

Safety data sheet
according to Regulation (EC) No 1907/2006, Annex II (last amended by
Regulation (EU) 2020/878)

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

1.1 Product identifier

Fleckenwasser

Art.: 36999

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

Relevant identified uses of the substance or mixture:

Cleaner

Uses advised against:

No information available at present.

1.3 Details of the supplier of the safety data sheet

Koch-Chemie GmbH

Einsteinstrasse 42

59423 Unna

Telefon: +49 (0) 2303 / 9 86 70 - 0

Fax: +49 (0) 2303 / 9 86 70 - 26

info@koch-chemie.com

www.koch-chemie.com

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

1.4 Emergency telephone number

Emergency information services / official advisory body:

IRL

National Poisons Information Centre, Beaumont Hospital, Dublin 9, Ireland, Tel.:

+353 (0)1 809 2166 (Public Poisons Info Line, 8am-10pm, 7 days a week)

+353 (0)1 809 2566 (Info for Healthcare Professionals ONLY, 24 h, 7 days a week)

Telephone number of the company in case of emergencies:

+1 872 5888271 (KCC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1272/2008 (CLP)

| Hazard class | Hazard category | Hazard statement |
|---------------------|------------------------|---|
| Flam. Liq. | 2 | H225-Highly flammable liquid and vapour. |
| Skin Sens. | 1 | H317-May cause an allergic skin reaction. |
| Asp. Tox. | 1 | H304-May be fatal if swallowed and enters airways. |
| STOT SE | 3 | H336-May cause drowsiness or dizziness. |
| Aquatic Chronic | 2 | H411-Toxic to aquatic life with long lasting effects. |

2.2 Label elements

Labeling according to Regulation (EC) 1272/2008 (CLP)



Danger

H225-Highly flammable liquid and vapour. H317-May cause an allergic skin reaction. H304-May be fatal if swallowed and enters airways. H336-May cause drowsiness or dizziness. H411-Toxic to aquatic life with long lasting effects.

P210-Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261-Avoid breathing vapours or spray. P273-Avoid release to the environment. P280-Wear protective gloves.

P301+P310-IF SWALLOWED: Immediately call a POISON CENTER / doctor. P312-Call a POISON CENTRE / doctor if you feel unwell. P331-Do NOT induce vomiting.

EUH066-Repeated exposure may cause skin dryness or cracking.

Propan-2-ol
(R)-p-mentha-1,8-diene
Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics
Citral

2.3 Other hazards

The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).

The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).

The mixture does not contain any substance with endocrine disrupting properties (< 0,1 %).

SECTION 3: Composition/information on ingredients

3.1 Substances

n.a.

3.2 Mixtures

| | |
|---|---|
| Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics | |
| Registration number (REACH) | 01-2119473851-33-XXXX |
| Index | --- |
| EINECS, ELINCS, NLP, REACH-IT List-No. | 920-750-0 |
| CAS | --- |
| content % | 75-<100 |
| Classification according to Regulation (EC) 1272/2008 (CLP), M-factors | EUH066 Flam. Liq. 2, H225 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 |
| Propan-2-ol | |
| Registration number (REACH) | 01-2119457558-25-XXXX |

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| | |
|---|---|
| Index | 603-117-00-0 |
| EINECS, ELINCS, NLP, REACH-IT List-No. | 200-661-7 |
| CAS | 67-63-0 |
| content % | 1-<5 |
| Classification according to Regulation (EC) 1272/2008 (CLP), M-factors | Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 |

| | |
|---|---|
| (R)-p-mentha-1,8-diene | |
| Registration number (REACH) | 01-2119529223-47-XXXX |
| Index | 601-096-00-2 |
| EINECS, ELINCS, NLP, REACH-IT List-No. | 227-813-5 |
| CAS | 5989-27-5 |
| content % | 1-<5 |
| Classification according to Regulation (EC) 1272/2008 (CLP), M-factors | Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 3, H412 |

| | |
|---|--|
| n-butyl acetate | Substance for which an EU exposure limit value applies. |
| Registration number (REACH) | 01-2119485493-29-XXXX |
| Index | 607-025-00-1 |
| EINECS, ELINCS, NLP, REACH-IT List-No. | 204-658-1 |
| CAS | 123-86-4 |
| content % | 1-<5 |
| Classification according to Regulation (EC) 1272/2008 (CLP), M-factors | EUH066 Flam. Liq. 3, H226 STOT SE 3, H336 |

| | |
|---|---|
| Acetone | Substance for which an EU exposure limit value applies. |
| Registration number (REACH) | 01-2119471330-49-XXXX |
| Index | 606-001-00-8 |
| EINECS, ELINCS, NLP, REACH-IT List-No. | 200-662-2 |
| CAS | 67-64-1 |
| content % | 1-<5 |
| Classification according to Regulation (EC) 1272/2008 (CLP), M-factors | EUH066 Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 |

| | |
|---|---|
| Butanone | Substance for which an EU exposure limit value applies. |
| Registration number (REACH) | 01-2119457290-43-XXXX |
| Index | 606-002-00-3 |
| EINECS, ELINCS, NLP, REACH-IT List-No. | 201-159-0 |
| CAS | 78-93-3 |
| content % | 1-<5 |
| Classification according to Regulation (EC) 1272/2008 (CLP), M-factors | EUH066 Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 |

| | |
|---|-----------------------|
| Citral | |
| Registration number (REACH) | 01-2119462829-23-XXXX |
| Index | 605-019-00-3 |
| EINECS, ELINCS, NLP, REACH-IT List-No. | 226-394-6 |

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| | |
|---|---|
| CAS | 5392-40-5 |
| content % | 0,1-<1 |
| Classification according to Regulation (EC) 1272/2008 (CLP), M-factors | Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 |

For the text of the H-phrases and classification codes (GHS/CLP), see Section 16.

The substances named in this section are given with their actual, appropriate classification!

For substances that are listed in appendix VI, table 3.1 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.

The addition of the highest concentrations listed here can result in a classification. Only when this classification is listed in Section 2 does it apply. In all other cases the total concentration is below the classification.

SECTION 4: First aid measures

4.1 Description of first aid measures

First-aiders should ensure they are protected!

Never pour anything into the mouth of an unconscious person!

Inhalation

Remove person from danger area.

Supply person with fresh air and consult doctor according to symptoms.

If the person is unconscious, place in a stable side position and consult a doctor.

Skin contact

Remove polluted, soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin (flare), consult a doctor.

Eye contact

Remove contact lenses.

Wash thoroughly for several minutes using copious water. Seek medical help if necessary.

Ingestion

Rinse the mouth thoroughly with water.

Do not induce vomiting. Consult doctor immediately.

Danger of aspiration.

In case of vomiting, keep head low so that the stomach content does not reach the lungs.

Immediate admittance to a hospital.

4.2 Most important symptoms and effects, both acute and delayed

If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.

In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.

Coughing

Headaches

Dizziness

Fatigue

Coordination disorders

Unconsciousness

Drying of the skin.

Dermatitis (skin inflammation)

Allergic reaction

Ingestion:

Nausea

Vomiting

Danger of aspiration.

Oedema of the lungs

Chemical pneumonitis (condition similar to pneumonia)

4.3 Indication of any immediate medical attention and special treatment needed

Gastric lavage (stomach washing) only under endotracheal intubation.

Pulmonary oedema prophylaxis

Subsequent observation for pneumonia and pulmonary oedema.

SECTION 5: Firefighting measures

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5.1 Extinguishing media

Suitable extinguishing media

CO₂

Extinction powder

Water jet spray

Alcohol resistant foam

Unsuitable extinguishing media

High volume water jet

5.2 Special hazards arising from the substance or mixture

In case of fire the following can develop:

Oxides of carbon

Toxic gases

Possible build up of explosive/highly flammable vapour/air mixture.

5.3 Advice for firefighters

For personal protective equipment see Section 8.

In case of fire and/or explosion do not breathe fumes.

Protective respirator with independent air supply.

According to size of fire

Full protection, if necessary.

Cool container at risk with water.

Dispose of contaminated extinction water according to official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

In case of spillage or accidental release, wear personal protective equipment as specified in section 8 to prevent contamination.

Ensure sufficient ventilation, remove sources of ignition.

Avoid dust formation with solid or powder products.

Leave the danger zone if possible, use existing emergency plans if necessary.

Avoid inhalation, and contact with eyes or skin.

If applicable, caution - risk of slipping.

6.1.2 For emergency responders

See section 8 for suitable protective equipment and material specifications.

6.2 Environmental precautions

If leakage occurs, dam up.

Resolve leaks if this possible without risk.

Prevent surface and ground-water infiltration, as well as ground penetration.

Prevent from entering drainage system.

If accidental entry into drainage system occurs, inform responsible authorities.

6.3 Methods and material for containment and cleaning up

Soak up with absorbent material (e.g. universal binding agent, sand, diatomaceous earth) and dispose of according to Section 13.

Use no flammable substances.

Fill the absorbed material into lockable containers.

6.4 Reference to other sections

For personal protective equipment see Section 8 and for disposal instructions see Section 13.

SECTION 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

7.1 Precautions for safe handling

7.1.1 General recommendations

Ensure good ventilation.

Avoid inhalation of the vapours.

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If applicable, suction measures at the workstation or on the processing machine necessary.

Keep away from sources of ignition - Do not smoke.

Take measures against electrostatic charging, if appropriate.

Use explosion-proof equipment / explosion-protected tools if necessary.

Avoid contact with eyes or skin.

Also seal emptied tanks and tanks in the process after they have been used.

Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.

Observe directions on label and instructions for use.

Use working methods according to operating instructions.

7.1.2 Notes on general hygiene measures at the workplace

General hygiene measures for the handling of chemicals are applicable.

Wash hands before breaks and at end of work.

Keep away from food, drink and animal feedingstuffs.

Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals.

Store product closed and only in original packing.

Not to be stored in gangways or stair wells.

Under all circumstances prevent penetration into the soil.

Observe special storage conditions.

Do not store with flammable or self-igniting materials.

Protect from direct sunlight and warming.

