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

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

1.1. Product identifier

Trade name/designation:

RAVENOL Antifrost Enteiser

Article No.:
1420217

UFI:
00HY-FHK2-RW4H-3M87

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

Use of the substance/mixture:
Enteiser, Frostschutz, Automobil-Industrie

* 1.3. Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor):

Ravensberger Schmierstoffvertrieb GmbH
Produktsicherheit
Jöllenbecker Str. 2
33824 Werther
Germany
Telephone: +49 5203 9719 0
Telefax: +49 5203 9719 40
E-mail: kontakt@ravenol.de
Website: www.ravenol.de

E-mail (competent person): sdb@ravenol.de

* 1.4. Emergency telephone number

24 hr. emergency phone number, 24h: +49 700 24 112 112 (Contract ID: RAV) / +1 872 5888271 (Contract ID: RAV)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Hazard classes and hazard categories	Hazard statements	Classification procedure
flammable liquids *(Flam. Liq. 3)*	H226: Flammable liquid and vapour.	On basis of test data.

* 2.2. Label elements

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

Hazard pictograms:

GHS02
Flame

Signal word: Warning

Hazard components for labelling:
ethanol

Hazard statements for physical hazards	
H226	Flammable liquid and vapour.

Supplemental hazard information: none

Precautionary statements	
P102	Keep out of reach of children.

Precautionary statements Prevention	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Precautionary statements Storage	
P403 + P235	Store in a well-ventilated place. Keep cool.

Precautionary statements Disposal	
P501	Dispose of contents/container to an appropriate recycling or disposal facility.

*
2.3. Other hazards

Other adverse effects:

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition/information on ingredients

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3.2. Mixtures

Additional information:

Regulation (EC) No. 648/2004 [Detergents regulation]: Contains: Preservative (bronopol), Fragrances and dyes.

Hazardous ingredients / Hazardous impurities / Stabilisers:

Product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concentration
CAS No.: 64-17-5 EC No.: 200-578-6 REACH No.: 01-2119457610-43	**ethanol** Eye Irrit. 2 (H319), Flam. Liq. 2 (H225) Danger **Specific concentration limit (SCL)** Eye Irrit. 2; H319: C ≥ 50%	20 – < 40 weight-%
CAS No.: 107-21-1 EC No.: 203-473-3 REACH No.: 01-2119456816-28-XXXX	**1,2-Ethanediol** Acute Tox. 4 (H302), STOT RE 2 (H373) Warning	4 – < 8 weight-%
CAS No.: 78-93-3 EC No.: 201-159-0 Index No.: 606-002-00-3 REACH No.: 01-2119457290-43	**butanone** Eye Irrit. 2 (H319), Flam. Liq. 2 (H225), STOT SE 3 (H336) Danger EUH066	0 – < 1 weight-%
CAS No.: 5392-40-5 EC No.: 226-394-6	**Citral; 3,7-Dimethyl-2,6-octadienal** Eye Irrit. 2 (H319), Skin Irrit. 2 (H315), Skin Sens. 1 (H317) Warning	0 – < 0.1 weight-%
CAS No.: 138-86-3 EC No.: 205-341-0 Index No.: 601-029-00-7 REACH No.: 01-2120766421-57	**dipentene** Aquatic Acute 1 (H400), Aquatic Chronic 1 (H410), Flam. Liq. 3 (H226), Skin Irrit. 2 (H315), Skin Sens. 1 (H317) Warning	0 – < 0.1 weight-%
CAS No.: 52-51-7 EC No.: 200-143-0 Index No.: 603-085-00-8	**bronopol** Acute Tox. 4 (H312, H302), Aquatic Acute 1 (H400), Eye Dam. 1 (H318), STOT SE 3 (H335), Skin Irrit. 2 (H315) Danger M-factor (acute): 10	0 – < 0.1 weight-%

Full text of H- and EUH-phrases: see section 16.

SECTION 4: First aid measures

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4.1. Description of first aid measures

General information:

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove victim out of the danger area. Remove contaminated, saturated clothing. If unconscious but breathing normally, place in recovery position and seek medical advice. Do not leave affected person unattended.

Following inhalation:
Remove casualty to fresh air and keep warm and at rest.When in doubt or if symptoms are observed, get medical advice. In case of allergic symptoms, especially in the breathing area, seek medical advice immediately.

In case of skin contact:
After contact with skin, wash immediately with plenty of water and soap.
In case of skin irritation, consult a physician.

After eye contact:
In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Following ingestion:
If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do NOT induce vomiting.

* **4.2. Most important symptoms and effects, both acute and delayed**
Symptoms/ delayed effects: In rare cases the product can cause temporary erythema of the skin.
Ingestion causes nausea, weakness and central nervous system effects.

* **4.3. Indication of any immediate medical attention and special treatment needed**
When in doubt or if symptoms are observed, get medical advice. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
In case of fire, use sand, extinguishing powder or alcohol resistant foam.

Unsuitable extinguishing media:
Full water jet

* **5.2. Special hazards arising from the substance or mixture**
Flammable liquid and vapour. Vapours can form explosive mixtures with air. Remove persons to safety. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Reignition possible over considerable distance. Hazardous decomposition products: Carbon dioxide (CO_2) , Carbon monoxide (CO)

Hazardous combustion products:
In case of fire: Gases/vapours, toxic

5.3. Advice for firefighters
Wear personal protection equipment (refer to section 8). In case of fire: Wear self-contained breathing apparatus.

