

Safety data sheet Safety data sheet

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



Ethanol \geq 96 %, denatured

article number: **T171**
Version: **7.0 en**
Replaces version of: 2022-03-03
Version: (6)

date of compilation: 2015-07-31
Revision: 2023-09-12

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

1.1 Product identifier

| | |
|---------------------------------|---------------------------------------|
| Identification of the substance | Ethanol \geq 96 %, denatured |
| Article number | T171 |
| Index No (GB CLP) | 603-002-00-5 |
| EC number | 200-578-6 |
| CAS number | 64-17-5 |
| Alternative name(s) | Ethyl alcohol |

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

| | |
|---------------------------|---|
| Relevant identified uses: | Laboratory chemical Laboratory and analytical use Formulation [mixing] of preparations and/or re-packaging (excluding alloys) |
| Uses advised against: | Do not use for private purposes (household). Food, drink and animal feedingstuffs. |

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 Service City Hospital | Dudley Rd | B187QH Birmingham | 844 892 0111 | |

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---------|-----------------------------------|-----------|---------------------------|------------------|
| 2.6 | Flammable liquid | 2 | Flam. Liq. 2 | H225 |
| 3.3 | Serious eye damage/eye irritation | 2 | Eye Irrit. 2 | H319 |

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling

Signal word

Danger

Pictograms

GHS02, GHS07



Hazard statements

H225 Highly flammable liquid and vapour
H319 Causes serious eye irritation

Precautionary statements

Precautionary statements - prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233 Keep container tightly closed

Precautionary statements - response

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (EDC) in a concentration of $\geq 0,1\%$.

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SECTION 3: Composition/information on ingredients

3.1 Substances

| | |
|-------------------|---------------------------------|
| Name of substance | Ethanol |
| Molecular formula | C ₂ H ₆ O |
| Molar mass | 46,07 g/mol |
| CAS No | 64-17-5 |
| EC No | 200-578-6 |
| Index No (GB CLP) | 603-002-00-5 |

Impurities/additives/constituents:

| Name of substance | Identifier | Wt% |
|-------------------|---|--------|
| 2-Propanol | CAS No 67-63-0 EC No 200-661-7 Index No 603-117-00-0 | 1 - <2 |
| 2-Butanone | CAS No 78-93-3 EC No 201-159-0 Index No 606-002-00-3 | 1 - <2 |
| Bitrex | CAS No 3734-33-6 | <0,1 |

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.

Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

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Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Irritation, Nausea, Vomiting, Abdominal pain, Breathing difficulties, Vertigo, Drowsiness, Narcosis, Loss of righting reflex, and ataxia

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings
water spray, alcohol resistant foam, dry extinguishing powder, BC-powder, carbon dioxide (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 are heavier than air, spread along floors and form explosive mixtures with air. Vapours may form explosive mixtures with air.

Hazardous combustion products

In case of fire may be liberated: Carbon monoxide (CO), Carbon dioxide (CO₂)

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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

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. Retain contaminated washing water and dispose of it.

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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).

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

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs. 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.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Ground/bond container and receiving equipment.

Ventilation requirements

Use local and general ventilation.

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 - 25 °C

7.3 Specific end use(s)

No information available.

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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 |
|---------|---------------|---------|------------|-----------|--------------------------|------------|---------------------------|-----------------|--------------------------------|----------|-----------|
| GB | ethanol | 64-17-5 | WEL | 1.000 | 1.920 | | | | | | EH40/2005 |

Notation

Ceiling-C Ceiling value is a limit value above which exposure should not occur

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)

Human health values

| Relevant DNELs and other threshold levels | | | | |
|---|-------------------------|------------------------------------|-------------------|----------------------------|
| Endpoint | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
| DNEL | 1.900 mg/m ³ | human, inhalatory | worker (industry) | acute - systemic effects |
| DNEL | 343 mg/kg | human, dermal | worker (industry) | chronic - systemic effects |
| DNEL | 950 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |

| Relevant DNELs of components of the mixture | | | | | | |
|---|---------|----------|-------------------------|------------------------------------|-------------------|----------------------------|
| Name of substance | CAS No | Endpoint | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
| 2-Butanone | 78-93-3 | DNEL | 600 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| 2-Butanone | 78-93-3 | DNEL | 1.161 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| 2-Propanol | 67-63-0 | DNEL | 500 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| 2-Propanol | 67-63-0 | DNEL | 1.000 mg/m ³ | human, inhalatory | worker (industry) | acute - systemic effects |
| 2-Propanol | 67-63-0 | DNEL | 888 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |

Environmental values

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| Relevant PNECs and other threshold levels | | | | |
|---|-------------------------|----------|------------------------------|----------------------|
| End-point | Threshold level | Organism | Environmental compartment | Exposure time |
| PNEC | 0,79 mg/cm ³ | unknown | marine water | intermittent release |
| PNEC | 2,75 mg/cm ³ | unknown | air | intermittent release |
| PNEC | 3,6 mg/cm ³ | unknown | freshwater sediment | intermittent release |
| PNEC | 0,96 mg/cm ³ | unknown | freshwater | intermittent release |
| PNEC | 0,63 mg/cm ³ | unknown | soil | intermittent release |
| PNEC | 580 mg/cm ³ | unknown | sewage treatment plant (STP) | intermittent release |

| Relevant PNECs of components of the mixture | | | | | | |
|---|---------|-----------|-----------------|-----------------------|------------------------------|------------------------------|
| Name of substance | CAS No | End-point | Threshold level | Organism | Environmental compartment | Exposure time |
| 2-Butanone | 78-93-3 | PNEC | 55,8 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| 2-Butanone | 78-93-3 | PNEC | 55,8 mg/l | aquatic organisms | marine water | short-term (single instance) |
| 2-Butanone | 78-93-3 | PNEC | 709 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| 2-Butanone | 78-93-3 | PNEC | 284,7 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| 2-Butanone | 78-93-3 | PNEC | 284,7 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| 2-Butanone | 78-93-3 | PNEC | 22,5 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| 2-Propanol | 67-63-0 | PNEC | 140,9 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| 2-Propanol | 67-63-0 | PNEC | 140,9 mg/l | aquatic organisms | marine water | short-term (single instance) |
| 2-Propanol | 67-63-0 | PNEC | 2.251 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| 2-Propanol | 67-63-0 | PNEC | 552 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| 2-Propanol | 67-63-0 | PNEC | 552 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| 2-Propanol | 67-63-0 | PNEC | 28 mg/kg | terrestrial organisms | soil | short-term (single instance) |

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

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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. 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

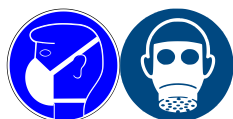
>480 minutes (permeation: level 6)

• 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: A (against organic gases and vapours with a boiling point of $> 65\text{ °C}$, 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 |
| Odour | pungent |
| Odour threshold | 0,1 – 5.058 ppm |
| Melting point/freezing point | -114 °C |
| Boiling point or initial boiling point and boiling range | 78 °C at 1.013 hPa |
| Flammability | flammable liquid in accordance with GHS criteria |
| Lower and upper explosion limit | 2,5 vol% (LEL) - 13,5 vol% (UEL) |
| Flash point | 12 °C (c.c.) |
| Auto-ignition temperature | 455 °C at 1.013 hPa (ECHA) (auto-ignition temperature (liquids and gases)) |
| Decomposition temperature | not relevant |
| pH (value) | 7 (in aqueous solution: 10 g/l, 20 °C) (neutral) |
| Kinematic viscosity | not determined |
| Dynamic viscosity | 0,544 – 0,59 mPa s at 25 °C |
| <u>Solubility(ies)</u> | |
| Water solubility | ≥ 1.000 g/l at 20 °C (ECHA) |
| <u>Partition coefficient</u> | |
| Partition coefficient n-octanol/water (log value): | -0,35 (pH value: 7,4, 24 °C) (ECHA) |
| Vapour pressure | 57,26 hPa at 19,6 °C |
| <u>Density and/or relative density</u> | |
| Density | 0,81 g/cm ³ at 20 °C |
| 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:

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| | |
|-----------------------------|--|
| Miscibility | completely miscible with water |
| Gas group (explosion group) | IIB Maximum Experimental Safe Gap value; 0,5 mm ≤ MESG ≤ 0,9 mm |