Earth devices.

Store in a well ventilated place.

Store cool.

7.3 Specific end use(s)

No information available at present.

Observe the instructions for good working practice and the recommendations for risk assessment.

Consult hazardous substance information systems, e.g. from the professional associations, the chemical industry or different industries,

depending on the application (building materials, wood, chemistry, laboratory, leather, metal).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Workplace exposure limit (WEL) of the total hydrocarbon solvent content of the mixture (RCP method according to EH40):
 1200 mg/m³

| GB | Chemical Name | Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics | |
|----|---------------------------------|--|-----|
| | WEL-TWA: 1200 mg/m ³ | WEL-STEL: --- | --- |
| | Monitoring procedures: | - Draeger - Hydrocarbons 0,1%/c (81 03 571) - Draeger - Hydrocarbons 2/a (81 03 581) - Compur - KITA-187 S (551 174) | |
| | BMGV: --- | Other information: (OEL acc. to RCP-method, paragraphs 84-87, EH40) | |

| IRL | Chemical Name | Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics | |
|-----|--|--|-----|
| | OELV-8h: 100 ppm (573 mg/m ³) ("Stoddard solvent", [White spirit]) | OELV-15min: --- | --- |
| | Monitoring procedures: | - Draeger - Hydrocarbons 0,1%/c (81 03 571) - Draeger - Hydrocarbons 2/a (81 03 581) - Compur - KITA-187 S (551 174) | |
| | BLV: --- | Other information: --- | |

| GB | Chemical Name | Propan-2-ol | |
|----|---|---|-----|
| | WEL-TWA: 400 ppm (999 mg/m ³) | WEL-STEL: 500 ppm (1250 mg/m ³) | --- |
| | Monitoring procedures: | - Draeger - Alcohol 25/a i-Propanol (81 01 631) - Compur - KITA-122 SA(C) (549 277) - Compur - KITA-150 U (550 382) | |

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- DFG (D) (Lösungsmittelgemische), DFG (E) (Solvent mixtures 6) - 2013, 2002 -
- EU project BC/CEN/ENTR/000/2002-16 card 66-3 (2004)
- NIOSH 1400 (ALCOHOLS I) - 1994
- NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996
- Draeger - Alcohol 100/a (CH 29 701)

BMGV: ---

Other information: ---

| Chemical Name | Propan-2-ol | | |
|--|---|-----|--|
| OELV-8h: 200 ppm | OELV-15min: 400 ppm | --- | |
| Monitoring procedures: | <ul style="list-style-type: none"> - Draeger - Alcohol 25/a i-Propanol (81 01 631) - Compur - KITA-122 SA(C) (549 277) - Compur - KITA-150 U (550 382) - DFG (D) (Lösungsmittelgemische), DFG (E) (Solvent mixtures 6) - 2013, 2002 - - EU project BC/CEN/ENTR/000/2002-16 card 66-3 (2004) - NIOSH 1400 (ALCOHOLS I) - 1994 - NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996 - Draeger - Alcohol 100/a (CH 29 701) | | |
| BLV: 40 mg/l (acetone, U, d) (ACGIH-BEI) | Other information: Sk | | |

| Chemical Name | n-butyl acetate | | |
|--|--|-----|--|
| WEL-TWA: 150 ppm (724 mg/m ³) (WEL-TWA), 50 ppm (241 mg/m ³) (EU) | WEL-STEL: 200 ppm (966 mg/m ³) (WEL-STEL), 150 ppm (723 mg/m ³) (EU) | --- | |
| Monitoring procedures: | <ul style="list-style-type: none"> - Compur - KITA-138 U (548 857) - Compur - KITA-139 SB(C) (549 731) - NIOSH 1450 (ESTERS 1) - 2003 - NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996 - OSHA 1009 (n-Butyl Acetate Isobutyl Acetate sec-Butyl Acetate tert-Butyl Acetate) - 2007 | | |
| BMGV: --- | Other information: --- | | |

| Chemical Name | n-butyl acetate | | |
|--|--|-----|--|
| OELV-8h: 50 ppm (241 mg/m ³) (OELV-8h, EU) | OELV-15min: 150 ppm (723 mg/m ³) (OELV-15min, EU) | --- | |
| Monitoring procedures: | <ul style="list-style-type: none"> - Compur - KITA-138 U (548 857) - Compur - KITA-139 SB(C) (549 731) - NIOSH 1450 (ESTERS 1) - 2003 - NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996 - OSHA 1009 (n-Butyl Acetate Isobutyl Acetate sec-Butyl Acetate tert-Butyl Acetate) - 2007 | | |
| BLV: --- | Other information: --- | | |

| Chemical Name | n-butyl acetate | | |
|--|--|-----|--|
| OELV-8h: 50 ppm (241 mg/m ³) (OELV-8h, EU) | OELV-ST: 150 ppm (723 mg/m ³) (OELV-ST, EU) | --- | |
| Monitoring procedures: | <ul style="list-style-type: none"> - Compur - KITA-138 U (548 857) - Compur - KITA-139 SB(C) (549 731) - NIOSH 1450 (ESTERS 1) - 2003 - NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996 - OSHA 1009 (n-Butyl Acetate Isobutyl Acetate sec-Butyl Acetate tert-Butyl Acetate) - 2007 | | |
| BMGV: --- | Other information: --- | | |

| Chemical Name | Acetone | | |
|--|--|-----|--|
| WEL-TWA: 500 ppm (1210 mg/m ³) (WEL-TWA, EU) | WEL-STEL: 1500 ppm (3620 mg/m ³) (WEL-STEL) | --- | |
| Monitoring procedures: | <ul style="list-style-type: none"> - Draeger - Acetone 100/b (CH 22 901) - Draeger - Acetone 40/a (5) (81 03 381) - Compur - KITA-102 SA (548 534) - Compur - KITA-102 SC (548 550) - Compur - KITA-102 SD (551 109) - INSH T MTA/MA-031/A96 (Determination of ketones (acetone, methyl ethyl ketone, methyl isobutyl ketone) in air - Charcoal tube method / Gas chromatography) - 1996 - EU project BC/CEN/ENTR/000/2002-16 card 67-1 (2004) | | |

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- MDHS 72 (Volatile organic compounds in air – Laboratory method using pumped solid sorbent tubes, thermal desorption and gas chromatography) - 1993
- NIOSH 1300 (KETONES I) - 1994
- NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996
- NIOSH 2555 (KETONES I) - 2003
- NIOSH 3800 (ORGANIC AND INORGANIC GASES BY EXTRACTIVE FTIR SPECTROMETRY) - 2016
- OSHA 69 (Acetone) - 1988

BMGV: ---

Other information: ---

Chemical Name Acetone

OELV-8h: 500 ppm (1210 mg/m³) (OELV-8h, EU)

OELV-15min: ---

Monitoring procedures:

- Draeger - Acetone 100/b (CH 22 901)
- Draeger - Acetone 40/a (5) (81 03 381)
- Compur - KITA-102 SA (548 534)
- Compur - KITA-102 SC (548 550)
- Compur - KITA-102 SD (551 109)
- INSHT MTA/MA-031/A96 (Determination of ketones (acetone, methyl ethyl ketone, methyl isobutyl ketone) in air - Charcoal tube method / Gas chromatography) - 1996 - EU project BC/CEN/ENTR/000/2002-16 card 67-1 (2004)
- MDHS 72 (Volatile organic compounds in air – Laboratory method using pumped solid sorbent tubes, thermal desorption and gas chromatography) - 1993
- NIOSH 1300 (KETONES I) - 1994
- NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996
- NIOSH 2555 (KETONES I) - 2003
- NIOSH 3800 (ORGANIC AND INORGANIC GASES BY EXTRACTIVE FTIR SPECTROMETRY) - 2016
- OSHA 69 (Acetone) - 1988

BLV: 50 mg/l (U, b) (ACGIH-BEI)

Other information: IOELV

Chemical Name Acetone

OELV-8h: 500 ppm (1210 mg/m³) (OELV-8h, EU)

OELV-ST: ---

Monitoring procedures:

- Draeger - Acetone 100/b (CH 22 901)
- Draeger - Acetone 40/a (5) (81 03 381)
- Compur - KITA-102 SA (548 534)
- Compur - KITA-102 SC (548 550)
- Compur - KITA-102 SD (551 109)
- INSHT MTA/MA-031/A96 (Determination of ketones (acetone, methyl ethyl ketone, methyl isobutyl ketone) in air - Charcoal tube method / Gas chromatography) - 1996 - EU project BC/CEN/ENTR/000/2002-16 card 67-1 (2004)
- MDHS 72 (Volatile organic compounds in air – Laboratory method using pumped solid sorbent tubes, thermal desorption and gas chromatography) - 1993
- NIOSH 1300 (KETONES I) - 1994
- NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996
- NIOSH 2555 (KETONES I) - 2003
- NIOSH 3800 (ORGANIC AND INORGANIC GASES BY EXTRACTIVE FTIR SPECTROMETRY) - 2016
- OSHA 69 (Acetone) - 1988

BMGV: ---

Other information: ---

Chemical Name Butanone

WEL-TWA: 200 ppm (600 mg/m³) (WEL-TWA, EU)

WEL-STEL: 300 ppm (899 mg/m³) (WEL-STEL), 300 ppm (900 mg/m³) (EU)

Monitoring procedures:

- Compur - KITA-122 SA(C) (549 277)
- Compur - KITA-139 SB (549 731)
- Compur - KITA-139 U (549 749)
- DFG Meth.-Nr. 4 (D) (Lösungsmittelgemische 4), DFG (E) (Solvent mixtures 4) - 2015, 2002