5.4. Additional information
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

* **6.1. Personal precautions, protective equipment and emergency procedures**

6.1.1. For non-emergency personnel

Personal precautions:
Avoid contact with skin, eyes and clothes. Do not breathe gas/vapour. Provide adequate ventilation.

Protective equipment:
Personal protection equipment: see section 8

Emergency procedures:
Remove all sources of ignition. Remove persons to safety. Provide adequate ventilation.

6.1.2. For emergency responders

Personal protection equipment:
Use appropriate respiratory protection.

6.2. Environmental precautions
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

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

For cleaning up:
Take up mechanically. Clear contaminated areas thoroughly.

Other information:
Ventilate affected area. Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

SECTION 7: Handling and storage
SECTION 8: Exposure controls/personal protection
SECTION 13: Disposal considerations

6.5. Additional information

Special danger of slipping by leaking/spilling product. Use appropriate container to avoid environmental contamination.

SECTION 7: Handling and storage

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7.1. Precautions for safe handling

Protective measures

Advices on safe handling:
Keep out of reach of children. Wash hands thoroughly after handling. Wear personal protection equipment (refer to section 8). Avoid contact with skin, eyes and clothes.
Do not breathe vapour/aerosol. After use replace the closing cap immediately.

Fire prevent measures:
Keep away from sources of ignition - No smoking. Take precautionary measures against static discharge. In use may form flammable/explosive vapour-air mixture. Heating causes rise in pressure with risk of bursting.

Measures to prevent aerosol and dust generation:
Ensure adequate ventilation of the storage area.

Environmental precautions:
No special measures are necessary.

Advices on general occupational hygiene

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.
Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:
Keep only in the original container in a cool, well-ventilated place. Keep container tightly closed. Protect from direct sunlight.
Ensure adequate ventilation of the storage area. Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Requirements for storage rooms and vessels:
Keep only in original container.

Hints on storage assembly:
Do not store together with: Gas, Oxidizing agent, Self-heating substances and mixtures.

Storage class (TRGS 510, Germany): 3 – Flammable liquids

Further information on storage conditions:
Recommended storage temperature: 5 -25 °C
Protect against: UV-radiation/sunlight, Heat

7.3. Specific end use(s)

Recommendation:
Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

* 8.1. Control parameters

8.1.1. Occupational exposure limit values

Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
CH from 1 Jan 2022	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 500 ppm (960 mg/m³) ② 1,000 ppm (1,920 mg/m³) ⑤ SSC; Tox: Formal; Messmeth: INRS NIOSH
CZ from 1 Mar 2020	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 522 ppm (1,000 mg/m³) ② 1,566 ppm (3,000 mg/m³)
PL	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,900 mg/m³
NO	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 500 ppm (950 mg/m³)
IE from 5 Dec 2011	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	② 1,000 ppm
MY from 1 Jan 2000	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,880 mg/m³)
HTP (FI)	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³) ② 1,300 ppm (2,500 mg/m³)
LT	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 500 ppm (1,000 mg/m³) ② 1,000 ppm (1,900 mg/m³)
SE from 22 Aug 2019	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 500 ppm (1,000 mg/m³) ③ 1,000 ppm (1,900 mg/m³)
NPEL (SK) from 23 Nov 2011	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 500 ppm (960 mg/m³) ② 1,000 ppm (1,920 mg/m³)
DK	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³) ② 2,000 ppm (3,800 mg/m³)
NL from 1 Jan 2023	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 137 ppm (260 mg/m³) ② 1,000 ppm (1,900 mg/m³) ⑤ (Kankerverwekkend, kan door de huid in het lichaam worden opgenomen) H
MAK (AT)	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³)
MAK (AT)	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	② 2,000 ppm (3,800 mg/m³) ⑤ (max. 3x60 min./Schicht, Momentanwert)
BG	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 mg/m³
HR	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³)
BE	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,907 mg/m³)

Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
RO	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³) ② 5,000 ppm (9,500 mg/m³)
EE	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 500 ppm (1,000 mg/m³) ② 1,000 ppm (1,900 mg/m³)
Alberta (CA)	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,880 mg/m³)
LV	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 mg/m³
ES from 1 Jan 2013	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	② 1,000 ppm (1,910 mg/m³) ⑤ s
BC (CA)	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	② 1,000 ppm
VLA (FR)	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³) ② 5,000 ppm (9,500 mg/m³)
SI from 4 Dec 2018	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 500 ppm (960 mg/m³) ② 1,000 ppm (1,920 mg/m³) ⑤ Y
TW	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,880 mg/m³)
WEL (GB)	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,920 mg/m³)
KR	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³)
IS	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³)
HU from 7 Feb 2020	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,900 mg/m³ ② 3,800 mg/m³ ⑤ N
RU	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 mg/m³ ③ 2,000 mg/m³
GR from 1 Oct 2016	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³)
IDLH (US) from 1 Jan 1994	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 3,300 ppm [10% LEL]
OSHA (US)	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³)
NIOSH (US)	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 1,000 ppm (1,900 mg/m³)
ACGIH (US) from 1 Jan 2016	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	② 1,000 ppm

