

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU



Ethylene glycol monobutyl ether ≥99 %, for synthesis

article number: **0341**
Version: **5.0 en**
Replaces version of: 2022-11-30
Version: (4)

date of compilation: 2015-12-18
Revision: 2024-03-02

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

1.1 Product identifier

| | |
|---------------------------------|---|
| Identification of the substance | Ethylene glycol monobutyl ether ≥99 %, for synthesis |
| Article number | 0341 |
| Registration number (REACH) | 01-2119475108-36-xxxx |
| Index number in CLP Annex VI | 603-014-00-0 |
| EC number | 203-905-0 |
| CAS number | 111-76-2 |

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

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

1.3 Details of the supplier of the safety data sheet

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

Telephone: +49 (0) 721 - 56 06 0

Telefax: +49 (0) 721 - 56 06 149

e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

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

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

1.4 Emergency telephone number

| Name | Street | Postal code/city | Telephone | Website |
|--|---------------|------------------|-----------------|---|
| National Poisons Information Centre Beaumont Hospital | Beaumont Road | Dublin 9 | +353 1 809 2166 | https://www.poisons.ie/ |

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---------|-----------------------------------|-----------|---------------------------|------------------|
| 3.10 | Acute toxicity (oral) | 4 | Acute Tox. 4 | H302 |
| 3.1I | Acute toxicity (inhal.) | 3 | Acute Tox. 3 | H331 |
| 3.2 | Skin corrosion/irritation | 2 | Skin Irrit. 2 | H315 |
| 3.3 | Serious eye damage/eye irritation | 2 | Eye Irrit. 2 | H319 |

For full text of abbreviations: see SECTION 16

2.2 Label elements

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

Signal word

Danger

Pictograms

GHS06



Hazard statements

H302 Harmful if swallowed
H315 Causes skin irritation
H319 Causes serious eye irritation
H331 Toxic if inhaled

Precautionary statements

Precautionary statements - prevention

P260 Do not breathe mist/vapours
P280 Wear protective gloves/protective clothing/eye protection/face protection

Precautionary statements - response

P302+P352 IF ON SKIN: Wash with plenty of water
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 Call a POISON CENTRE/doctor if you feel unwell

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H331 Toxic if inhaled.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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2.3 Other hazards

This material is combustible, but will not ignite readily.

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 (ED) at a concentration of ≥ 0,1%.

SECTION 3: Composition/information on ingredients

3.1 Substances

| | |
|-------------------|---|
| Name of substance | Ethylene glycol monobutyl ether |
| Molecular formula | C ₆ H ₁₄ O ₂ |
| Molar mass | 118,2 g/mol |
| REACH Reg. No | 01-2119475108-36-xxxx |
| CAS No | 111-76-2 |
| EC No | 203-905-0 |
| Index No | 603-014-00-0 |

| Substance, Specific Conc. Limits, M-factors, ATE | | | |
|--|-----------|--------------------------|----------------------------|
| Specific Conc. Limits | M-Factors | ATE | Exposure route |
| - | - | 1.200 mg/kg 3 mg/l/4h | oral inhalation: vapour |

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Self-protection of the first aider.

Following inhalation

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

Following skin contact

Rinse skin with water/shower. In case of skin irritation, consult a physician.

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.

Following ingestion

Rinse mouth with water (only if the person is conscious). Call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Irritation, Cough, Headache, Dizziness, Dyspnoea, Unconsciousness, Nausea, Vomiting

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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. Vapours are heavier than air, spread along floors and 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

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

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

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

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

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

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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.

Advice on general occupational hygiene

Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Keep only in original container.

Incompatible substances or mixtures

Observe hints for combined storage.

Protect against external exposure, such as

UV-radiation/sunlight

Consideration of other advice:

Store locked up.

Ventilation requirements

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

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

| Country | Name of agent | CAS No | Identifier | TW A [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Ceiling-C [ppm] | Ceiling-C [mg/m ³] | Notation | Source |
|---------|------------------------|----------|------------|------------|--------------------------|------------|---------------------------|-----------------|--------------------------------|----------|----------------------|
| EU | 2-butoxyethanol | 111-76-2 | IOELV | 20 | 98 | 50 | 246 | | | H | 2000/39/EC |
| IE | 2-butoxyethanol (EGBE) | 111-76-2 | OELV | 20 | 98 | 50 | 246 | | | H | S.I. No. 619 of 2001 |