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- INSHT MTA/MA-031/A96 (Determination of ketones (acetone, methyl ethyl ketone, methyl isobutyl ketone) in air - Charcoal tube method / Gas chromatography) - 1996 - EU project BC/CEN/ENTR/000/2002-16 card 105-1 (2004)
- MDHS 72 (Volatile organic compounds in air – Laboratory method using pumped solid sorbent tubes, thermal desorption and gas chromatography) - 1993
- NIOSH 2500 (METHYL ETHYL KETONE) - 1996
- NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996
- NIOSH 2555 (KETONES I) - 2003
- NIOSH 3800 (ORGANIC AND INORGANIC GASES BY EXTRACTIVE FTIR SPECTROMETRY) - 2016
- OSHA 1004 (2-Butanone (MEK) Hexone (MIBK)) - 2000

BMGV: 70 µmol butan-2-one/l in urine, post shift (BMGV)

Other information: Sk

Chemical Name Butanone

OELV-8h: 200 ppm (600 mg/m³) (OELV-8h, EU)

OELV-15min: 300 ppm (900 mg/m³) (OELV-15min, EU)

Monitoring procedures:

- Compur - KITA-122 SA(C) (549 277)
- Compur - KITA-139 SB (549 731)
- Compur - KITA-139 U (549 749)
- DFG Meth.-Nr. 4 (D) (Lösungsmittelgemische 4), DFG (E) (Solvent mixtures 4) - 2015, 2002
- INSHT MTA/MA-031/A96 (Determination of ketones (acetone, methyl ethyl ketone, methyl isobutyl ketone) in air - Charcoal tube method / Gas chromatography) - 1996 - EU project BC/CEN/ENTR/000/2002-16 card 105-1 (2004)
- MDHS 72 (Volatile organic compounds in air – Laboratory method using pumped solid sorbent tubes, thermal desorption and gas chromatography) - 1993
- NIOSH 2500 (METHYL ETHYL KETONE) - 1996
- NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996
- NIOSH 2555 (KETONES I) - 2003
- NIOSH 3800 (ORGANIC AND INORGANIC GASES BY EXTRACTIVE FTIR SPECTROMETRY) - 2016
- OSHA 1004 (2-Butanone (MEK) Hexone (MIBK)) - 2000

BLV: 70 µmol butan-2-one/l in urine, post shift (BMGV)

Other information: Sk, IOELV

Chemical Name Butanone

OELV-8h: 200 ppm (600 mg/m³) (OELV-8h, EU)

OELV-ST: 300 ppm (900 mg/m³) (OELV-ST, EU)

Monitoring procedures:

- Compur - KITA-122 SA(C) (549 277)
- Compur - KITA-139 SB (549 731)
- Compur - KITA-139 U (549 749)
- DFG Meth.-Nr. 4 (D) (Lösungsmittelgemische 4), DFG (E) (Solvent mixtures 4) - 2015, 2002
- INSHT MTA/MA-031/A96 (Determination of ketones (acetone, methyl ethyl ketone, methyl isobutyl ketone) in air - Charcoal tube method / Gas chromatography) - 1996 - EU project BC/CEN/ENTR/000/2002-16 card 105-1 (2004)
- MDHS 72 (Volatile organic compounds in air – Laboratory method using pumped solid sorbent tubes, thermal desorption and gas chromatography) - 1993
- NIOSH 2500 (METHYL ETHYL KETONE) - 1996
- NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996
- NIOSH 2555 (KETONES I) - 2003
- NIOSH 3800 (ORGANIC AND INORGANIC GASES BY EXTRACTIVE FTIR SPECTROMETRY) - 2016
- OSHA 1004 (2-Butanone (MEK) Hexone (MIBK)) - 2000

BMGV: 70 µmol butan-2-one/L in urine, post shift (BMGV)

Other information: ---

Chemical Name Citral

OELV-8h: 5 ppm (IFV)

OELV-15min: ---

Monitoring procedures: ---

BLV: ---

Other information: ---

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |
|---------------------|--|-----------------------------|------------|-------|------------|------|
| Consumer | Human - dermal | Long term, systemic effects | DNEL | 699 | mg/kg bw/d | |
| Consumer | Human - inhalation | Long term, systemic effects | DNEL | 608 | mg/m3 | |
| Consumer | Human - oral | Long term, systemic effects | DNEL | 699 | mg/kg bw/d | |
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 773 | mg/kg bw/d | |
| Workers / employees | Human - inhalation | Long term, systemic effects | DNEL | 2035 | mg/m3 | |

Propan-2-ol

| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |
|---------------------|--|-----------------------------|------------|-------|--------------|------|
| | Environment - freshwater | | PNEC | 140,9 | mg/l | |
| | Environment - marine | | PNEC | 140,9 | mg/l | |
| | Environment - sediment, freshwater | | PNEC | 552 | mg/kg dw | |
| | Environment - sediment, marine | | PNEC | 552 | mg/kg dw | |
| | Environment - soil | | PNEC | 28 | mg/kg dw | |
| | Environment - sewage treatment plant | | PNEC | 2251 | mg/l | |
| | Environment - water, sporadic (intermittent) release | | PNEC | 140,9 | mg/l | |
| | Environment - oral (animal feed) | | PNEC | 160 | mg/kg feed | |
| Consumer | Human - dermal | Long term, systemic effects | DNEL | 319 | mg/kg bw/day | |
| Consumer | Human - inhalation | Long term, systemic effects | DNEL | 89 | mg/m3 | |
| Consumer | Human - oral | Long term, systemic effects | DNEL | 26 | mg/kg bw/day | |
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 888 | mg/kg bw/day | |
| Workers / employees | Human - inhalation | Long term, systemic effects | DNEL | 500 | mg/m3 | |

(R)-p-mentha-1,8-diene

| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |
|---------------------|--|------------------|------------|--------|------------------|------|
| | Environment - freshwater | | PNEC | 14 | µg/l | |
| | Environment - marine | | PNEC | 1,4 | µg/l | |
| | Environment - sewage treatment plant | | PNEC | 1,8 | mg/l | |
| | Environment - sediment, freshwater | | PNEC | 3,85 | mg/kg dry weight | |
| | Environment - sediment, marine | | PNEC | 0,3851 | mg/kg dry weight | |

| | | | | | | |
|---------------------|----------------------------------|-----------------------------|------|-------|-----------------------|--|
| | Environment - soil | | PNEC | 0,763 | mg/kg dry weight | |
| | Environment - oral (animal feed) | | PNEC | 133 | mg/kg | |
| Workers / employees | Human - inhalation | Long term, systemic effects | DNEL | 66,7 | mg/m3 | |
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 9,5 | mg/kg body weight/day | |

| n-butyl acetate | | | | | | |
|----------------------------|---|------------------------------|-------------------|--------------|--------------|-------------|
| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |
| | Environment - freshwater | | PNEC | 0,18 | mg/l | |
| | Environment - marine | | PNEC | 0,018 | mg/l | |
| | Environment - periodic release | | PNEC | 0,36 | mg/l | |
| | Environment - sediment, freshwater | | PNEC | 0,981 | mg/kg | |
| | Environment - sediment, marine | | PNEC | 0,0981 | mg/kg | |
| | Environment - soil | | PNEC | 0,0903 | mg/kg | |
| | Environment - sewage treatment plant | | PNEC | 35,6 | mg/l | |
| Consumer | Human - dermal | Long term, systemic effects | DNEL | 6 | mg/kg | |
| Consumer | Human - inhalation | Short term, systemic effects | DNEL | 300 | mg/m3 | |
| Consumer | Human - inhalation | Long term, systemic effects | DNEL | 35,7 | mg/m3 | |
| Consumer | Human - inhalation | Short term, local effects | DNEL | 300 | mg/m3 | |
| Consumer | Human - inhalation | Long term, local effects | DNEL | 35,7 | mg/m3 | |
| Consumer | Human - dermal | Short term, systemic effects | DNEL | 6 | mg/kg bw/day | |
| Consumer | Human - oral | Long term, systemic effects | DNEL | 2 | mg/kg bw/day | |
| Consumer | Human - oral | Short term, systemic effects | DNEL | 2 | mg/kg bw/day | |
| Workers / employees | Human - inhalation | Short term, systemic effects | DNEL | 600 | mg/m3 | |
| Workers / employees | Human - inhalation | Long term, systemic effects | DNEL | 300 | mg/m3 | |
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 11 | mg/kg bw/d | |
| Workers / employees | Human - dermal | Short term, systemic effects | DNEL | 11 | mg/kg bw/day | |
| Workers / employees | Human - inhalation | Short term, local effects | DNEL | 600 | mg/m3 | |
| Workers / employees | Human - inhalation | Long term, local effects | DNEL | 300 | mg/m3 | |

| Acetone | | | | | | |
|----------------------------|---|-------------------------|-------------------|--------------|-------------|-------------|
| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |

| | | | | | | |
|---------------------|---|-----------------------------|------|------|--------------|------------------------------|
| | Environment - marine | | PNEC | 1,06 | mg/l | Assessment factor 500 |
| | Environment - freshwater | | PNEC | 10,6 | mg/l | Assessment factor 50 |
| | Environment - sediment, freshwater | | PNEC | 30,4 | mg/kg dw | |
| | Environment - sediment, marine | | PNEC | 3,04 | mg/kg dw | |
| | Environment - soil | | PNEC | 29,5 | mg/kg dw | |
| | Environment - sewage treatment plant | | PNEC | 100 | mg/l | |
| | Environment - sporadic (intermittent) release | | PNEC | 21 | mg/l | Assessment factor 100 |
| Consumer | Human - oral | Long term, systemic effects | DNEL | 62 | mg/kg bw/day | Overall assessment factor 2 |
| Consumer | Human - dermal | Long term, systemic effects | DNEL | 62 | mg/kg bw/day | Overall assessment factor 20 |
| Consumer | Human - inhalation | Long term, systemic effects | DNEL | 200 | mg/m3 | Overall assessment factor 5 |
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 186 | mg/kg bw/day | |
| Workers / employees | Human - inhalation | Short term, local effects | DNEL | 2420 | mg/m3 | |
| Workers / employees | Human - inhalation | Long term, systemic effects | DNEL | 1210 | mg/m3 | |