Limit value type (country of origin)	**Substance name**	**① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark**
TRGS 900 (DE) from 29 Mar 2019	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	① 200 ppm (380 mg/m³) ② 800 ppm (1,520 mg/m³) ⑤ DFG, Y
Québec (CA) from 1 Apr 2022	**ethanol** CAS No.: 64-17-5 EC No.: 200-578-6	② 1,000 ppm
CH from 1 Jan 2022	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m³) ② 20 ppm (52 mg/m³) ⑤ (Dampf und Aerosol; kann über die Haut aufgenommen werden) H SSC; Tox: OAW Auge
BE	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ③ 40 ppm (104 mg/m³) ⑤ (Aérosol, peut être absorbé par la peau) D, M
CZ from 1 Mar 2020	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 19.4 ppm (50 mg/m³) ② 38.8 ppm (100 mg/m³) ⑤ (může pronikat pokožkou) D
PL	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 15 mg/m³ ② 50 mg/m³ ⑤ (może przenikać przez skórę do organizmu) skóra
NO from 1 Jul 2021	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (damp og Aerosol, kan absorberes gjennom huden) HE5S
TRGS 900 (DE)	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m³) ② 20 ppm (52 mg/m³) ⑤ (Aerosol und Dampf, kann über die Haut aufgenommen werden) DFG, EU, H, Y, 11
IE from 17 Jan 2020	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (may be absorbed through the skin) Sk, IOELV
MY from 1 Jan 2000	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	③ 39.4 ppm (100 mg/m³)
HTP (FI)	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (50 mg/m³) ② 40 ppm (100 mg/m³) ⑤ (voivat imeytyä ihon läpi) iho
LT from 15 Oct 2007	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (25 mg/m³) ② 20 ppm (50 mg/m³) ⑤ (garų ir Aerozolis) (tikėtinas įsisavinimas per odą) Šis RD taikomas bendrai garu ir aerozolio koncentracijai. O
SE from 1 Jun 2016	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (25 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (kan absorberas genom huden)
NPEL (SK) from 23 Nov 2011	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (rátajte so vstrebávaním cez pokožku) K
MAK (AT)	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m³) ⑤ (kann über die Haut aufgenommen werden) H

Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
DK	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 mg/m³ ② 20 mg/m³ ⑤ (forstøvet)
DK from 28 Jun 2022	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (kan optages gennem huden) EH
MAK (AT)	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	② 20 ppm (52 mg/m³) ⑤ (max. 8x5 min./Schicht, Momentanwert, kann über die Haut aufgenommen werden) H
BG from 6 Jan 2012	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (трябва да се очаква абсорбиране през кожата)
HR	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (mora se uzeti u obzir prodiranje kroz kožu) koža
ES	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (puede ser absorbido a través dérmica) vía dérmica, VLI
RO from 21 Aug 2018	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (e de asteptat asimilarea prin piele) P
EE from 17 Jan 2020	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (naha kaudu kergesti absorbeeruvad ained, aur ja Aerosool) A, 18
LV	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (var absorbet caur adu) Āda
Alberta (CA)	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	③ 100 mg/m³ ⑤ 3
BC (CA) from 1 Mar 2022	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 mg/m³ ② 20 mg/m³ ③ 100 mg/m³ ⑤ (Aerosol)
BC (CA) from 1 Mar 2022	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	③ 50 ppm ⑤ (vapor)
IOELV (EU)	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (may be absorbed through the skin)
VRI (FR)	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (peut être absorbé par la peau)
WEL (GB)	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (vapour, may be absorbed through the skin)

Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
SI	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (računati je treba z možnostjo prodiranja skozi kožo) K, Y, EU1
TW	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 mg/m³ ⑤ (##)
TW	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	③ 50 ppm (127 mg/m³) ⑤ (#)
WEL (GB)	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 mg/m³ ⑤ (may be absorbed through the skin)
KR	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	③ 40 ppm (100 mg/m³) ⑤ (## #(#) ##)
IS	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (efnið getur auðveldlega borist inn í líkamann gegnum húð) H
IS	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m³) ⑤ (úðaefni, efnið getur auðveldlega borist inn í líkamann gegnum húð)
CN from 1 Jan 2007	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 mg/m³ ② 40 mg/m³
HU	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 52 mg/m³ ② 104 mg/m³ ⑤ (felvehető a bőrön keresztül) b, i, N
RU	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 5 mg/m³ ③ 10 mg/m³
GR from 1 Oct 2016	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 50 ppm (125 mg/m³) ② 50 ppm (125 mg/m³)
NL from 20 Jan 2021	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 52 mg/m³ ② 104 mg/m³ ⑤ (damp, kan door de huid in het lichaam worden opgenomen) H
ACGIH (US) from 1 Jan 2017	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	② 10 mg/m³ ⑤ (inhalable fraction Aerosol)
NL	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 10 mg/m³ ⑤ (deeltjes)
TR	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m³) ② 40 ppm (104 mg/m³) ⑤ (cilt yoluyla alınabilir) Deri
ACGIH (US) from 1 Jan 2017	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	① 25 ppm ② 50 ppm ⑤ (vapor)
Québec (CA)	**1,2-Ethanediol** CAS No.: 107-21-1 EC No.: 203-473-3	③ 50 ppm (127 mg/m³)

Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
CH from 1 Jan 2022	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (590 mg/m³) ② 200 ppm (590 mg/m³) ⑤ (kann über die Haut aufgenommen werden) H SSC B; Tox: OAW NS; Messmeth: INRS NIOSH OSHA
MAK (AT)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 100 ppm (295 mg/m³) ⑤ (kann über die Haut aufgenommen werden) H
BE	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³)
CZ from 1 Mar 2020	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200.4 ppm (600 mg/m³) ② 300.6 ppm (900 mg/m³) ⑤ I
PL from 1 Oct 2005	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 450 mg/m³ ② 900 mg/m³ ⑤ (może przenikać przez skórę do organizmu) skóra
NO	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 75 ppm (220 mg/m³) ⑤ E
IE	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³) ⑤ (may be absorbed through the skin) Sk, IOELV
HTP (FI)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	② 100 ppm (300 mg/m³) ⑤ (voivat imeytyä ihon läpi) iho
LT	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³) ⑤
SE from 1 Jun 2016	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 50 ppm (150 mg/m³) ② 300 ppm (900 mg/m³)
NPEL (SK) from 23 Nov 2011	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³)
DK from 28 Jun 2022	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 50 ppm (145 mg/m³) ② 300 ppm (900 mg/m³) ⑤ (kan optages gennem huden) EH
MAK (AT)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	② 200 ppm (590 mg/m³) ⑤ (max. 4x30 min./Schicht, kann über die Haut aufgenommen werden) H
BG	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 590 mg/m³ ② 885 mg/m³
HR	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³)
ES	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³) ⑤ VLB®, VLI
RO	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³)

Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
EE	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³)
MY from 1 Jan 2000	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (590 mg/m³)
LV from 1 Feb 2011	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 67 ppm (200 mg/m³) ② 300 ppm (900 mg/m³)
Alberta (CA)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (590 mg/m³) ② 300 ppm (885 mg/m³)
BC (CA)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 50 ppm ② 100 ppm
IOELV (EU)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³)
VRC (FR)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³) ⑤ (peut être absorbé par la peau)
JP	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (590 mg/m³)
WEL (GB)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (899 mg/m³)
SI	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³) ⑤ (računati je treba z možnostjo prodiranja skozi kožo) K, Y, BAT, EU1
TW	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (590 mg/m³)
KR	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (590 mg/m³) ② 300 ppm (885 mg/m³)
IS	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 50 ppm (145 mg/m³) ② 300 ppm (900 mg/m³) ⑤ (efnið getur auðveldlega borist inn í líkamann gegnum húð) H
HU	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 600 mg/m³ ② 900 mg/m³ ⑤ (felvehető a bőrön keresztül) b, i, N
CN from 1 Jan 2007	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 300 mg/m³ ② 600 mg/m³
NL from 1 Jan 2023	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 197 ppm (590 mg/m³) ② 300 ppm (900 mg/m³) ⑤ (kan door de huid in het lichaam worden opgenomen) H
GR from 1 Oct 2016	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³)

Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
TR	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 300 ppm (900 mg/m³)
RU from 2 Jan 1900	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 mg/m³ ③ 400 mg/m³
IDLH (US) from 1 Jan 1994	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 3,000 ppm
OSHA (US)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (590 mg/m³)
NIOSH (US)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (590 mg/m³) ② 300 ppm (885 mg/m³)
ACGIH (US)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (590 mg/m³) ② 300 ppm (885 mg/m³)
Québec (CA)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 50 ppm (150 mg/m³) ② 100 ppm (300 mg/m³)
TRGS 900 (DE)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	① 200 ppm (600 mg/m³) ② 200 ppm (600 mg/m³) ⑤ (kann über die Haut aufgenommen werden) DFG, EU, H, Y
ACGIH (US)	**Citral; 3,7-Dimethyl-2,6-octadienal** CAS No.: 5392-40-5 EC No.: 226-394-6	① 5 ppm ⑤ (inhalable fraction and vapor, may be absorbed through the skin)
PL	**Citral; 3,7-Dimethyl-2,6-octadienal** CAS No.: 5392-40-5 EC No.: 226-394-6	① 27 mg/m³ ② 54 mg/m³
IE from 21 Aug 2018	**Citral; 3,7-Dimethyl-2,6-octadienal** CAS No.: 5392-40-5 EC No.: 226-394-6	① 5 ppm ⑤ (inhalable fraction and vapour)
BE from 21 Jan 2020	**Citral; 3,7-Dimethyl-2,6-octadienal** CAS No.: 5392-40-5 EC No.: 226-394-6	① 5 ppm (32 mg/m³) ⑤ (vapeur et Aérosol; peut être absorbé par la peau) D
ES from 1 May 2021	**Citral; 3,7-Dimethyl-2,6-octadienal** CAS No.: 5392-40-5 EC No.: 226-394-6	① 5 ppm ⑤ (puede ser absorbido a través dérmica, [EinatmFraktK][und][Dampf1]) vía dérmica, Sen, FIV
NO	**dipentene** CAS No.: 138-86-3 EC No.: 205-341-0	① 25 ppm (140 mg/m³) ⑤ A
LT	**dipentene** CAS No.: 138-86-3 EC No.: 205-341-0	① 25 ppm (150 mg/m³) ② 50 ppm (300 mg/m³) ⑤ Spygliuociu sakai jautrina oda. Atskiru terpenu, išskyrus 3-karena, jautrinantis poveikis nera ištirtas. J
SE	**dipentene** CAS No.: 138-86-3 EC No.: 205-341-0	① 25 ppm (150 mg/m³) ③ 50 ppm (300 mg/m³) ⑤ (cf. Terpenes)
EE from 17 Jan 2020	**dipentene** CAS No.: 138-86-3 EC No.: 205-341-0	① 25 ppm (150 mg/m³) ② 50 ppm (300 mg/m³) ⑤ 10

Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
RU	**bronopol** CAS No.: 52-51-7 EC No.: 200-143-0	③ 3 mg/m³