Notation

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

H Absorbed through the skin

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

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Human health values

| Relevant DNELs and other threshold levels | | | | |
|---|-------------------------|------------------------------------|-------------------|----------------------------|
| Endpoint | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
| DNEL | 125 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| DNEL | 89 mg/kg bw/day | human, dermal | worker (industry) | acute - systemic effects |
| DNEL | 98 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| DNEL | 1.091 mg/m ³ | human, inhalatory | worker (industry) | acute - systemic effects |
| DNEL | 246 mg/m ³ | human, inhalatory | worker (industry) | acute - local effects |

Environmental values

| Relevant PNECs and other threshold levels | | | | |
|---|-----------------|-----------------------|------------------------------|------------------------------|
| End-point | Threshold level | Organism | Environmental compartment | Exposure time |
| PNEC | 8,8 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| PNEC | 0,88 mg/l | aquatic organisms | marine water | short-term (single instance) |
| PNEC | 463 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| PNEC | 34,6 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| PNEC | 3,46 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| PNEC | 2,33 mg/kg | terrestrial organisms | soil | short-term (single instance) |

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection.

Skin protection



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• 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

NBR (Nitrile rubber)

• material thickness

>0,11 mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• Splash protection - Protective gloves

• type of material: NBR (Nitrile rubber)

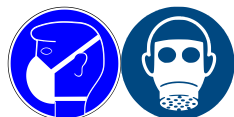
• material thickness: >0,3 mm

• breakthrough times of the glove material: >120 minutes (permeation: level 4)

• other protection measures

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

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 ° C , colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|--|---|
| Physical state | liquid |
| Colour | colourless |
| Odour | faintly perceptible - like ether |
| Odour threshold | 0,1 – 48 ppm |
| Melting point/freezing point | -74,8 ° C at 1 atm (ECHA) |
| Boiling point or initial boiling point and boiling range | 172 ° C at 1.013 hPa |
| Flammability | this material is combustible, but will not ignite readily |
| Lower and upper explosion limit | 1,1 vol% (LEL) - 10,6 vol% (UEL) |

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| | |
|---|--|
| Flash point | 67 °C at 1.013 hPa (ECHA) |
| Auto-ignition temperature | 230 °C at 1 atm (ECHA) (auto-ignition temperature (liquids and gases)) |
| Decomposition temperature | not relevant |
| pH (value) | 7 (20 °C) |
| Kinematic viscosity | 6,746 mm ² /s at 0 °C |
| Dynamic viscosity | 3,3 mPa s at 20 °C |
| <u>Solubility(ies)</u> | |
| Water solubility | 900 g/l at 20 °C (ECHA) |
| <u>Partition coefficient</u> | |
| Partition coefficient n-octanol/water (log value): | 0,81 (pH value: 7, 25 °C) (ECHA) |
| Vapour pressure | 0,8 hPa at 20 °C |
| <u>Density and/or relative density</u> | |
| Density | 0,9 g/cm ³ at 20 °C (ECHA) |
| Relative vapour density | 4,07 (air = 1) |
| Particle characteristics | not relevant (liquid) |
| <u>Other safety parameters</u> | |
| Oxidising properties | none |
| 9.2 Other information | |
| Information with regard to physical hazard classes: | hazard classes acc. to GHS (physical hazards): not relevant |
| Other safety characteristics: | |
| Surface tension | 65,03 mN/m (20 °C) (ECHA) |
| Temperature class (EU, acc. to ATEX) | T3 Maximum permissible surface temperature on the equipment: 200°C |

SECTION 10: Stability and reactivity

10.1 Reactivity

May form explosive peroxides.

If heated

Vapours may form explosive mixtures with air.

10.2 Chemical stability

Reactivity if exposed to light. Reactivity if exposed to air.

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10.3 Possibility of hazardous reactions

Violent reaction with: strong oxidiser

10.4 Conditions to avoid

Keep away from heat. UV-radiation/sunlight.

10.5 Incompatible materials

aluminium, Light metals

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5. Peroxides.

SECTION 11: Toxicological information

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

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

Acute toxicity

Harmful if swallowed. Toxic if inhaled.

| Acute toxicity | | | | | |
|----------------|----------|-------------|------------|--------|--------|
| Exposure route | Endpoint | Value | Species | Method | Source |
| oral | LD50 | 1.414 mg/kg | guinea pig | | ECHA |

Skin corrosion/irritation

Causes skin irritation.