| Butanone | | | | | | |
|---------------------|---|------------------|------------|--------|--------------|-----------------------------|
| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |
| | Environment - freshwater | | PNEC | 55,8 | mg/l | |
| | Environment - marine | | PNEC | 55,8 | mg/l | |
| | Environment - sediment, freshwater | | PNEC | 284,74 | mg/kg dw | |
| | Environment - sediment, marine | | PNEC | 284,7 | mg/kg dw | |
| | Environment - soil | | PNEC | 22,5 | mg/kg dw | |
| | Environment - sewage treatment plant | | PNEC | 709 | mg/l | |
| | Environment - sporadic (intermittent) release | | PNEC | 55,8 | mg/l | |
| | Environment - oral (animal feed) | | PNEC | 1000 | mg/kg | |
| Consumer | Human - dermal | Long term | DNEL | 412 | mg/kg bw/day | Overall assessment factor 2 |
| Consumer | Human - inhalation | Long term | DNEL | 106 | mg/m3 | Overall assessment factor 2 |
| Consumer | Human - oral | Long term | DNEL | 31 | mg/kg bw/day | Overall assessment factor 2 |

| | | | | | | |
|---------------------|--------------------|-----------|------|------|-----------------|--|
| Workers / employees | Human - dermal | Long term | DNEL | 1161 | mg/kg bw/day | |
| Workers / employees | Human - inhalation | Long term | DNEL | 600 | mg/m3 | |

| Citral | | | | | | |
|---------------------|--|-----------------------------|------------|----------|--------|------|
| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |
| | Environment - freshwater | | PNEC | 0,00678 | mg/l | |
| | Environment - marine | | PNEC | 0,000678 | mg/l | |
| | Environment - water, sporadic (intermittent) release | | PNEC | 0,0678 | mg/l | |
| | Environment - sewage treatment plant | | PNEC | 1,6 | mg/l | |
| | Environment - sediment, freshwater | | PNEC | 0,125 | mg/kg | |
| | Environment - sediment, marine | | PNEC | 0,0125 | mg/kg | |
| | Environment - soil | | PNEC | 0,0209 | mg/kg | |
| Consumer | Human - dermal | Long term, systemic effects | DNEL | 1 | mg/kg | |
| Consumer | Human - inhalation | Long term, systemic effects | DNEL | 2,7 | mg/m3 | |
| Consumer | Human - oral | Long term, systemic effects | DNEL | 0,6 | mg/kg | |
| Consumer | Human - dermal | Long term, local effects | DNEL | 0,14 | mg/cm2 | |
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 1,7 | mg/kg | |
| Workers / employees | Human - inhalation | Long term, systemic effects | DNEL | 9 | mg/m3 | |
| Workers / employees | Human - dermal | Long term, local effects | DNEL | 0,14 | mg/cm2 | |

GB - United Kingdom | WEL-TWA = Workplace Exposure Limit - Long-term exposure limit - 8-hour TWA (= time weighted average) reference period (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/CE, 2017/164/EU). (9) = Respirable fraction (2004/37/CE, 2017/164/EU). (11) = Inhalable fraction (2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (2004/37/CE). |
| WEL-STEL = Workplace Exposure Limit - Short-term exposure limit - 15-minute reference period (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/CE, 2017/164/EU). (9) = Respirable fraction (2004/37/CE, 2017/164/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). |
| BMGV = Biological monitoring guidance value (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 98/24/EC or 2004/37/EC or SCOEL (Biological Limit Value - BLV, Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL)) |
| Other information (EH40/2005 Workplace exposure limits (Fourth Edition 2020)): Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, 2019/1831/EU or 2024/869/EU:
(13) = The substance can cause sensitisation of the skin and of the respiratory tract (98/24/EC, 2004/37/CE), (14) = The substance can cause sensitisation of the skin (2004/37/CE), (15) = Substantial contribution to the total body burden via dermal exposure possible. |

IRL - Ireland/Éire | OELV-8h = Occupational Exposure Limit Value - 8-hour reference period (Chemical Agents and Carcinogens CoP (Code of Practice) 2021, HSA (Health and Safety Authority)): (IFV) = Inhalable Fraction and Vapour. (I) = Inhalable Fraction. (R) =

Respirable Fraction.

(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU: (8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (11) = Inhalable fraction (2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (2004/37/CE). | | OELV-15min = Occupational Exposure Limit Value - 15-minute reference period (Chemical Agents and Carcinogens CoP (Code of Practice) 2021, HSA (Health and Safety Authority)): (IFV) = Inhalable Fraction and Vapour. (I) = Inhalable Fraction. (R) = Respirable Fraction.

(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU: (8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). |

| BMGV = Biological Monitoring Guidance Value (Biological Monitoring Guidelines 2011, HSA (Health and Safety Authority)): ACGIH-BEI = BMGV have been sourced from Biological Exposure Indices (BEI) as issued by the American Conference of Governmental Industrial Hygienists (ACGIH). SCOEL = BMGV have been sourced from the Scientific Committee on Occupational Exposure Limit Values (SCOEL) which was set up by a Commission Decision (95/320/EC) with the mandate to advise the European Commission on occupational exposure limits for chemicals in the workplace. HSE = BMGV have been sourced from the Health and Safety Executive (HSE), UK.

(EU) = Directive 98/24/EC or 2004/37/EC or SCOEL (Biological Limit Value - BLV, Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL)) |

| Other information (Chemical Agents and Carcinogens CoP (Code of Practice) 2021, HSA (Health and Safety Authority)): Carc1A, Carc1B = carcinogenic substance, Cat. 1A or 1B. Muta1A, Muta1B = mutagenic substance, Cat. 1A or 1B. Repr1A, Repr1B = Substances known to be toxic for reproduction, Cat. 1A or 1B. Sk = can be absorbed through skin. Asphx = asphyxiant. Sen = Respiratory sensitizer. BOELV = Binding Occupational Exposure Limit Values. IOELV = Indicative Occupational Exposure Limit Values.

(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, 2019/1831/EU or 2024/869/EU:

(13) = The substance can cause sensitisation of the skin and of the respiratory tract (98/24/EC, 2004/37/CE), (14) = The substance can cause sensitisation of the skin (2004/37/CE), (15) = Substantial contribution to the total body burden via dermal exposure possible. |

(M) - Malta | OELV-8h = Occupational Exposure Limit Value - 8 h (8-hour reference period as a time-weighted average) [S.L.424.24, last amended by L.N. 356 of 2021]: [9] = Inhalable fraction, [10] = Respirable fraction.

(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU: (8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (11) = Inhalable fraction (2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (2004/37/CE). |

| OELV-ST = Occupational Exposure Limit Value - Short-term (15-minute reference period) [S.L.424.24, last amended by L.N. 356 of 2021]: [8] = Short-term exposure limit value in relation to a reference period of 1 minute, [9] = Inhalable fraction, [10] = Respirable fraction.

(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU: (8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). |

| BMGV = Biological monitoring guidance value (EH40/2005 Workplace exposure limits (Fourth Edition 2020), United Kingdom).

(EU) = Directive 98/24/EC or 2004/37/EC or SCOEL (Biological Limit Value - BLV, Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL)) |

| Other information [S.L.424.24, last amended by L.N. 356 of 2021]: Skin = Possibility of a significant uptake through the skin. [11] = When selecting an appropriate exposure monitoring method, account should be taken of potential limitations and interferences that may arise in the presence of other sulphur compounds. [12] = The mist is defined as the thoracic fraction. [13] = Established in accordance with the Annex to Directive 91/322/EEC. [14] = During exposure monitoring for mercury and its divalent inorganic compounds, account should be taken of relevant biological monitoring techniques that complement the OELV.

(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, 2019/1831/EU or 2024/869/EU:

(EU13) = The substance can cause sensitisation of the skin and of the respiratory tract (2004/37/CE), (EU14) = The substance can cause sensitisation of the skin (2004/37/CE), (EU15) = Substantial contribution to the total body burden via dermal exposure possible. |

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.

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If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.

Applies only if maximum permissible exposure values are listed here.

Suitable assessment methods for reviewing the effectiveness of protection measures adopted include metrological and non-metrological investigative techniques.

These are specified by e.g. EN 14042.

EN 14042 "Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents".

8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.

Wash hands before breaks and at end of work.

Keep away from food, drink and animal feedingstuffs.

Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:

Tight fitting protective goggles with side protection (EN 166).

Skin protection - Hand protection:

Solvent resistant protective gloves (EN ISO 374).

Recommended

Protective nitrile gloves (EN ISO 374).

Minimum layer thickness in mm:

> 0,4

Permeation time (penetration time) in minutes:

> 480

Protective hand cream recommended.

The breakthrough times determined in accordance with EN 16523-1 were not obtained under practical conditions.

The recommended maximum wearing time is 50% of breakthrough time.

Skin protection - Other:

Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments).

Respiratory protection:

If OES or MEL is exceeded.

Filter A P2 (EN 14387), code colour brown, white

Observe wearing time limitations for respiratory protection equipment.

Thermal hazards:

Not applicable

Additional information on hand protection - No tests have been performed.

In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.

Selection of materials derived from glove manufacturer's indications.

Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.

Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.

In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.

The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls

No information available at present.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:

Liquid

Colour:

Colourless

Odour:

Characteristic

Melting point/freezing point:

There is no information available on this parameter.

Boiling point or initial boiling point and boiling range:

There is no information available on this parameter.

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| | |
|--|--|
| Flammability: | There is no information available on this parameter. |
| Lower explosion limit: | There is no information available on this parameter. |
| Upper explosion limit: | There is no information available on this parameter. |
| Flash point: | -5 °C |
| Auto-ignition temperature: | There is no information available on this parameter. |
| Decomposition temperature: | There is no information available on this parameter. |
| pH: | Mixture is non-soluble (in water). |
| Kinematic viscosity: | <=20,5 mm ² /s (40°C) |
| Solubility: | Insoluble |
| Partition coefficient n-octanol/water (log value): | Does not apply to mixtures. |
| Vapour pressure: | There is no information available on this parameter. |
| Density and/or relative density: | 0,72 - 0,76 g/ml |
| Relative vapour density: | There is no information available on this parameter. |
| Particle characteristics: | Does not apply to liquids. |

9.2 Other information

No information available at present.