8.1.2. Biological limit values

Limit value type (country of origin)	Substance name	Limit value	① Parameter ② Test material ③ Time of sampling: ④ Remark
TRGS 903 (DE) from 9 Nov 2015	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	2 mg/L	① 2-Butanon ② Urin ③ Expositionsende bzw. Schichtende
BAT (CH) from 1 Jan 2016	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	2 mg/L	① 2-Butanon ② Urin ③ Expositionsende bzw. Schichtende
VLB (ES)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	2 mg/L	① Metiletilcetona ② orina ③ fin de exposición o fin de turno
OEL-B (JP)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	5 mg/L	① Methylethylketone ② # ③ ########## ④ or a few hours
VLBO (RO)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	2 mg/L	① Metiletilcetona ② urina ③ finalul expunerii, resp. finalul schimbului
ACGIH-BEI (US)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	2 mg/L	① MEK ② urine ③ end of exposure or end of shift
BIO (HR)	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	2.6 mg/g kreatinin	① etil-metil-keton ② urin ③ kraj izloženosti, odnosno kraj smjene
BAT (SI) from 11 May 2021	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	2 mg/L	① metil etil keton ② urin ③ ob koncu delovne izmene
BIO (HU) from 7 Feb 2020	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	2 mg/L	① Metil-etil-keton ② vizelet ③ expozíció vége illetve műszak vége
BMGV (GB) from 3 Jan 1900	**butanone** CAS No.: 78-93-3 EC No.: 201-159-0	70 µmol/L	① butan 2-one ② urine ③ end of exposure or end of shift

8.1.3. DNEL-/PNEC-values

Substance name	DNEL value	① DNEL type ② Exposure route
ethanol CAS No.: 64-17-5 EC No.: 200-578-6	950 mg/m³	① DNEL worker ② Long-term – inhalation, systemic effects
ethanol CAS No.: 64-17-5 EC No.: 200-578-6	114 mg/m³	① DNEL Consumer ② Long-term – inhalation, systemic effects
ethanol CAS No.: 64-17-5 EC No.: 200-578-6	1,900 mg/m³	① DNEL worker ② Acute - inhalation, local effects
ethanol CAS No.: 64-17-5 EC No.: 200-578-6	950 mg/m³	① DNEL Consumer ② Acute - inhalation, local effects
ethanol CAS No.: 64-17-5 EC No.: 200-578-6	343 mg/kg bw/day	① DNEL worker ② Long-term - dermal, systemic effects
ethanol CAS No.: 64-17-5 EC No.: 200-578-6	206 mg/kg bw/day	① DNEL Consumer ② Long-term - dermal, systemic effects
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	35 mg/m³	① DNEL worker ② Long-term – inhalation, local effects
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	106 mg/kg bw/day	① DNEL worker ② Long-term - dermal, systemic effects
butanone CAS No.: 78-93-3 EC No.: 201-159-0	600 mg/m³	① DNEL worker ② Long-term – inhalation, systemic effects
butanone CAS No.: 78-93-3 EC No.: 201-159-0	106 mg/m³	① DNEL Consumer ② Long-term – inhalation, systemic effects
butanone CAS No.: 78-93-3 EC No.: 201-159-0	1,161 mg/kg bw/day	① DNEL worker ② Long-term - dermal, systemic effects
butanone CAS No.: 78-93-3 EC No.: 201-159-0	412 mg/kg bw/day	① DNEL Consumer ② Long-term - dermal, systemic effects
butanone CAS No.: 78-93-3 EC No.: 201-159-0	31 mg/kg bw/day	① DNEL Consumer ② Long-term - oral, systemic effects
dipentene CAS No.: 138-86-3 EC No.: 205-341-0	33.3 mg/m³	① DNEL worker ② Long-term – inhalation, systemic effects
Alcohols, C12-14, ethoxylated, sulfates, sodium salts CAS No.: 68891-38-3 EC No.: 500-234-8	175 mg/m³	① DNEL worker ② Long-term – inhalation, systemic effects
Alcohols, C12-14, ethoxylated, sulfates, sodium salts CAS No.: 68891-38-3 EC No.: 500-234-8	2,750 mg/kg bw/day	① DNEL worker ② Long-term - dermal, systemic effects

Substance name	PNEC Value	① PNEC type
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	10 mg/L	① PNEC aquatic, freshwater
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	1 mg/L	① PNEC aquatic, marine water
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	37 mg/kg	① PNEC sediment, freshwater

Substance name	PNEC Value	① PNEC type
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	3.7 mg/kg	① PNEC sediment, marine water
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	1.53 mg/kg	① PNEC soil
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	10 mg/L	① PNEC aquatic, intermittent release

*
8.2. Exposure controls

8.2.1. Appropriate engineering controls

Use only in well-ventilated areas.
Take precautionary measures against static discharges.

8.2.2. Personal protection equipment

Eye/face protection:

Suitable eye protection: Eye glasses with side protection
DIN-/EN-Norms EN 166

Skin protection:

Hand protection
Suitable material: NBR (Nitrile rubber), PVC (polyvinyl chloride)
Thickness of the glove material: ≥ 0,4 mm
Breakthrough time: 480 min
Breakthrough times and swelling properties of the material must be taken into consideration. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.
Tested protective gloves must be worn: EN ISO 374
Suitable protective clothing: Protective clothing In the case of wanting to use the gloves again, clean them before taking off and air them well.

Respiratory protection:

Usually no personal respirative protection necessary.
If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.
Filtering device with filter or ventilator filtering device of type: AX

Thermal hazards:

To avoid thermal decomposition do not overheat.