SECTION 10: Stability and reactivity

10.1 Reactivity

It's a reactive substance. 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

Violent reaction with: strong oxidiser, Alkali metals, Alkaline earth metal, Acetic anhydride, Peroxides, Phosphorus oxides (e.g. P₂O₅), Nitric acid, Nitrate, Perchlorates,
=> Explosive properties

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

Rubber articles, different plastics

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to GHS

Acute toxicity

Shall not be classified as acutely toxic.

| Acute toxicity | | | | | |
|--------------------|----------|---------------|---------|--------|--------|
| Exposure route | Endpoint | Value | Species | Method | Source |
| oral | LD50 | 10.470 mg/kg | rat | | ECHA |
| inhalation: vapour | LC50 | 116,9 mg/l/4h | rat | | ECHA |

| Acute toxicity of components of the mixture | | | | | |
|---|---------|----------------|----------|-------------|---------|
| Name of substance | CAS No | Exposure route | Endpoint | Value | Species |
| 2-Butanone | 78-93-3 | dermal | LD50 | 6.480 mg/kg | rabbit |
| 2-Butanone | 78-93-3 | oral | LD50 | 2.054 mg/kg | rat |

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| Acute toxicity of components of the mixture | | | | | |
|---|-----------|--------------------|----------|--------------|---------|
| Name of substance | CAS No | Exposure route | Endpoint | Value | Species |
| 2-Propanol | 67-63-0 | inhalation: vapour | LC50 | 37,5 mg/l/4h | rat |
| 2-Propanol | 67-63-0 | oral | LD50 | 5.045 mg/kg | rat |
| 2-Propanol | 67-63-0 | dermal | LD50 | 12.800 mg/kg | rabbit |
| Bitrex | 3734-33-6 | oral | LD50 | 584 mg/kg | rat |

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

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

vomiting, abdominal pain, nausea, Causes damage to liver through prolonged or repeated exposure if swallowed, loss of righting reflex, and ataxia

• If in eyes

Causes serious eye irritation

• If inhaled

drowsiness, narcosis, vertigo, breathing difficulties, Inebriation

• If on skin

Prolonged or repeated skin contact may cause removal of natural fat from the skin resulting in dermatitis (skin inflammation)

• Other information

none

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11.2 Endocrine disrupting properties

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

11.3 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

| Aquatic toxicity (acute) | | | | |
|--------------------------|--------------|-----------------------|--------|---------------|
| Endpoint | Value | Species | Source | Exposure time |
| LC50 | 15.400 mg/l | fish | ECHA | 96 h |
| EC50 | >10.000 mg/l | aquatic invertebrates | ECHA | 48 h |
| ErC50 | 22.000 mg/l | algae | ECHA | 96 h |

| Aquatic toxicity (acute) of components of the mixture | | | | | |
|---|---------|----------|-------------|-----------------------|---------------|
| Name of sub-stance | CAS No | Endpoint | Value | Species | Exposure time |
| 2-Butanone | 78-93-3 | LC50 | 2.993 mg/l | fish | 96 h |
| 2-Butanone | 78-93-3 | EC50 | 308 mg/l | aquatic invertebrates | 48 h |
| 2-Butanone | 78-93-3 | ErC50 | 1.972 mg/l | algae | 72 h |
| 2-Propanol | 67-63-0 | LC50 | 10.000 mg/l | fish | 96 h |

12.2 Persistence and degradability

Theoretical Oxygen Demand: 2,084 mg/mg
Theoretical Carbon Dioxide: 1,911 mg/mg

Biodegradation

The substance is readily biodegradable.

| Process of degradability | | |
|--------------------------|------------------|------|
| Process | Degradation rate | Time |
| biotic/abiotic | 94 % | d |
| oxygen depletion | 69 % | 5 d |

| Degradability of components of the mixture | | | | | | |
|--|---------|------------------|------------------|------|--------|--------|
| Name of substance | CAS No | Process | Degradation rate | Time | Method | Source |
| 2-Butanone | 78-93-3 | oxygen depletion | 98 % | 28 d | | ECHA |

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| Degradability of components of the mixture | | | | | | |
|--|---------|------------------|------------------|------|-----------------------------------|--------|
| Name of substance | CAS No | Process | Degradation rate | Time | Method | Source |
| 2-Propanol | 67-63-0 | biotic/abiotic | 95 % | 21 d | modifizierter OECD Screening Test | |
| 2-Propanol | 67-63-0 | oxygen depletion | 53 % | 5 d | | ECHA |