SECTION 10: Stability and reactivity

10.1 Reactivity

The product has not been tested.

10.2 Chemical stability

Stable with proper storage and handling.

10.3 Possibility of hazardous reactions

No dangerous reactions are known.

10.4 Conditions to avoid

See also section 7.

Heating, open flame, ignition sources

Electrostatic charge

10.5 Incompatible materials

See also section 7.

Avoid contact with strong oxidizing agents.

10.6 Hazardous decomposition products

See also section 5.2

No decomposition when used as directed.

SECTION 11: Toxicological information

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

Possibly more information on health effects, see Section 2.1 (classification).

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|------------------------------------|----------|-------|------|----------|-------------|---|
| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | | | | | | n.d.a. |
| Acute toxicity, by dermal route: | | | | | | n.d.a. |
| Acute toxicity, by inhalation: | | | | | | n.d.a. |
| Skin corrosion/irritation: | | | | | | Repeated exposure may cause skin dryness or cracking. |
| Serious eye damage/irritation: | | | | | | n.d.a. |
| Respiratory or skin sensitisation: | | | | | | n.d.a. |
| Germ cell mutagenicity: | | | | | | n.d.a. |

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| | | | | | | |
|---|--|--|--|--|--|--------|
| Carcinogenicity: | | | | | | n.d.a. |
| Reproductive toxicity: | | | | | | n.d.a. |
| Specific target organ toxicity - single exposure (STOT-SE): | | | | | | n.d.a. |
| Specific target organ toxicity - repeated exposure (STOT-RE): | | | | | | n.d.a. |
| Aspiration hazard: | | | | | | n.d.a. |
| Symptoms: | | | | | | n.d.a. |

| Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics | | | | | | |
|---|----------|-------|---------|------------|--|---|
| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | LD50 | >5000 | mg/kg | Rat | OECD 401 (Acute Oral Toxicity) | |
| Acute toxicity, by dermal route: | LD50 | >2800 | mg/kg | Rabbit | OECD 402 (Acute Dermal Toxicity) | |
| Acute toxicity, by inhalation: | LC50 | >23,3 | mg/l/4h | Rat | OECD 403 (Acute Inhalation Toxicity) | Vapours |
| Skin corrosion/irritation: | | | | Rabbit | OECD 404 (Acute Dermal Irritation/Corrosion) | Not irritant |
| Skin corrosion/irritation: | | | | | | Repeated exposure may cause skin dryness or cracking. |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Not irritant |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 406 (Skin Sensitisation) | Not sensitising |
| Germ cell mutagenicity: | | | | | OECD 473 (In Vitro Mammalian Chromosome Aberration Test) | Negative |
| Germ cell mutagenicity: | | 2000 | mg/kg | Mouse | OECD 474 (Mammalian Erythrocyte Micronucleus Test) | Negative |
| Germ cell mutagenicity: | | | | | OECD 471 (Bacterial Reverse Mutation Test) | Negative |
| Reproductive toxicity: | | | | | OECD 414 (Prenatal Developmental Toxicity Study) | Negative |
| Reproductive toxicity: | LOAEL | 9000 | ppm | Rat | OECD 416 (Two-generation Reproduction Toxicity Study) | Negative |
| Specific target organ toxicity - single exposure (STOT-SE): | | | | | | STOT SE 3, H336 |
| Specific target organ toxicity - repeated exposure (STOT-RE): | | | | | OECD 413 (Subchronic Inhalation Toxicity - 90-Day Study) | Negative |
| Aspiration hazard: | | | | | | Yes |

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|-----------|--|--|--|--|--|--|
| Symptoms: | | | | | | drowsiness, unconsciousness, heart/circulatory disorders, headaches, cramps, drowsiness, mucous membrane irritation, dizziness, nausea and vomiting. |
|-----------|--|--|--|--|--|--|

| Propan-2-ol | | | | | | |
|---|----------|-------------|---------|------------------------|--|---|
| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | LD50 | 4570-5840 | mg/kg | Rat | OECD 401 (Acute Oral Toxicity) | |
| Acute toxicity, by dermal route: | LD50 | 12800-13900 | mg/kg | Rabbit | OECD 402 (Acute Dermal Toxicity) | |
| Acute toxicity, by inhalation: | LC50 | > 25 | mg/l/6h | Rat | OECD 403 (Acute Inhalation Toxicity) | Vapours |
| Acute toxicity, by inhalation: | LC50 | 46600 | mg/l/4h | Rat | | Aerosol |
| Skin corrosion/irritation: | | | | Rabbit | OECD 404 (Acute Dermal Irritation/Corrosion) | Not irritant |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Eye Irrit. 2 |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 406 (Skin Sensitisation) | No (skin contact) |
| Germ cell mutagenicity: | | | | Salmonella typhimurium | OECD 471 (Bacterial Reverse Mutation Test) | Negative |
| Germ cell mutagenicity: | | | | Mouse | OECD 474 (Mammalian Erythrocyte Micronucleus Test) | Negative |
| Germ cell mutagenicity: | | | | | OECD 476 (In Vitro Mammalian Cell Gene Mutation Test) | Negative |
| Carcinogenicity: | | | | | | Negative |
| Specific target organ toxicity - single exposure (STOT-SE): | | | | | | STOT SE 3, H336, May cause drowsiness or dizziness. |
| Specific target organ toxicity - repeated exposure (STOT-RE): | | | | | | Target organ(s): liver |
| Specific target organ toxicity - repeated exposure (STOT-RE), oral: | NOAEL | 900 | mg/kg | Rat | OECD 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents) | |
| Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.: | NOAEL | 5000 | ppm | Rat | | Vapours (OECD 451) |
| Aspiration hazard: | | | | | | No |

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| | | | | | | |
|-----------|--|--|--|--|--|---|
| Symptoms: | | | | | | breathing difficulties, unconsciousness, vomiting, headaches, fatigue, dizziness, nausea, eyes, reddened, watering eyes |
|-----------|--|--|--|--|--|---|

| (R)-p-mentha-1,8-diene | | | | | | |
|------------------------------------|-----------------|--------------|-------------|------------------------|---|---|
| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | LD50 | > 2000 | mg/kg | Rat | OECD 423 (Acute Oral Toxicity - Acute Toxic Class Method) | Female |
| Acute toxicity, by oral route: | LD50 | >5000 | mg/kg | Rat | OECD 401 (Acute Oral Toxicity) | |
| Acute toxicity, by dermal route: | LD50 | >5000 | mg/kg | Rabbit | OECD 402 (Acute Dermal Toxicity) | |
| Skin corrosion/irritation: | | | | Rabbit | | Skin Irrit. 2 |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Not irritant |
| Respiratory or skin sensitisation: | | | | Mouse | OECD 429 (Skin Sensitisation - Local Lymph Node Assay) | Skin Sens. 1B |
| Respiratory or skin sensitisation: | | | | Mouse | OECD 429 (Skin Sensitisation - Local Lymph Node Assay) | Skin Sens. 1 |
| Germ cell mutagenicity: | | | | Mouse | OECD 476 (In Vitro Mammalian Cell Gene Mutation Test) | Negative |
| Germ cell mutagenicity: | | | | | OECD 479 (Genetic Toxicology - In Vitro Sister Chromatid Exchange assay in Mammalian Cells) | Negative Chinese hamster |
| Germ cell mutagenicity: | | | | | OECD 473 (In Vitro Mammalian Chromosome Aberration Test) | Negative Chinese hamster |
| Germ cell mutagenicity: | | | | Salmonella typhimurium | OECD 471 (Bacterial Reverse Mutation Test) | Negative |
| Symptoms: | | | | | | diarrhoea, rash, itching, gastrointestinal disturbances, mucous membrane irritation, nausea and vomiting. |

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| | | | | | | |
|-----------|--|--|--|--|--|---|
| Symptoms: | | | | | | diarrhoea, rash, itching, gastrointestinal disturbances, mucous membrane irritation, nausea and vomiting. |
|-----------|--|--|--|--|--|---|

| n-butyl acetate | | | | | | |
|---|-----------------|--------------|-------------|------------------------|---|---|
| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | LD50 | 10760-13100 | mg/kg | Rat | OECD 423 (Acute Oral Toxicity - Acute Toxic Class Method) | Female |
| Acute toxicity, by dermal route: | LD50 | >17600 | mg/kg | Rabbit | OECD 402 (Acute Dermal Toxicity) | |
| Acute toxicity, by inhalation: | LC50 | >21,1 | mg/l/4h | Rat | OECD 403 (Acute Inhalation Toxicity) | Vapours |
| Skin corrosion/irritation: | | | | Rabbit | OECD 404 (Acute Dermal Irritation/Corrosion) | Not irritant, Repeated exposure may cause skin dryness or cracking. |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Not irritant |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 406 (Skin Sensitisation) | No (skin contact) |
| Germ cell mutagenicity: | | | | Salmonella typhimurium | OECD 471 (Bacterial Reverse Mutation Test) | Negative |
| Germ cell mutagenicity: | | | | Mouse | OECD 474 (Mammalian Erythrocyte Micronucleus Test) | Negative |
| Reproductive toxicity: | NOAEC | 9640 | mg/m3 | | OECD 416 (Two-generation Reproduction Toxicity Study) | Negative |
| Specific target organ toxicity - single exposure (STOT-SE): | | | | | | May cause drowsiness or dizziness. |
| Specific target organ toxicity - repeated exposure (STOT-RE): | | | | | | Negative |
| Specific target organ toxicity - repeated exposure (STOT-RE), oral: | NOAEL | 125 | mg/kg | Rat | Regulation (EC) 440/2008 B.26 (SUB-CHRONIC ORAL TOXICITY TEST REPEATED DOSE 90 - DAY (RODENTS)) | |
| Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.: | NOAEC | 500 | ppm | Rat | | |

| | | | | | | |
|-----------|--|--|--|--|--|---|
| Symptoms: | | | | | | unconsciousness, headaches, mucous membrane irritation, dizziness, nausea and vomiting. |
|-----------|--|--|--|--|--|---|

