| 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 |
| 2017/164/EU | Commission Directive establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU |
| 2019/130/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 |
| 2022/431/EU | Directive (EU) 2022/431 of the European Parliament and of the Council of 9 March 2022 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) |
| Aquatic Chronic | Hazardous to the aquatic environment - chronic hazard |
| Asp. Tox. | Aspiration hazard |
| 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 |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures |

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VOC - Standard Solution ROTI®Star 14 components in methanol

article number: 20K9

| Abbr. | Descriptions of used abbreviations |
|------------|---|
| CN Code | Combined Nomenclature |
| COD | Chemical oxygen demand |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| 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) |
| 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 |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| HS | Harmonized Commodity Description and Coding System (Harmonized System, drawn up by the World Customs Organisation) |
| IARC | International Agency for Research on Cancer |
| 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 |
| Muta. | Germ cell mutagenicity |
| NLP | No-Longer Polymer |
| NTP-RoC | National Toxicology Program: Report on Carcinogens |

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| Abbr. | Descriptions of used abbreviations |
|----------------------|---|
| Ozone | Hazardous to the ozone layer |
| PBT | Persistent, Bioaccumulative and Toxic |
| PNEC | Predicted No-Effect Concentration |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| Repr. | Reproductive toxicity |
| RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |
| S.I. No. 619 of 2001 | Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 |
| Skin Corr. | Corrosive to skin |
| Skin Irrit. | Irritant to skin |
| Skin Sens. | Skin sensitisation |
| STEL | Short-term exposure limit |
| STOT RE | Specific target organ toxicity - repeated exposure |
| STOT SE | Specific target organ toxicity - single exposure |
| SVHC | Substance of Very High Concern |
| TWA | Time-weighted average |
| UEL | Upper explosion limit (UEL) |
| VOC | Volatile Organic Compounds |
| vPvB | Very Persistent and very Bioaccumulative |

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

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. |
| H301 | Toxic if swallowed. |
| H302 | Harmful if swallowed. |
| H304 | May be fatal if swallowed and enters airways. |
| H311 | Toxic in contact with skin. |

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| Code | Text |
|-------|--|
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H319 | Causes serious eye irritation. |
| H331 | Toxic if inhaled. |
| H332 | Harmful if inhaled. |
| H336 | May cause drowsiness or dizziness. |
| H340 | May cause genetic defects. |
| H341 | Suspected of causing genetic defects. |
| H350 | May cause cancer. |
| H351 | Suspected of causing cancer. |
| H361d | Suspected of damaging the unborn child. |
| H370 | Causes damage to organs (eye). |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H411 | Toxic to aquatic life with long lasting effects. |
| H412 | Harmful to aquatic life with long lasting effects. |
| H420 | Harms public health and the environment by destroying ozone in the upper atmosphere. |

Disclaimer

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