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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 Motorstarter-Spray

Article No.:

1360034

UFI:

4663-P1TT-XENM-ARV8

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

Use of the substance/mixture:

Technical Spray

* 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
Aerosols (<i>Aerosol 1</i>)	H222; H229: Extremely flammable aerosol. Pressurised container: May burst if heated.	On basis of test data.
Aspiration hazard (<i>Asp. Tox. 1</i>)	H304: May be fatal if swallowed and enters airways.	Calculation method.
Skin corrosion/irritation (<i>Skin Irrit. 2</i>)	H315: Causes skin irritation.	Calculation method.
STOT-single exposure (<i>STOT SE 3</i>)	H336: May cause drowsiness or dizziness.	Calculation method.
Hazardous to the aquatic environment (<i>Aquatic Chronic 3</i>)	H412: Harmful to aquatic life with long lasting effects.	Calculation method.



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* 2.2. Label elements

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

Hazard pictograms:



GHS02
Flame



GHS07
Exclamation mark

Signal word: Danger

Hazard components for labelling:

tert-butyl methyl ether; Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane; Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes; acetone

Hazard statements for physical hazards

H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.

Hazard statements for health hazards

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Hazard statements for environmental hazards

H412	Harmful to aquatic life with long lasting effects.
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Supplemental hazard information: none

Precautionary statements

P101	If medical advice is needed, have product container or label at hand.
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.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P261	Avoid breathing vapours and spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves and eye/face protection.

Precautionary statements Response

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER/doctor/Emergency telephone number if you feel unwell.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.

Precautionary statements Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Precautionary statements Disposal

P501	Dispose of contents/container to an appropriate recycling or disposal facility.
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* 2.3. Other hazards

Other adverse effects:

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



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SECTION 3: Composition/information on ingredients

* 3.2. Mixtures

Hazardous ingredients / Hazardous impurities / Stabilisers:

Product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concentration
CAS No.: 75-28-5 EC No.: 200-857-2 Index No.: 601-004-00-0 REACH No.: 01-2119485395-27	isobutane Flam. Gas 1A (H220), Press. Gas (Liq.) (H280) Danger	25 - < 50 Vol-%
CAS No.: 1634-04-4 EC No.: 216-653-1 Index No.: 603-181-00-X	tert-butyl methyl ether Flam. Liq. 2 (H225), Skin Irrit. 2 (H315) Danger Additional information: This substance has endocrine disrupting properties with respect to humans. This substance has endocrine disrupting properties with respect to non-target organisms.	20 - < 25 Vol-%
EC No.: 921-024-6 REACH No.: 01-2119475514-35	Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane Aquatic Chronic 2 (H411), Asp. Tox. 1 (H304), Flam. Liq. 2 (H225), STOT SE 3 (H336), Skin Irrit. 2 (H315) Danger	5 - < 10 Vol-%
CAS No.: 64742-49-0 EC No.: 927-510-4 REACH No.: 01-2119475515-33	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes Aquatic Chronic 2 (H411), Asp. Tox. 1 (H304), Flam. Liq. 2 (H225), STOT SE 3 (H336), Skin Irrit. 2 (H315) Danger	5 - < 10 Vol-%
CAS No.: 74-98-6 EC No.: 200-827-9 Index No.: 601-003-00-5 REACH No.: 01-2119486944-21	propane Flam. Gas 1A (H220), Press. Gas (Liq.) (H280) Danger	5 - < 10 Vol-%
CAS No.: 67-64-1 EC No.: 200-662-2 Index No.: 606-001-00-8 REACH No.: 01-2119471330-49	acetone Eye Irrit. 2 (H319), Flam. Liq. 2 (H225), STOT SE 3 (H336) Danger EUH066	5 - < 10 Vol-%
CAS No.: 106-97-8 EC No.: 203-448-7 Index No.: 601-004-00-0 REACH No.: 01-2119474691-32	butane Flam. Gas 1A (H220), Press. Gas (Liq.) (H280) Danger	1 - < 3 Vol-%
CAS No.: 67-56-1 EC No.: 200-659-6 Index No.: 603-001-00-X	methanol Acute Tox. 3 (H331, H311, H301), Flam. Liq. 2 (H225), STOT SE 1 (H370**) Danger Specific concentration limit (SCL) STOT SE 1; H370: C ≥ 10% STOT SE 2; H371: 3% ≤ C < 10%	0.1 - < 1 Vol-%

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

SECTION 4: First aid measures

* 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:

Provide fresh air. Consult a doctor immediately in the case of inhaling spray mist and show him packing or label.