| Acetone | | | | | | |
|---|-----------------|--------------|-------------|------------------------|--|---|
| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | LD50 | 5800-7190 | mg/kg | Rat | OECD 401 (Acute Oral Toxicity) | |
| Acute toxicity, by dermal route: | LD50 | >15800 | mg/kg | Rat | | |
| Acute toxicity, by inhalation: | LC50 | 76 | mg/l/4h | Rat | | |
| Skin corrosion/irritation: | | | | Guinea pig | | Not irritant, Repeated exposure may cause skin dryness or cracking. |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Eye Irrit. 2 |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 406 (Skin Sensitisation) | Not sensitizing |
| Germ cell mutagenicity: | | | | Mouse | OECD 476 (In Vitro Mammalian Cell Gene Mutation Test) | Negative |
| Germ cell mutagenicity: | | | | Salmonella typhimurium | OECD 471 (Bacterial Reverse Mutation Test) | Negative |
| Germ cell mutagenicity: | | | | Mammalian | OECD 473 (In Vitro Mammalian Chromosome Aberration Test) | Negative |
| Carcinogenicity: | | | | Mouse | | Negative, References |
| Reproductive toxicity (Developmental toxicity): | NOAEC | 2200 | ppm | Rat | OECD 414 (Prenatal Developmental Toxicity Study) | Negative |
| Specific target organ toxicity - single exposure (STOT-SE): | | | | | | STOT SE 3, H336, May cause drowsiness or dizziness. |
| Specific target organ toxicity - repeated exposure (STOT-RE), oral: | NOAEL | 900 | mg/kg bw/d | Rat | OECD 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents) | |

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| | | | | | | |
|-----------|--|--|--|--|--|---|
| Symptoms: | | | | | | unconsciousness, vomiting, headaches, gastrointestinal disturbances, fatigue, mucous membrane irritation, dizziness, nausea, drowsiness |
|-----------|--|--|--|--|--|---|

| Butanone | | | | | | |
|---|-----------------|--------------|-------------|------------------------|---|---|
| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | LD50 | 2193 | mg/kg | Rat | OECD 423 (Acute Oral Toxicity - Acute Toxic Class Method) | |
| Acute toxicity, by dermal route: | LD50 | 5000 | mg/kg | Rabbit | OECD 402 (Acute Dermal Toxicity) | |
| Acute toxicity, by inhalation: | LC50 | 34-34,5 | mg/l/4h | Rat | | Vapours |
| Skin corrosion/irritation: | | | | Rabbit | OECD 404 (Acute Dermal Irritation/Corrosion) | Not irritant, Repeated exposure may cause skin dryness or cracking. |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Eye Irrit. 2 |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 406 (Skin Sensitisation) | Not sensitising |
| Germ cell mutagenicity: | | | | Salmonella typhimurium | OECD 471 (Bacterial Reverse Mutation Test) | Negative |
| Germ cell mutagenicity: | | | | Mouse | OECD 474 (Mammalian Erythrocyte Micronucleus Test) | Negative |
| Germ cell mutagenicity: | | | | Mouse | OECD 476 (In Vitro Mammalian Cell Gene Mutation Test) | Negative |
| Reproductive toxicity (Developmental toxicity): | NOAEC | 1002 | ppm | Rat | OECD 414 (Prenatal Developmental Toxicity Study) | Negative |
| Specific target organ toxicity - single exposure (STOT-SE): | | | | | | STOT SE 3, H336, May cause drowsiness or dizziness. |
| Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.: | NOAEC | 5041 | ppm/6h/d | Rat | OECD 413 (Subchronic Inhalation Toxicity - 90-Day Study) | Vapours, Negative |

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|-----------|--|--|--|--|--|--|
| Symptoms: | | | | | | respiratory distress, drowsiness, unconsciousness, drop in blood pressure, coughing, headaches, cramps, intoxication, drowsiness, mucous membrane irritation, dizziness, nausea and vomiting., mental confusion, fatigue |
|-----------|--|--|--|--|--|--|

| Citral | | | | | | |
|------------------------------------|----------|--------|-------|------------------------|--|--|
| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | LD50 | ~ 6800 | mg/kg | Rat | | |
| Acute toxicity, by dermal route: | LD50 | >2000 | mg/kg | Rat | | |
| Skin corrosion/irritation: | | | | Rabbit | | Irritant |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Eye Irrit. 2 |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 406 (Skin Sensitisation) | Yes (skin contact) |
| Germ cell mutagenicity: | | | | Salmonella typhimurium | OECD 471 (Bacterial Reverse Mutation Test) | Negative |
| Germ cell mutagenicity: | | | | Mammalian | OECD 476 (In Vitro Mammalian Cell Gene Mutation Test) | Negative, Chinese hamster |
| Germ cell mutagenicity: | | | | Mammalian | OECD 473 (In Vitro Mammalian Chromosome Aberration Test) | Negative, Chinese hamster |
| Germ cell mutagenicity: | | | | Mouse | OECD 474 (Mammalian Erythrocyte Micronucleus Test) | Negative |
| Symptoms: | | | | | | respiratory distress, drowsiness, coughing, headaches, gastrointestinal disturbances, mucous membrane irritation, nausea |

11.2. Information on other hazards

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| Fleckenwasser Art.: 36999 | | | | | | |
|----------------------------------|----------|-------|------|----------|-------------|---|
| Toxicity / effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Endocrine disrupting properties: | | | | | | Does not apply to mixtures. |
| Other information: | | | | | | No other relevant information available on adverse effects on health. |

SECTION 12: Ecological information

Possibly more information on environmental effects, see Section 2.1 (classification).

| Fleckenwasser Art.: 36999 | | | | | | | |
|--|----------|------|-------|------|----------|-------------|---|
| Toxicity / effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
| 12.1. Toxicity to fish: | | | | | | | n.d.a. |
| 12.1. Toxicity to daphnia: | | | | | | | n.d.a. |
| 12.1. Toxicity to algae: | | | | | | | n.d.a. |
| 12.2. Persistence and degradability: | | | | | | | Isolate as much as possible with an oil separator. |
| 12.3. Bioaccumulative potential: | | | | | | | n.d.a. |
| 12.4. Mobility in soil: | | | | | | | n.d.a. |
| 12.5. Results of PBT and vPvB assessment | | | | | | | n.d.a. |
| 12.6. Endocrine disrupting properties: | | | | | | | Does not apply to mixtures. |
| 12.7. Other adverse effects: | | | | | | | No information available on other adverse effects on the environment. |
| Other information: | | | | | | | According to the recipe, contains no AOX. |
| Other information: | | | | | | | DOC-elimination degree(complexing organic substance)>= 80%/28d: n.a. |
| Other information: | AOX | | | % | | | According to the recipe, contains no AOX. |

| Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics | | | | | | | |
|---|----------|------|-------|-------|---------------------|-------------|-------|
| Toxicity / effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
| 12.1. Toxicity to fish: | NOELR | 28d | 0,574 | mg/kg | Oncorhynchus mykiss | | |

| | | | | | | | |
|--|-----------|-----|----------|------|---------------------------------|--|--------------------------------------|
| 12.1. Toxicity to fish: | LC50 | 96h | 3 -10 | mg/l | Oncorhynchus mykiss | OECD 203 (Fish, Acute Toxicity Test) | |
| 12.1. Toxicity to daphnia: | NOEC/NOEL | 21d | 0,17 | mg/l | Daphnia magna | | |
| 12.1. Toxicity to daphnia: | EL50 | 48h | 4,6 - 10 | mg/l | Daphnia magna | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| 12.1. Toxicity to daphnia: | NOELR | 21d | 1 -1,6 | mg/l | Daphnia magna | OECD 211 (Daphnia magna Reproduction Test) | |
| 12.1. Toxicity to algae: | NOEC/NOEL | 72h | 10 | mg/l | Pseudokirchneriella subcapitata | OECD 201 (Alga, Growth Inhibition Test) | |
| 12.1. Toxicity to algae: | EL50 | 72h | 10 | mg/l | Pseudokirchneriella subcapitata | OECD 201 (Alga, Growth Inhibition Test) | |
| 12.2. Persistence and degradability: | | 28d | 98 | % | | OECD 301 F (Ready Biodegradability - Manometric Respirometry Test) | Completely biodegradable. |
| 12.3. Bioaccumulative potential: | | | | | | | Not to be expected(evaporation) |
| 12.4. Mobility in soil: | | | | | | | Product is slightly volatile. |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |
| 12.7. Other adverse effects: | | | | | | | Product floats on the water surface. |
| Toxicity to bacteria: | EL50 | 48h | 11,14 | mg/l | | | calculated value |

Propan-2-ol

| Toxicity / effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
|--------------------------------------|----------|------|-------|------|-------------------------|--|-----------------------|
| 12.1. Toxicity to fish: | LC50 | 96h | >100 | mg/l | Leuciscus idus | | |
| 12.1. Toxicity to fish: | LC50 | 96h | 1400 | mg/l | Lepomis macrochirus | | |
| 12.1. Toxicity to daphnia: | EC50 | 48h | 2285 | mg/l | Daphnia magna | | |
| 12.1. Toxicity to daphnia: | EC50 | 16d | 141 | mg/l | Daphnia magna | | |
| 12.1. Toxicity to algae: | EC50 | 72h | >100 | mg/l | Desmodesmus subspicatus | | |
| 12.2. Persistence and degradability: | | 21d | 95 | % | | OECD 301 E (Ready Biodegradability - Modified OECD Screening Test) | Readily biodegradable |
| 12.2. Persistence and degradability: | | | 99,9 | % | | OECD 303 A (Simulation Test - Aerobic Sewage Treatment - Activated Sludge Units) | Readily biodegradable |

| | | | | | | | |
|--|---------|----|-------|------|------------------|---|-------------------------------------|
| 12.3. Bioaccumulative potential: | Log Pow | | 0,05 | | | OECD 107 (Partition Coefficient (n-octanol/water) - Shake Flask Method) | Slight |
| 12.3. Bioaccumulative potential: | BCF | | 3,2 | | | | Low |
| 12.4. Mobility in soil: | Koc | | 1,1 | | | | Expert judgement |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |
| Toxicity to bacteria: | EC50 | | >1000 | mg/l | activated sludge | | |
| Other organisms: | IC50 | 3d | 2104 | mg/l | Lactuca sativa | | |
| Other information: | ThOD | | 2,4 | g/g | | | |
| Other information: | BOD5 | | 53 | % | | | |
| Other information: | COD | | 96 | % | | | References |
| Other information: | COD | | 2,4 | g/g | | | |
| Other information: | BOD | | 1171 | mg/g | | | |