8.2.3. Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

*
9.1. Information on basic physical and chemical properties

Appearance

Physical state: Liquid **Colour:** blue
Odour: Lemon

Safety relevant basis data

Parameter	Value	at °C	① Method ② Remark
pH	6.5 – 7	20 °C	② Data apply to the main component.
Melting point	*not determined*		
Freezing point	*No data available*		
Initial boiling point and boiling range	97 °C		
Decomposition temperature	*not applicable*		
Flash point	25 °C		
Evaporation rate	*No data available*		

Parameter	Value	at °C	① Method ② Remark
Auto-ignition temperature	*No data available*		
Upper/lower flammability or explosive limits	*No data available*		
Vapour pressure	*No data available*		
Vapour density	*not applicable*		
Density	958 kg/m³	20 °C	
Relative density	*not applicable*		
Bulk density	*not applicable*		
Water solubility	completely miscible		
Partition coefficient: n-octanol/water	*not applicable*		
Dynamic viscosity	*not determined*		
Kinematic viscosity	*not determined*		

9.2. Other information
Not applicable

SECTION 10: Stability and reactivity

* ### 10.1. Reactivity
Flammable liquid and vapour.
Reference to other sections: SECTION 10: Stability and reactivity,

10.2. Chemical stability
The product is stable under storage at normal ambient temperatures.

* ### 10.3. Possibility of hazardous reactions
No information available.

10.4. Conditions to avoid
Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.
Reference to other sections: SECTION 7: Handling and storage
Heating causes rise in pressure with risk of bursting. Recommended storage temperature: 5-25°C

10.5. Incompatible materials
Strong acid, Oxidising agent

* ### 10.6. Hazardous decomposition products
During heating or in case of fire, toxic gases is possible. Carbon monoxide (CO) Carbon dioxide (CO2)

SECTION 11: Toxicological information

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

ethanol CAS No.: 64-17-5 EC No.: 200-578-6
LD_{50} oral: 10,470 mg/kg (Rat)
LD_{50} dermal: >2,000 mg/kg (Rabbit)
LC_{50} Acute inhalation toxicity (gas): 20,000 ppmV 4 h (rat)
LC_{50} Acute inhalation toxicity (vapour): 124 mg/L (Mouse)
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3
ATE (oral): ≥536 mg/kg
LD_{50} oral: ≥7,712 mg/kg (Rat)
LD_{50} dermal: ≥3,500 mg/kg (Mouse)
LC_{50} Acute inhalation toxicity (vapour): >2.5 mg/L 6 h (Rat)
LC_{50} Acute inhalation toxicity (dust/mist): ≥2.5 mg/L 6 h (Rat)
butanone CAS No.: 78-93-3 EC No.: 201-159-0
LD_{50} oral: 3,300 g/m³ (Rat)
LD_{50} dermal: 5,000 g/m³ (Rabbit)
LC_{50} Acute inhalation toxicity (vapour): 40 mg/L 4 h (Rat) OECD Prüfrichtlinie 436

dipentene CAS No.: 138-86-3 EC No.: 205-341-0	
LD_{50} oral: 4,400 mg/kg (Rat)	
LD_{50} dermal: >5,000 mg/kg (Rabbit)	
bronopol CAS No.: 52-51-7 EC No.: 200-143-0	
LD_{50} oral: 193 mg/kg (rat)	
LD_{50} dermal: >2,000 mg/kg (rat) OECD Guideline 402 (Acute Dermal Toxicity)	
LC_{50} Acute inhalation toxicity (dust/mist): >0.12 – <1.14 mg/L 4 h (rat)	

Acute oral toxicity:
Based on available data, the classification criteria are not met.

Acute dermal toxicity:
Based on available data, the classification criteria are not met.

Acute inhalation toxicity:
Based on available data, the classification criteria are not met.

Skin corrosion/irritation:
Based on available data, the classification criteria are not met.

Serious eye damage/irritation:
Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation:
Based on available data, the classification criteria are not met.

Germ cell mutagenicity:
Based on available data, the classification criteria are not met.

Carcinogenicity:
Based on available data, the classification criteria are not met.

Reproductive toxicity:
Based on available data, the classification criteria are not met.

STOT-single exposure:
Based on available data, the classification criteria are not met.

STOT-repeated exposure:
Based on available data, the classification criteria are not met.

Aspiration hazard:
Based on available data, the classification criteria are not met.

Additional information:
Frequently or prolonged contact with skin may cause dermal irritation.

* 11.2. Information on other hazards

Endocrine disrupting properties:
This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

Other information:
No information available.

SECTION 12: Ecological information

* 12.1. Toxicity

ethanol CAS No.: 64-17-5 EC No.: 200-578-6	
LC_{50}: 11,000 mg/L 4 d (fish)	
LC_{50}: 9,280 mg/L 2 d (crustaceans)	
LC_{50}: 13,000 mg/L 4 d (fish, Oncorhynchus mykiss (Rainbow trout))	
LC_{50}: 5,012 mg/L	
EC_{50}: 9,950 mg/L 2 d (crustaceans)	
EC_{50}: 275 mg/L 3 d (Algae/water plant, Chlorella vulgaris)	
EC_{50}: >10,000 mg/L 2 d (crustaceans, Daphnia magna (Big water flea))	
EC_{50}: 275 mg/L 3 d (Algae/water plant, Chlorella vulgaris)	
EC_{50}: 12,340 mg/L 2 d (crustaceans, Daphnia magna (Big water flea))	
EC_{50}: 275 mg/L 3 d (Selenastrum capricornutum)	
NOEC: 12,340 mg/L 21 d	