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

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vomiting, nausea

• If in eyes

Causes serious eye irritation

• If inhaled

irritant effects, cough, headache, dizziness, Dyspnoea, pulmonary oedema

• If on skin

causes skin irritation, risk of absorption via the skin

• Other information

Other adverse effects: Cardiovascular system, Central nervous system, Liver and kidney damage

11.2 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at 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 | 1.474 mg/l | fish | ECHA | 96 h |
| EC50 | 1.550 mg/l | aquatic invertebrates | ECHA | 48 h |
| ErC50 | 1.840 mg/l | algae | ECHA | 72 h |

| Aquatic toxicity (chronic) | | | | |
|----------------------------|----------|-----------------------|--------|---------------|
| Endpoint | Value | Species | Source | Exposure time |
| EC50 | 297 mg/l | aquatic invertebrates | ECHA | 21 d |

12.2 Persistence and degradability

Theoretical Oxygen Demand: 2,301 mg/mg
Theoretical Carbon Dioxide: 2,234 mg/mg

Biodegradation

The substance is readily biodegradable.

| Process of degradability | | |
|---------------------------|------------------|------|
| Process | Degradation rate | Time |
| carbon dioxide generation | 18,3 % | 3 d |

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

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| | |
|---------------------------|----------------------------------|
| n-octanol/water (log KOW) | 0,81 (pH value: 7, 25 °C) (ECHA) |
|---------------------------|----------------------------------|

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at 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/packages

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

13.2 Relevant provisions relating to waste

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

Properties of waste which render it hazardous

HP 4 irritant - skin irritation and eye damage

HP 6 acute toxicity

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 2810 |
| IMDG-Code | UN 2810 |
| ICAO-TI | UN 2810 |

14.2 UN proper shipping name

| | |
|-----------|-------------------------------|
| ADRRID | TOXIC LIQUID, ORGANIC, N.O.S. |
| IMDG-Code | TOXIC LIQUID, ORGANIC, N.O.S. |



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| | |
|---|---|
| ICAO-TI | Toxic liquid, organic, n.o.s. |
| Technical name | Ethylene glycol monobutyl ether |
| 14.3 Transport hazard class(es) | |
| ADRRID | 6.1 |
| IMDG-Code | 6.1 |
| ICAO-TI | 6.1 |
| 14.4 Packing group | |
| ADRRID | III |
| IMDG-Code | III |
| ICAO-TI | III |
| 14.5 Environmental hazards | non-environmentally hazardous acc. to the dangerous goods regulations |
| 14.6 Special precautions for user | |
| Provisions for dangerous goods (ADR) should be complied within the premises. | |
| 14.7 Maritime transport in bulk according to IMO instruments | |
| The cargo is not intended to be carried in bulk. | |
| 14.8 Information for each of the UN Model Regulations | |
| Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)Additional information | |
| Proper shipping name | TOXIC LIQUID, ORGANIC, N.O.S. |
| Particulars in the transport document | UN2810, TOXIC LIQUID, ORGANIC, N.O.S., (Ethylene glycol monobutyl ether), 6.1, III, (E) |
| Classification code | T1 |
| Danger label(s) | 6.1 |
|  | |
| Special provisions (SP) | 274, 614, 802(ADN) |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 L |
| Transport category (TC) | 2 |
| Tunnel restriction code (TRC) | E |
| Hazard identification No | 60 |
| Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)Additional information | |
| Classification code | T1 |
| Danger label(s) | 6.1 |
|  | |



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| | |
|---|--|
| Special provisions (SP) | 274, 614, 802(ADN) |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 L |
| Transport category (TC) | 2 |
| Hazard identification No | 60 |
| International Maritime Dangerous Goods Code (IMDG) - Additional information | |
| Proper shipping name | TOXIC LIQUID, ORGANIC, N.O.S. |
| Particulars in the shipper's declaration | UN2810, TOXIC LIQUID, ORGANIC, N.O.S., (Ethylene glycol monobutyl ether), 6.1, III |
| Marine pollutant | - |
| Danger label(s) | 6.1 |
|  | |
| Special provisions (SP) | 223, 274 |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 L |
| EmS | F-A, S-A |
| Stowage category | A |
| International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information | |
| Proper shipping name | Toxic liquid, organic, n.o.s. |
| Particulars in the shipper's declaration | UN2810, Toxic liquid, organic, n.o.s., (Ethylene glycol monobutyl ether), 6.1, III |
| Danger label(s) | 6.1 |
|  | |
| Special provisions (SP) | A3, A4, A137 |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 2 L |

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

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| Dangerous substances with restrictions (REACH, Annex XVII) | | | | |
|--|--|--------|-------------|----|
| Name of substance | Name acc. to inventory | CAS No | Restriction | No |
| Ethylene glycol monobutyl ether | this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC | | R3 | 3 |
| Ethylene glycol monobutyl ether | substances in tattoo inks and permanent make-up | | R75 | 75 |