(R)-p-mentha-1,8-diene

| Toxicity / effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
|--|-----------|------|------------|------|---------------------------------|--|-------------------------------------|
| 12.1. Toxicity to fish: | LC50 | 96h | 0,70 | mg/l | Pimephales promelas | OECD 203 (Fish, Acute Toxicity Test) | |
| 12.1. Toxicity to daphnia: | EC50 | 48h | 0,307-0,42 | mg/l | Daphnia magna | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| 12.1. Toxicity to algae: | ErC50 | 72h | 0,214-0,32 | mg/l | Pseudokirchneriella subcapitata | OECD 201 (Alga, Growth Inhibition Test) | |
| 12.1. Toxicity to algae: | NOEC/NOEL | 96h | 4 | mg/l | | | |
| 12.2. Persistence and degradability: | | 28d | 80-92 | % | | OECD 301 D (Ready Biodegradability - Closed Bottle Test) | Readily biodegradable |
| 12.2. Persistence and degradability: | | 28d | 71 | % | | OECD 301 B (Ready Biodegradability - Co2 Evolution Test) | Readily biodegradable |
| 12.3. Bioaccumulative potential: | Log Kow | | 4,38 | | | OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method) | 37 °C, pH = 7.2 |
| 12.4. Mobility in soil: | | | | | | | Adsorption in ground. |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |

| | | | | | | | |
|-----------------------|------|----|-----|------|------------------|--|---|
| Toxicity to bacteria: | EC50 | 3h | 209 | mg/l | activated sludge | OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation)) | |
| Other information: | | | | | | | Does not contain any organically bound halogens which can contribute to the AOX value in waste water. |

| n-butyl acetate | | | | | | | |
|--|-----------------|-------------|--------------|-------------|-------------------------|--|-------------------------------------|
| Toxicity / effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
| 12.1. Toxicity to fish: | LC50 | 96h | 18 | mg/l | Pimephales promelas | OECD 203 (Fish, Acute Toxicity Test) | |
| 12.1. Toxicity to daphnia: | EC50 | 48h | 44 | mg/l | Daphnia magna | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| 12.1. Toxicity to daphnia: | NOEC/NOEL | 21d | 23 | mg/l | Daphnia magna | OECD 211 (Daphnia magna Reproduction Test) | |
| 12.1. Toxicity to algae: | EC50 | 72h | 397 | mg/l | Scenedesmus subspicatus | OECD 201 (Alga, Growth Inhibition Test) | |
| 12.2. Persistence and degradability: | | 28d | 83 | % | | OECD 301 D (Ready Biodegradability - Closed Bottle Test) | Readily biodegradable |
| 12.3. Bioaccumulative potential: | Log Pow | | 2,3 | | | OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method) | Low |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |
| Toxicity to bacteria: | EC50 | | 356 | mg/l | | | Tetrahymena pyriformis |

| Acetone | | | | | | | |
|--------------------------|-----------------|-------------|--------------|-------------|---------------------|--------------------|--------------|
| Toxicity / effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
| 12.1. Toxicity to fish: | LC50 | 96h | 5540 | mg/l | Oncorhynchus mykiss | | |
| 12.1. Toxicity to fish: | LC50 | 96h | 7500 | mg/l | Leuciscus idus | | |
| 12.1. Toxicity to fish: | LC50 | 96h | 8300 | mg/l | Lepomis macrochirus | | |
| 12.1. Toxicity to fish: | EC50 | 96h | 8300 | mg/l | Lepomis macrochirus | | |

| | | | | | | | |
|--|-----------|-------|------------|------|----------------------------------|---|-------------------------------------|
| 12.1. Toxicity to daphnia: | NOEC/NOEL | 28d | 2212 | mg/l | Daphnia pulex | OECD 211 (Daphnia magna Reproduction Test) | |
| 12.1. Toxicity to daphnia: | EC50 | 48h | 6100-12700 | mg/l | Daphnia magna | | |
| 12.1. Toxicity to daphnia: | EC50 | 48h | 8800 | mg/l | Daphnia pulex | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| 12.1. Toxicity to algae: | EC50 | 48h | 4740 | mg/l | Pseudokirchnerie lla subcapitata | | |
| 12.1. Toxicity to algae: | NOEC/NOEL | 48h | 3400 | mg/l | Pseudokirchnerie lla subcapitata | | |
| 12.1. Toxicity to algae: | NOEC/NOEL | 8d | 530 | mg/l | | DIN 38412 T.9 | Test organism: M. aeruginosa |
| 12.2. Persistence and degradability: | | 30d | 81-92 | % | | Regulation (EC) 440/2008 C.4-E (DETERMINATION OF 'READY' BIODEGRADABILITY - CLOSED BOTTLE TEST) | Readily biodegradable |
| 12.2. Persistence and degradability: | | 28d | 91 | % | | OECD 301 A (Ready Biodegradability - DOC Die-Away Test) | Readily biodegradable |
| 12.2. Persistence and degradability: | | 28d | 91 | % | | OECD 301 B (Ready Biodegradability - Co2 Evolution Test) | Readily biodegradable |
| 12.3. Bioaccumulative potential: | Log Pow | | -0,24 | | | OECD 107 (Partition Coefficient (n-octanol/water) - Shake Flask Method) | |
| 12.3. Bioaccumulative potential: | BCF | | 3 | | | | Low |
| 12.4. Mobility in soil: | | | | | | | No adsorption in soil. |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |
| Toxicity to bacteria: | EC10 | 30min | 1000 | mg/l | activated sludge | OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation)) | |
| Toxicity to bacteria: | BOD/COD | 16h | 1700 | mg/l | Pseudomonas putida | | |
| Other organisms: | EC5 | 72h | 28 | mg/l | Entosiphon sulcatum | | |

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|--------------------|------|--|-----------|------|--|--|--|
| Other information: | BOD5 | | 1760-1900 | mg/g | | | |
| Other information: | AOX | | 0 | % | | | |
| Other information: | COD | | 2070-2100 | mg/g | | | |

Butanone

| Toxicity / effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
|--|-----------|------|-----------|------|---------------------------------|--|---|
| 12.1. Toxicity to fish: | LC50 | 96h | 1690 | mg/l | Lepomis macrochirus | | |
| 12.1. Toxicity to fish: | LC50 | 96h | 2973 | mg/l | Pimephales promelas | OECD 203 (Fish, Acute Toxicity Test) | |
| 12.1. Toxicity to daphnia: | EC50 | 48h | 308 | mg/l | Daphnia magna | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| 12.1. Toxicity to algae: | EC50 | 72h | 1972 | mg/l | Pseudokirchneriella subcapitata | OECD 201 (Alga, Growth Inhibition Test) | |
| 12.1. Toxicity to algae: | EC50 | 96h | 2029 | mg/l | Pseudokirchneriella subcapitata | OECD 201 (Alga, Growth Inhibition Test) | |
| 12.2. Persistence and degradability: | | 28d | 98 | % | activated sludge | OECD 301 D (Ready Biodegradability - Closed Bottle Test) | Readily biodegradable |
| 12.3. Bioaccumulative potential: | Log Pow | | 0,29-0,3 | | | OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method) | Bioaccumulation is unlikely (LogPow < 1). |
| 12.4. Mobility in soil: | H (Henry) | | 0,0000244 | | | | 25°C |
| 12.4. Mobility in soil: | Log Koc | | 3,8 | | | | |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No vPvB substance, No PBT substance |
| Toxicity to bacteria: | EC50 | 16h | 1150 | mg/l | Pseudomonas putida | DIN 38412 T.8 | |
| Other information: | DOC | | >70 | % | | | |
| Other information: | BOD/COD | | >50 | % | | | |

Citral

| Toxicity / effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
|----------------------------|----------|------|-------|------|-------------------------|--|-------|
| 12.1. Toxicity to fish: | LC50 | 96h | 6,78 | mg/l | Leuciscus idus | OECD 203 (Fish, Acute Toxicity Test) | |
| 12.1. Toxicity to daphnia: | EC50 | 48h | 6,8 | mg/l | Daphnia magna | Regulation (EC) 440/2008 C.2 (DAPHNIA SP. ACUTE IMMOBILISATION TEST) | |
| 12.1. Toxicity to algae: | EC50 | 72h | 103,8 | mg/l | Desmodesmus subspicatus | DIN 38412 T.9 | |
| 12.1. Toxicity to algae: | EC10 | 72h | 3 | mg/l | Desmodesmus subspicatus | DIN 38412 T.9 | |

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| | | | | | | | |
|--|---------|-------|-------|------|------------------|---|--|
| 12.2. Persistence and degradability: | | 28d | > 90 | % | | OECD 301 F (Ready Biodegradability - Manometric Respirometry Test) | Readily biodegradable |
| 12.2. Persistence and degradability: | | 28d | 92 | % | activated sludge | OECD 301 C (Ready Biodegradability - Modified MITI Test (I)) | Readily biodegradable |
| 12.3. Bioaccumulative potential: | BCF | | 89,72 | | | | Low |
| 12.3. Bioaccumulative potential: | Log Pow | | 2,76 | | | OECD 107 (Partition Coefficient (n-octanol/water) - Shake Flask Method) | A notable biological accumulation potential is not to be expected (LogPow 1-3).25 °C |
| 12.4. Mobility in soil: | Log Koc | | 2,33 | | | OECD 121 (Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using HPLC) | |
| 12.5. Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |
| Toxicity to bacteria: | EC50 | 30min | ~160 | mg/l | activated sludge | OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation)) | |

SECTION 13: Disposal considerations

13.1 Waste treatment methods

For the substance / mixture / residual amounts

EC disposal code no.:

The waste codes are recommendations based on the scheduled use of this product. Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2014/955/EU)

14 06 03 other solvents and solvent mixtures

20 01 13 Solvents

20 01 29 detergents containing hazardous substances

Recommendation:

Sewage disposal shall be discouraged.