In case of skin contact:

Causes skin irritation. After contact with skin, wash immediately with plenty of water and soap. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.



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After eye contact:

Causes serious eye irritation. After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Following ingestion:

Rinse mouth thoroughly with water. Do NOT induce vomiting. Consult a doctor immediately.

Self-protection of the first aider:

Use personal protection equipment. No direct artificial respiration to be given by first aider.

* **4.2. Most important symptoms and effects, both acute and delayed**

The following symptoms may occur: Headache, Dizziness, Nausea, fatigue, skin irritation
May cause drowsiness or dizziness.

Causes skin irritation. Causes serious eye irritation.

* **4.3. Indication of any immediate medical attention and special treatment needed**

Treat symptomatically. Call a POISON CENTER.

SECTION 5: Firefighting measures

* **5.1. Extinguishing media**

Suitable extinguishing media:

Co-ordinate fire-fighting measures to the fire surroundings.

Carbon dioxide (CO₂)

Extinguishing powder

alcohol resistant foam

Use water spray jet to protect personnel and to cool endangered containers.

Unsuitable extinguishing media:

Full water jet

* **5.2. Special hazards arising from the substance or mixture**

Extremely flammable aerosol. Pressurized container: May burst if heated.

Hazardous combustion products:

Nitrogen oxides (NO_x), Carbon monoxide, Carbon dioxide (CO₂), aldehydes, carbon black, Gases/vapours, toxic

* **5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus.

* **5.4. Additional information**

Move undamaged containers from immediate hazard area if it can be done safely. Do not inhale explosion and combustion gases. Use water spray jet to protect personnel and to cool endangered containers.

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:

Use personal protection equipment. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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**

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains. 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).



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For cleaning up:

Clean contaminated articles and floor according to the environmental legislation.

Other information:

Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

* **7.1. Precautions for safe handling**

Protective measures

Advices on safe handling:

Pressurised container: May burst if heated. Do not pierce or burn, even after use. If handled uncovered, arrangements with local exhaust ventilation should be used if possible. Do not breathe gas/vapour/aerosol.

Wear personal protection equipment (refer to section 8). When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work. Do not put any product-impregnated cleaning rags into your trouser pockets. Use appropriate container to avoid environmental contamination.

Fire prevent measures:

Do not spray on naked flames or any incandescent material. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. Keep away from sources of ignition - No smoking.

Measures to prevent aerosol and dust generation:

Use only in well-ventilated areas.

Environmental precautions:

Shafts and sewers must be protected from entry of the product.

Advices on general occupational hygiene

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Keep container tightly closed in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Requirements for storage rooms and vessels:

Observe legal regulations and regulations.

Hints on storage assembly:

Do not store together with:

Oxidizing agent

Pyrophoric or self-heating substances

Food and feedingstuffs

Storage class (TRGS 510, Germany): 2B – Aerosol dispensers and lighters

Further information on storage conditions:

Protect against: Frost, UV-radiation/sunlight

maximum storage temperature: 50 °C

7.3. Specific end use(s)

Recommendation:

Observe technical data sheet.



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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	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	① 800 ppm (1,900 mg/m ³) ② 3,200 ppm (7,600 mg/m ³) ⑤ Tox: ZNS
HTP (FI)	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	① 800 ppm (1,900 mg/m ³) ② 1,000 ppm (2,400 mg/m ³) ⑤ liite 4
MAK (AT)	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	② 1,600 ppm (3,800 mg/m ³) ⑤ (max. 3x60 min./SchichtMomentanwert)
BE from 3 Oct 2018	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	② 980 ppm (2,370 mg/m ³)
EE	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	① 800 ppm (1,900 mg/m ³)
TSH (SK) from 1 May 2019	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	① 1,000 ppm (2,400 mg/m ³) ⑤ karc 1A
SI	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	① 1,000 ppm (2,400 mg/m ³) ② 4,000 ppm (9,600 mg/m ³)
KR from 20 Mar 2018	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	① 800 ppm
BC (CA) from 1 Mar 2022	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	② 1,000 ppm ⑤ EX
IE from 21 Aug 2018	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	② 1,000 ppm
NIOSH (US)	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	① 800 ppm (1,900 mg/m ³)
ACGIH (US) from 1 Jan 2017	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	① 1,000 ppm
TRGS 900 (DE)	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	① 1,000 ppm (2,400 mg/m ³) ② 4,000 ppm (9,600 mg/m ³) ⑤ DFG
MAK (AT)	isobutane CAS No.: 75-28-5 EC No.: 200-857-2	① 800 ppm (1,900 mg/m ³)
BE	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 40 ppm (146 mg/m ³) ② 100 ppm (367 mg/m ³)
CZ from 1 Mar 2020	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 27.3 ppm (100 mg/m ³) ② 54.6 ppm (200 mg/m ³) ⑤ I
HTP (FI) from 1 Oct 2018	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (180 mg/m ³) ② 100 ppm (360 mg/m ³)