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

| | |
|---------------------------|-------------------------------------|
| n-octanol/water (log KOW) | -0,35 (pH value: 7,4, 24 °C) (ECHA) |
| BOD5/COD | 0,62110553 |

| Bioaccumulative potential of components of the mixture | | | | |
|--|---------|-----|--------------------------|----------|
| Name of substance | CAS No | BCF | Log KOW | BOD5/COD |
| 2-Butanone | 78-93-3 | | 0,3 (pH value: 7, 40 °C) | |
| 2-Propanol | 67-63-0 | | 0,05 | |

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (EDC) in a concentration of $\geq 0,1\%$.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



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

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

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

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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 4 irritant - skin irritation and eye damage

13.3 Remarks

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

SECTION 14: Transport information

14.1 UN number or ID number

| | |
|-----------|---------|
| ADRRID | UN 1170 |
| IMDG-Code | UN 1170 |
| ICAO-TI | UN 1170 |

14.2 UN proper shipping name

| | |
|-----------|---------|
| ADRRID | ETHANOL |
| IMDG-Code | ETHANOL |
| ICAO-TI | Ethanol |

14.3 Transport hazard class(es)

| | |
|-----------|---|
| ADRRID | 3 |
| IMDG-Code | 3 |
| ICAO-TI | 3 |

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

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

| | |
|---------------------------------------|-------------------------------|
| Proper shipping name | ETHANOL |
| Particulars in the transport document | UN1170, ETHANOL, 3, II, (D/E) |
| Classification code | F1 |
| Danger label(s) | 3 |



| | |
|-------------------------------|----------|
| Special provisions (SP) | 144, 601 |
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 1 L |
| Transport category (TC) | 2 |
| Tunnel restriction code (TRC) | D/E |
| Hazard identification No | 33 |
| Emergency Action Code | 2YE |

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

| | |
|----------------------------|----|
| Classification code | F1 |
| Danger label(s) | 3 |



| | |
|---------------------------------|----------|
| Special provisions (SP) | 144, 601 |
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 1 L |
| Transport category (TC) | 2 |
| Hazard identification No | 33 |

International Maritime Dangerous Goods Code (IMDG) - Additional information

| | |
|--|-----------------------------------|
| Proper shipping name | ETHANOL |
| Particulars in the shipper's declaration | UN1170, ETHANOL, 3, II, 12°C c.c. |
| Marine pollutant | - |
| Danger label(s) | 3 |



| | |
|--------------------------|----------|
| Special provisions (SP) | 144 |
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 1 L |
| EmS | F-E, S-D |

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Stowage category

A

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

Proper shipping name

Ethanol

Particulars in the shipper's declaration

UN1170, Ethanol, 3, II

Danger label(s)

3



Special provisions (SP)

A3, A58, A180

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)

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 |
|-----|---------------------------------------|---|--------|-------|
| P5c | flammable liquids (cat. 2, 3) | 5.000 | 50.000 | 51) |

Notation

51) Flammable liquids, categories 2 or 3 not covered by P5a and P5b

Deco-Paint Directive

| | |
|-------------|---------|
| VOC content | 100 % |
| VOC content | 790 g/l |

Industrial Emissions Directive (IED)

| | |
|-------------|---------|
| VOC content | 100 % |
| VOC content | 790 g/l |

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

not listed

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

not listed

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Water Framework Directive (WFD)

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

Legend

A) Indicative list of the main pollutants

Regulation on the marketing and use of explosives precursors

not listed

Regulation on drug precursors

not listed

Regulation on substances that deplete the ozone layer (ODS)

not listed

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

not listed

Regulation on persistent organic pollutants (POP)

not listed

National regulations(GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

not listed

Restrictions according to GB REACH, Annex 17

| Dangerous substances with restrictions (GB REACH, Annex 17) | | | |
|---|--|--------|----|
| Name of substance | Name acc. to inventory | CAS No | No |
| Ethanol | this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC | | 3 |
| Ethanol | flammable / pyrophoric | | 40 |