Pay attention to local and national official regulations.

E.g. suitable incineration plant.

For contaminated packing material

Pay attention to local and national official regulations.

Empty container completely.

Untampered packaging can be recycled.



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Dispose of packaging that cannot be cleaned in the same manner as the substance.
 Do not perforate, cut up or weld uncleaned container.
 Residues may present a risk of explosion.



SECTION 14: Transport information

General statements


Transport by road/by rail (ADR/RID)

| | | |
|-----------------------------------|---|---|
| 14.1. UN number or ID number: | 1993 | |
| 14.2. UN proper shipping name: | | |
| | UN 1993 FLAMMABLE LIQUID, N.O.S. (HYDROCARBONS, C7-C9, ISOPROPYL ALCOHOL) | |
| 14.3. Transport hazard class(es): | 3 |  |
| 14.4. Packing group: | II |  |
| 14.5. Environmental hazards: | environmentally hazardous | |
| Tunnel restriction code: | D/E | |
| Classification code: | F1 | |
| LQ: | 1 L | |
| Transport category: | 2 | |

Transport by sea (IMDG-code)

| | | |
|-----------------------------------|---|---|
| 14.1. UN number or ID number: | 1993 | |
| 14.2. UN proper shipping name: | | |
| | UN 1993 FLAMMABLE LIQUID, N.O.S. (HYDROCARBONS, C7-C9, ISOPROPYL ALCOHOL) | |
| 14.3. Transport hazard class(es): | 3 |  |
| 14.4. Packing group: | II |  |
| 14.5. Environmental hazards: | environmentally hazardous | |
| Marine Pollutant: | Yes | |
| EmS: | F-E, S-E | |
| Segregation: | - | |

Transport by air (IATA)

| | | |
|-----------------------------------|---|---|
| 14.1. UN number or ID number: | 1993 | |
| 14.2. UN proper shipping name: | | |
| | UN 1993 Flammable liquid, n.o.s. (HYDROCARBONS, C7-C9, ISOPROPYL ALCOHOL) | |
| 14.3. Transport hazard class(es): | 3 |  |
| 14.4. Packing group: | II | |
| 14.5. Environmental hazards: | Not applicable | |

14.6. Special precautions for user

Persons employed in transporting dangerous goods must be trained.
 All persons involved in transporting must observe safety regulations.
 Precautions must be taken to prevent damage.

14.7. Maritime transport in bulk according to IMO instruments

Freighted as packaged goods rather than in bulk, therefore not applicable.
 Minimum amount regulations have not been taken into account.
 Danger code and packing code on request.
 Comply with special provisions.

SECTION 15: Regulatory information

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

Observe restrictions:
 Comply with national regulations/laws governing the protection of young people at work (national implementation of the Directive 94/33/EC)!
 This product is regulated by Regulation (EU) 2019/1148. All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.
 For exceptions see Regulation (EU) 2019/1148 and guidelines for the implementation of Regulation (EU) 2019/1148.
 Comply with national regulations/laws governing maternity protection (national implementation of the Directive 92/85/EEC)!
 Comply with trade association/occupational health regulations.

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Directive 2012/18/EU ("Seveso III"), Annex I, Part 1 - The following categories apply to this product (others may also need to be considered according to storage, handling etc.):

| Hazard categories | Notes to Annex I | Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Lower-tier requirements | Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Upper-tier requirements |
|-------------------|------------------|---|---|
| P5c | | 5000 | 50000 |
| E2 | | 200 | 500 |

The Notes to Annex 1 of Directive 2012/18/EU, in particular those named in the tables here and notes 1-6, must be taken into account when assigning categories and qualifying quantities.

Directive 2010/75/EU (VOC): 99,75 %

REGULATION (EC) No 648/2004

30 % and more
 aliphatic hydrocarbons

perfumes
 LIMONENE
 CITRAL

Observe incident regulations.

National requirements/regulations on safety and health protection must be applied when using work equipment.

15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

Revised sections: 8
 Employee training in handling dangerous goods is required.
 These details refer to the product as it is delivered.
 Employee instruction/training in handling hazardous materials is required.

Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

| Classification in accordance with regulation (EC) No. 1272/2008 (CLP) | Evaluation method used |
|---|--|
| Flam. Liq. 2, H225 | Classification based on test data. |
| Skin Sens. 1, H317 | Classification according to calculation procedure. |
| Asp. Tox. 1, H304 | Classification according to calculation procedure. |
| STOT SE 3, H336 | Classification according to calculation procedure. |
| Aquatic Chronic 2, H411 | Classification according to calculation procedure. |

The following phrases represent the posted Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents.
 H225 Highly flammable liquid and vapour.
 H226 Flammable liquid and vapour.
 H317 May cause an allergic skin reaction.
 H304 May be fatal if swallowed and enters airways.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H336 May cause drowsiness or dizziness.
 H400 Very toxic to aquatic life.
 H411 Toxic to aquatic life with long lasting effects.

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H412 Harmful to aquatic life with long lasting effects.

EUH066 Repeated exposure may cause skin dryness or cracking.

Flam. Liq. — Flammable liquid

Skin Sens. — Skin sensitization

Asp. Tox. — Aspiration hazard

STOT SE — Specific target organ toxicity - single exposure - narcotic effects

Aquatic Chronic — Hazardous to the aquatic environment - chronic

Eye Irrit. — Eye irritation

Skin Irrit. — Skin irritation

Aquatic Acute — Hazardous to the aquatic environment - acute

Key literature references and sources for data:

Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) as amended.

Guidelines for the preparation of safety data sheets as amended (ECHA).

Guidelines on labelling and packaging according to the Regulation (EG) Nr. 1272/2008 (CLP) as amended (ECHA).

Safety data sheets for the constituent substances.

ECHA Homepage - Information about chemicals.

GESTIS Substance Database (Germany).

German Environment Agency "Rigoletto" information site on substances that are hazardous to water (Germany).

EU Occupation Exposure Limits Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164, (EU) 2019/1831, each as amended.

National Lists of Occupational Exposure Limits for each country as amended.

Regulations on the transport of hazardous goods by road, rail, sea and air (ADR, RID, IMDG, IATA) as amended.

Any abbreviations and acronyms used in this document:

acc., acc. to according, according to

ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)

AOX Adsorbable organic halogen compounds

approx. approximately

Art., Art. no. Article number

ASTM ASTM International (American Society for Testing and Materials)

ATE Acute Toxicity Estimate

BAM Bundesanstalt für Materialforschung und -prüfung (= Federal Institute for Materials Research and Testing, Germany)

BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)

BCF Bioconcentration factor

BSEF The International Bromine Council

CAS Chemical Abstracts Service

CLP Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)

CMR carcinogenic, mutagenic, reproductive toxic

DMEL Derived Minimum Effect Level

DNEL Derived No Effect Level

DOC Dissolved organic carbon

e.g. for example (abbreviation of Latin 'exempli gratia'), for instance

EbCx, EyCx, EbLx (x = 10, 50) Effect Concentration/Level of x % on reduction of the biomass (algae, plants)

EC European Community

ECHA European Chemicals Agency

ECx, ELx (x = 0, 3, 5, 10, 20, 50, 80, 100) Effect Concentration/Level for x % effect

EEC European Economic Community

EINECS European Inventory of Existing Commercial Chemical Substances

ELINCS European List of Notified Chemical Substances

EN European Norms

EPA United States Environmental Protection Agency (United States of America)

ErCx, EµCx, ErLx (x = 10, 50) Effect Concentration/Level of x % on inhibition of the growth rate (algae, plants)

etc. et cetera

EU European Union

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EVAL Ethylene-vinyl alcohol copolymer
Fax. Fax number
gen. general
GHS Globally Harmonized System of Classification and Labelling of Chemicals
GWP Global warming potential
Koc Adsorption coefficient of organic carbon in the soil
Kow octanol-water partition coefficient
IARC International Agency for Research on Cancer
IATA International Air Transport Association
IBC (Code) International Bulk Chemical (Code)
IMDG-code International Maritime Code for Dangerous Goods
incl. including, inclusive
IUCID International Uniform Chemical Information Database
IUPAC International Union for Pure Applied Chemistry
LC50 Lethal Concentration to 50 % of a test population
LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)
Log Koc Logarithm of adsorption coefficient of organic carbon in the soil
Log Kow, Log Pow Logarithm of octanol-water partition coefficient
LQ Limited Quantities
MARPOL International Convention for the Prevention of Marine Pollution from Ships
mg/kg bw mg/kg body weight
mg/kg bw/d, mg/kg bw/day mg/kg body weight/day
mg/kg dw mg/kg dry weight
mg/kg wwt mg/kg wet weight
n.a. not applicable
n.av. not available
n.c. not checked
n.d.a. no data available
NIOSH National Institute for Occupational Safety and Health (USA)
NLP No-longer-Polymer
NOEC, NOEL No Observed Effect Concentration/Level
OECD Organisation for Economic Co-operation and Development
org. organic
OSHA Occupational Safety and Health Administration (USA)
PBT persistent, bioaccumulative and toxic
PE Polyethylene
PNEC Predicted No Effect Concentration
ppm parts per million
PVC Polyvinylchloride
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals)
REACH-IT List-No. 6/7/8/9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.
RID Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)
SVHC Substances of Very High Concern
Tel. Telephone
TOC Total organic carbon
UN RTDG United Nations Recommendations on the Transport of Dangerous Goods
VOC Volatile organic compounds
vPvB very persistent and very bioaccumulative

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.
No responsibility.

These statements were made by:

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