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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
LT from 11 Jul 2021	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³) ⑤ Ü
SE from 1 Jun 2016	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 30 ppm (110 mg/m ³) ② 100 ppm (367 mg/m ³)
IOELV (EU)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
MAK (AT)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	② 100 ppm (360 mg/m ³) ⑤ (max. 4x15 min./Schicht)
DK from 28 Jun 2022	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 40 ppm (144 mg/m ³) ② 100 ppm (376 mg/m ³) ⑤ E
HR from 31 May 2013	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³) ⑤ (mora se uzeti u obzir prodiranje kroz kožu) koža
MY from 1 Jan 2000	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 40 ppm (144 mg/m ³)
LV	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
NL from 1 Jan 2023	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 49 ppm (180 mg/m ³) ② 98 ppm (360 mg/m ³)
VRC (FR)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
EE from 18 Dec 2011	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
Alberta (CA)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (180 mg/m ³)
ES from 1 Jan 2012	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³) ⑤ VLI
MAK (AT)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (180 mg/m ³)
BC (CA)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm
Ontario (CA)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 40 ppm
IE	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³) ⑤ IOELV
HU	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 183.5 mg/m ³ ② 367 mg/m ³ ⑤ N



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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
NO from 1 Jan 2015	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³) ⑤ ES
NPEL (SK)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
RO	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
SI	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³) ⑤ Y, EU3
WEL (GB) from 18 Dec 2011	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
TW	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 40 ppm (144 mg/m ³)
KR	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (180 mg/m ³)
CH from 1 Jan 2022	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (180 mg/m ³) ② 75 ppm (270 mg/m ³) ⑤ SSC; Tox: Niere OAW; Messmeth: NIOSH
RU	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 100 mg/m ³ ③ 300 mg/m ³
GR from 1 Oct 2016	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
IS from 21 Dec 2012	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
TR	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
CN from 1 Apr 2020	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 180 mg/m ³ ② 270 mg/m ³
BG	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (183.5 mg/m ³) ② 100 ppm (367 mg/m ³)
PL	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 180 mg/m ³ ② 270 mg/m ³
ACGIH (US)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (180 mg/m ³)
Québec (CA)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 40 ppm (144 mg/m ³)
TRGS 900 (DE)	tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	① 50 ppm (180 mg/m ³) ② 75 ppm (270 mg/m ³) ⑤ DFG, EU, Y