1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3
LC_{50}: ≥72,860 mg/L 4 d (fish)
LC_{50}: 72,860 mg/L 4 d (Pimephales promelas)
EC_{50}: ≥100 mg/L 2 d (crustaceans)
EC_{50}: ≥3,536 – ≤13,000 mg/L 4 d (Algae/water plant)
EC_{50}: >1,995 mg/L
NOEC: ≥15,380 – ≤32,000 mg/L 12 d (fish)
NOEC: ≥7,500 – ≤15,000 mg/L 21 d (crustaceans)
NOEC: ≥100 mg/L 3 d (Algae/water plant)
butanone CAS No.: 78-93-3 EC No.: 201-159-0
LC_{50}: 3,220 mg/L 4 d (fish, Pimephales promelas (fathead minnow))
LC_{50}: 2,993 mg/L 4 d (fish, Pimephales promelas (fettköpfige Elritze)) OECD Prüfrichtlinie 203
EC_{50}: 5,090 mg/L 2 d (crustaceans)
EC_{50}: 308 mg/L 2 d (crustaceans, Daphnia magna (Big water flea)) OECD- Prüfrichtlinie 202
NOEC: 1,240 mg/L (Algae/water plant, Pseudokirchneriella subcapitata (Grünalge))
ErC_{50}: 2,029 mg/L 4 d (Algae/water plant, Pseudokirchneriella subcapitata (Grünalge)) OECD- Prüfrichtlinie 201
dipentene CAS No.: 138-86-3 EC No.: 205-341-0
LC_{50}: 17.9 mg/L 3 d (fish)
LC_{50}: 0.702 mg/L
EC_{50}: 17 mg/L 2 d (crustaceans)
bronopol CAS No.: 52-51-7 EC No.: 200-143-0
LC_{50}: 11 mg/L 4 d (fish, Lepomis macrochirus) OECD Guideline 203 (Fish, Acute Toxicity Test)
EC_{50}: 0.026 mg/L 3 d (Algae/water plant, Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)) OECD Guideline 201 (Alga, Growth Inhibition Test)
EC_{50}: 1.4 mg/L 2 d (crustaceans, Daphnia magna) OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
NOEC: 0.052 mg/L 3 d (Algae/water plant, Skeletonema costatum) OECD Guideline 201 (Alga, Growth Inhibition Test)
NOEC: >20 mg/L 4 d (fish, Lepomis macrochirus) EPA OPP 72-1 (Fish Acute Toxicity Test)
NOEC: 2.61 mg/L 28 d (fish, Oncorhynchus mykiss (previous name: Salmo gairdneri)) OECD Guideline 215 (Fish, Juvenile Growth Test)
NOEC: 0.27 mg/L 21 d (crustaceans, Daphnia magna) OECD Guideline 211 (Daphnia magna Reproduction Test)
LOEC: 0.88 mg/L 21 d (crustaceans, Daphnia magna) OECD Guideline 211 (Daphnia magna Reproduction Test)

Assessment/classification:
Based on available data, the classification criteria are not met.

Additional ecotoxicological information:
Do not allow uncontrolled discharge of product into the environment.

* 12.2. Persistence and degradability

ethanol CAS No.: 64-17-5 EC No.: 200-578-6
Biodegradation: Yes, rapidly
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3
Biodegradation: Yes, rapidly
butanone CAS No.: 78-93-3 EC No.: 201-159-0
Biodegradation: Yes, rapidly
dipentene CAS No.: 138-86-3 EC No.: 205-341-0
Biodegradation: —
bronopol CAS No.: 52-51-7 EC No.: 200-143-0
Biodegradation: Poorly biodegradable.

Biodegradation:
The single components are biodegradable.

* 12.3. Bioaccumulative potential

ethanol CAS No.: 64-17-5 EC No.: 200-578-6
Log K_{OW}: -0.32
Bioconcentration factor (BCF): 3.2

1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3
Log K_{OW}: = -1.36
butanone CAS No.: 78-93-3 EC No.: 201-159-0
Log K_{OW}: 0.29
dipentene CAS No.: 138-86-3 EC No.: 205-341-0
Log K_{OW}: 4.5
bronopol CAS No.: 52-51-7 EC No.: 200-143-0
Log K_{OW}: 0.18
Bioconcentration factor (BCF): 3.16 Species: other: calculated value

Partition coefficient: n-octanol/water:
not applicable

Accumulation / Evaluation:
The product has not been tested.

12.4. Mobility in soil
The product has not been tested.

*
12.5. Results of PBT and vPvB assessment

ethanol CAS No.: 64-17-5 EC No.: 200-578-6
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.
butanone CAS No.: 78-93-3 EC No.: 201-159-0
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.
dipentene CAS No.: 138-86-3 EC No.: 205-341-0
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.
bronopol CAS No.: 52-51-7 EC No.: 200-143-0
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties
This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects
No information available.

SECTION 13: Disposal considerations

*
13.1. Waste treatment methods
Dispose of waste according to applicable legislation.

13.1.1. Product/Packaging disposal

Waste codes/waste designations according to EWC/AVV
Directive 2008/98/EC (Waste Framework Directive)

HP 3	Flammable

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

Waste treatment options
Appropriate disposal / Product:
Dispose of waste according to applicable legislation. Consult the appropriate local waste disposal expert about waste disposal.

Appropriate disposal / Package:
Non-contaminated packages may be recycled.