Other information

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

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National inventories

| Country | Inventory | Status |
|---------|------------|------------------------------|
| AU | AIIC | substance is listed |
| CA | DSL | substance is listed |
| CN | IECSC | substance is listed |
| EU | ECSI | substance is listed |
| EU | REACH Reg. | substance is listed |
| JP | CSCL-ENCS | substance is listed |
| KR | KECI | substance is listed |
| MX | INSQ | substance is listed |
| NZ | NZIoC | substance is listed |
| PH | PICCS | substance is listed |
| TR | CICR | substance is listed |
| TW | TCSI | substance is listed |
| US | TSCA | substance is listed (ACTIVE) |
| VN | NCI | substance is listed |

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 |
| KECI | Korea Existing Chemicals Inventory |
| NCI | National Chemical Inventory |
| NZIoC | New Zealand Inventory of Chemicals |
| PICCS | Philippine Inventory of Chemicals and Chemical Substances (PICCS) |
| REACH Reg. | REACH registered substances |
| TCSI | Taiwan Chemical Substance Inventory |
| TSCA | Toxic Substance Control Act |

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|---|---|-----------------|
| 2.2 | Labelling of packages where the contents do not exceed 125 ml: Signal word: Danger | | yes |
| 2.2 | | Labelling of packages where the contents do not exceed 125 ml: change in the listing (table) | yes |
| 2.2 | | Labelling of packages where the contents do not exceed 125 ml: change in the listing (table) | yes |

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| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|--|---|-----------------|
| 2.3 | | Endocrine disrupting properties: Does not contain an endocrine disruptor (EDC) in a concentration of ≥ 0,1%. | yes |
| 14.8 | | Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)Additional information | yes |
| 14.8 | | Classification code: F1 | yes |
| 14.8 | | Danger label(s): 3 | yes |
| 14.8 | | Danger label(s): change in the listing (table) | yes |
| 14.8 | | Special provisions (SP): 144, 601 | yes |
| 14.8 | | Excepted quantities (EQ): E2 | yes |
| 14.8 | | Limited quantities (LQ): 1 L | yes |
| 14.8 | | Transport category (TC): 2 | yes |
| 14.8 | | Hazard identification No: 33 | yes |
| 15.1 | Restrictions according to REACH, Annex XVII | | yes |
| 15.1 | | Dangerous substances with restrictions (REACH, Annex XVII): change in the listing (table) | yes |
| 15.1 | List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list: Not listed. | | yes |
| 15.1 | VOC content: 100 % , 790 g/l | VOC content: 100 % | yes |
| 15.1 | | VOC content: 790 g/l | yes |
| 15.1 | | National regulations(GB) | yes |
| 15.1 | | List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list: not listed | yes |
| 15.1 | | Restrictions according to GB REACH, Annex 17 | yes |
| 15.1 | | Dangerous substances with restrictions (GB REACH, Annex 17): change in the listing (table) | yes |
| 15.1 | | National inventories: change in the listing (table) | yes |

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Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|-----------|---|
| ADR | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road) |
| BCF | Bioconcentration factor |
| BOD | Biochemical Oxygen Demand |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| Ceiling-C | Ceiling value |
| COD | Chemical oxygen demand |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| 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) |
| EH40/2005 | EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| ErC50 | \equiv 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 |
| GB CLP | The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/720 (as amended) |
| GB REACH | The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended) |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| ICAO-TI | Technical instructions for the safe transport of dangerous goods by air |
| IMDG | International Maritime Dangerous Goods Code |
| IMDG-Code | International Maritime Dangerous Goods Code |
| index No | The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008 |
| 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 |
| NLP | No-Longer Polymer |

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| Abbr. | Descriptions of used abbreviations |
|-------|---|
| PBT | Persistent, Bioaccumulative and Toxic |
| PNEC | Predicted No-Effect Concentration |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |
| STEL | Short-term exposure limit |
| TWA | Time-weighted average |
| UEL | Upper explosion limit (UEL) |
| VOC | Volatile Organic Compounds |
| vPvB | Very Persistent and very Bioaccumulative |
| WEL | Workplace exposure limit |

Key literature references and sources for data

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

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

| Code | Text |
|------|-------------------------------------|
| H225 | Highly flammable liquid and vapour. |
| H319 | Causes serious eye irritation. |

Disclaimer

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