Legend

- R3
1. Shall not be used in:
 - ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
 - tricks and jokes,
 - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
 2. Articles not complying with paragraph 1 shall not be placed on the market.
 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
 - can be used as fuel in decorative oil lamps for supply to the general public, and
 - present an aspiration hazard and are labelled with H304.
 4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
 5. Without prejudice to the implementation of other Union provisions relating to the classification, labelling and packaging of substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
 - (a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: "Keep lamps filled with this liquid out of the reach of children"; and, by 1 December 2010, "Just a sip of lamp oil – or even sucking the wick of lamps – may lead to life-threatening lung damage";
 - (b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: "Just a sip of grill lighter fluid may lead to life threatening lung damage";
 - (c) lamps oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.;

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Legend

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

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Legend

9. This entry does not apply to substances that are gases at temperature of 20 °C and pressure of 101,3 kPa, or generate a vapour pressure of more than 300 kPa at temperature of 50 °C, with the exception of formaldehyde (CAS No 50-00-0, EC No 200-001-8).
10. This entry does not apply to the placing on the market of a mixture for use for tattooing purposes, or to the use of a mixture for tattooing purposes, when placed on the market exclusively as a medical device or an accessory to a medical device, within the meaning of Regulation (EU) 2017/745, or when used exclusively as a medical device or an accessory to a medical device, within the same meaning. Where the placing on the market or use may not be exclusively as a medical device or an accessory to a medical device, the requirements of Regulation (EU) 2017/745 and of this Regulation shall apply cumulatively.

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

Not listed.

Seveso Directive

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

Notation

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

Deco-Paint Directive

| | |
|-------------|---------|
| VOC content | 100 % |
| VOC content | 900 g/l |

Industrial Emissions Directive (IED)

| | |
|-------------|---------|
| VOC content | 100 % |
| VOC content | 900 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

Water Framework Directive (WFD)

| List of pollutants (WFD) | | | | |
|---------------------------------|---|--------|-----------|---------|
| Name of substance | Name acc. to inventory | CAS No | Listed in | Remarks |
| Ethylene glycol monobutyl ether | 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

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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

Other information

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

National inventories

| Country | Inventory | Status |
|---------|------------|------------------------------|
| AU | AIIC | 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 |

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15.2 Chemical safety assessment

According to REACH, Article 14 (1) a chemical safety assessment has been carried out for this substance or components of this mixture when the substance has been registered in quantities of 10 tonnes or more per year per registrant.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|---|---|-----------------|
| 2.3 | | Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%. | yes |
| 15.1 | VOC content: 100 % 900 g/l | VOC content: 100 % | yes |
| 15.1 | | VOC content: 900 g/l | yes |
| 15.1 | | National inventories: change in the listing (table) | yes |
| 15.2 | Chemical Safety Assessment: No Chemical Safety Assessment has been carried out for this substance. | Chemical safety assessment: According to REACH, Article 14 (1) a chemical safety assessment has been carried out for this substance or components of this mixture when the substance has been registered in quantities of 10 tonnes or more per year per registrant. | yes |

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|------------|---|
| 2000/39/EC | Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC |
| ADR | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road) |
| ATE | Acute Toxicity Estimate |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| Ceiling-C | Ceiling value |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures |
| 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) |
| ED | Endocrine disruptor |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |

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| Abbr. | Descriptions of used abbreviations |
|----------------------|---|
| ErC50 | ≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| ICAO-TI | Technical instructions for the safe transport of dangerous goods by air |
| IMDG | International Maritime Dangerous Goods Code |
| IMDG-Code | International Maritime Dangerous Goods Code |
| index No | The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008 |
| IOELV | Indicative occupational exposure limit value |
| LC50 | Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval |
| LD50 | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval |
| LEL | Lower explosion limit (LEL) |
| NLP | No-Longer Polymer |
| 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) |
| S.I. No. 619 of 2001 | Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 |
| STEL | Short-term exposure limit |
| SVHC | Substance of Very High Concern |
| TWA | Time-weighted average |
| UEL | Upper explosion limit (UEL) |
| VOC | Volatile Organic Compounds |
| vPvB | Very Persistent and very Bioaccumulative |

Key literature references and sources for data

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

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

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

| Code | Text |
|------|--------------------------------|
| H302 | Harmful if swallowed. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H331 | Toxic if inhaled. |

Disclaimer

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