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

SECTION 14: Transport information

Land transport (ADR/RID)	Inland waterway craft (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
* **14.1. UN number or ID number**			
UN 1993	UN 1993	UN 1993	UN 1993
* **14.2. UN proper shipping name**			
FLAMMABLE LIQUID, N.O.S. (Ethanol , 2-Butanone)	FLAMMABLE LIQUID, N.O.S. (Ethanol , 2-Butanone)	FLAMMABLE LIQUID, N.O.S. (Ethanol , 2-Butanone)	FLAMMABLE LIQUID, N.O.S. (Ethanol , 2-Butanone)
14.3. Transport hazard class(es)			
 3	 3	 3	 3
14.4. Packing group			
III	III	III	III
14.5. Environmental hazards			
No	No	No	No
* **14.6. Special precautions for user**			
Limited quantity (LQ): 5 L **Hazard identification number (Kemler No.):** 30 **Classification code:** F1 **Tunnel restriction code:** (D/E)	**Limited quantity (LQ):** 5 L **Classification code:** F1	**Limited quantity (LQ):** 5 L **EmS-No.:** F-E, S-E	No data available

14.7. Maritime transport in bulk according to IMO instruments

No transport as bulk according to IBC Code.

SECTION 15: Regulatory information

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

15.1.1. EU legislation

Other regulations (EU):

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive], Hazard categories:

• P5c Flammable liquids of Categories 2 or 3, not covered by P5a and P5b

Regulation (EC) No. 648/2004 [Detergents regulation]: Contains: Preservative (bronopol), Fragrances and dyes.

15.1.2. National regulations

[DE] National regulations

Restrictions of occupation

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Störfallverordnung (12. BImschV)

for substances contained in the product:

Hazard categories:

• P5c Flammable liquids of Categories 2 or 3, not covered by P5a and P5b

Betriebssicherheitsverordnung (BetrSichV)

entzündlich

Technische Anleitung zur Reinhaltung der Luft (TA-Luft)

Remark:

To follow: 5.2.5

Water hazard class

WGK:

1 - slightly hazardous to water

Source:
Self-classification (mixture; calculation rule).

Technische Regeln für Gefahrstoffe
TRGS 510
TRGS 500
TRGS 900

Berufsgenossenschaftliche Vorschriften (DGUV-Vorschriften)
Berufsgenossenschaftliche Informationen (DGUV-Informationen) 868
Berufsgenossenschaftliche Regeln (DGUV-Regeln) 189, 190, 192, 195

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

SECTION 16: Other information

*
16.1. Indication of changes

1.3.	Details of the supplier of the safety data sheet
1.4.	Emergency telephone number
2.2.	Label elements
2.3.	Other hazards
3.2.	Mixtures
4.1.	Description of first aid measures
4.2.	Most important symptoms and effects, both acute and delayed
4.3.	Indication of any immediate medical attention and special treatment needed
5.2.	Special hazards arising from the substance or mixture
6.1.	Personal precautions, protective equipment and emergency procedures
7.1.	Precautions for safe handling
8.1.	Control parameters
8.2.	Exposure controls
9.1.	Information on basic physical and chemical properties
10.1.	Reactivity
10.3.	Possibility of hazardous reactions
10.6.	Hazardous decomposition products
11.1.	Information on hazard classes as defined in Regulation (EC) No 1272/2008
11.2.	Information on other hazards
12.1.	Toxicity
12.2.	Persistence and degradability
12.3.	Bioaccumulative potential
12.5.	Results of PBT and vPvB assessment
13.1.	Waste treatment methods
14.1.	UN number or ID number
14.2.	UN proper shipping name
14.6.	Special precautions for user
15.1.	Safety, health and environmental regulations/legislation specific for the substance or mixture
16.1.	Indication of changes
16.3.	Key literature references and sources for data
16.5.	Relevant R-, H- and EUH-phrases (Number and full text)

16.2. Abbreviations and acronyms
See overview table at www.euphrac.eu
For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

*
16.3. Key literature references and sources for data
EC 1907/2006 - REACH Regulation
1272/2008 EC - Regulation on classification, labeling and packaging of substances and mixtures, and amending Directives 67/548/EEC and 1999/45/EC and Regulation (EC) No 1907/2006
Regulation (EC) No 1907/2006 (REACH), Annex II
European Chemicals Agency (ECHA), C & L classification and labeling inventory
European Chemicals Agency (ECHA), ECHA CHEM Registered substances
OECD The Global Portal to Information on Chemical Substances (ChemPortal)

Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA): GESTIS substance database and International limit values for chemical substances
Federal Environment Agency, Section IV 2.4: Documentation and Information Centre substances hazardous to water Rigoletto (catalog substances hazardous to water)

Substance name	Type	source of supply
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	Classification of the substance or mixture	Source: European Chemicals Agency, http://echa.europa.eu/
Citral; 3,7-Dimethyl-2,6-octadienal CAS No.: 5392-40-5 EC No.: 226-394-6	Classification of the substance or mixture	Source: European Chemicals Agency, http://echa.europa.eu/
bronopol CAS No.: 52-51-7 EC No.: 200-143-0	LD_{50} oral; LD_{50} dermal; LC_{50} Acute inhalation toxicity (dust/mist); LC_{50}; EC_{50}; NOEC; LOEC	Source: European Chemicals Agency, http://echa.europa.eu/

16.4. Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Hazard classes and hazard categories	Hazard statements	Classification procedure
flammable liquids *(Flam. Liq. 3)*	H226: Flammable liquid and vapour.	On basis of test data.

* 16.5. Relevant R-, H- and EUH-phrases (Number and full text)

Hazard statements	
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Supplemental hazard information	
EUH066	Repeated exposure may cause skin dryness or cracking.

16.6. Training advice

No data available

16.7. Additional information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

* Data changed compared with the previous version.