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TRGS 900 (DE) from 30 Nov 2017	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	① 700 mg/m ³ ② 1,400 mg/m ³ ⑤ (C6-C8 Aliphaten)
VLA (FR)	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	① 1,000 mg/m ³ ② 1,500 mg/m ³ ⑤ (hydrocarbures C9-C12)
NO	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	① 50 ppm (275 mg/m ³) ⑤ (White Spirit (aromatinhold < 22 %))
CH from 1 Jan 2022	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	① 500 ppm (2,000 mg/m ³) ⑤ Tox: OAW ZNS Auge; Messmeth: OSHA
MAK (AT)	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	① 200 mL/m ³ ② 400 mL/m ³ ⑤ (für Kohlenwasserstoffgemische mit einem Gehalt an aromatischen Kohlenwasserstoffen von weniger als 1 %, an n-Hexan von weniger als 5 % und an Cyclo-/Isohexanen von weniger als 25 %)
MAK (AT)	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	① 170 mL/m ³ ② 340 mL/m ³ ⑤ (für Kohlenwasserstoffgemische mit einem Gehalt an aromatischen Kohlenwasserstoffen von weniger als 1 %, an n-Hexan von weniger als 5 % und an Cyclo-/Isohexanen von 25 % oder mehr)
WEL (GB)	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	① 1,800 mg/m ³ ⑤ (C5-C6 alkenes)
SI from 4 Dec 2018	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	① 700 mg/m ³
PL	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	① 500 mg/m ³ ② 1,500 mg/m ³
RO from 21 Aug 2018	Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	① 700 mg/m ³ ② 1,000 mg/m ³
CH from 1 Jan 2022	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³) ② 4,000 ppm (7,200 mg/m ³) ⑤ Tox: Formal; Messmeth: NIOSH
PL	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,800 mg/m ³
NO	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 500 ppm (900 mg/m ³)
HTP (FI)	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 800 ppm (1,500 mg/m ³) ② 1,100 ppm (2,000 mg/m ³) ⑤ liite 4



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TRGS 900 (DE)	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³) ② 4,000 ppm (7,200 mg/m ³) ⑤ DFG
BG	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,800 mg/m ³
DK	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³) ② 2,000 ppm (3,600 mg/m ³)
BE	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm
MAK (AT)	propane CAS No.: 74-98-6 EC No.: 200-827-9	② 2,000 ppm (3,600 mg/m ³) ⑤ (max. 3x60 min./Schicht, Momentanwert)
RO	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 778 ppm (1,400 mg/m ³) ② 1,000 ppm (1,800 mg/m ³)
EE	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³)
Alberta (CA)	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm
MAK (AT)	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³)
SI	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³) ② 4,000 ppm (7,200 mg/m ³)
TW	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³)
IS	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³)
MY from 1 Jan 2000	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 2,500 ppm
GR from 1 Oct 2016	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³)
LV from 7 Apr 2015	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³)
IDLH (US) from 1 Jan 1994	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 2,100 ppm [10% LEL]
ES from 8 Jun 2023	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm
OSHA (US)	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³)
NIOSH (US)	propane CAS No.: 74-98-6 EC No.: 200-827-9	① 1,000 ppm (1,800 mg/m ³)



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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	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,200 mg/m ³) ② 1,000 ppm (2,400 mg/m ³) ⑤ B; Tox: AW ZNS Auge; Messmeth: NIOSH
MAK (AT)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	② 2,000 ppm (4,800 mg/m ³) ⑤ (max. 4x15 min./Schicht)
BE from 1 Jan 2022	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 246 ppm (594 mg/m ³) ② 492 ppm (1,187 mg/m ³)
CZ from 1 Mar 2020	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 331.2 ppm (800 mg/m ³) ② 621 ppm (1,500 mg/m ³)
PL	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 600 mg/m ³ ② 1,800 mg/m ³
NO	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 125 ppm (295 mg/m ³) ⑤ E
IE	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³) ⑤ IOELV
HTP (FI)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,200 mg/m ³) ② 630 ppm (1,500 mg/m ³)
LT	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³) ② 1,000 ppm (2,420 mg/m ³) ⑤
SE	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 250 ppm (600 mg/m ³) ③ 500 ppm (1,200 mg/m ³)
NPEL (SK) from 10 Feb 2018	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³)
DK from 28 Jun 2022	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 250 ppm (600 mg/m ³) ⑤ E
BG	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 600 mg/m ³ ② 1,400 mg/m ³
HR from 12 Oct 2018	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³)
RO	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³)
EE	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³)
LV	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³)
Alberta (CA)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,200 mg/m ³) ② 750 ppm (1,800 mg/m ³)
ES from 1 May 2021	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³) ⑤ VLB®, VLI



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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
BC (CA)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 250 ppm ② 500 ppm
IOELV (EU)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³)
JP from 2 Jan 1900	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 200 ppm (475 mg/m ³)
MAK (AT)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,200 mg/m ³)
VRC (FR)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³) ② 1,000 ppm (2,420 mg/m ³)
WEL (GB)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³) ② 1,500 ppm (3,620 mg/m ³)
CN	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 300 mg/m ³ ② 450 mg/m ³
SI from 4 Dec 2018	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³) ② 1,000 ppm (2,420 mg/m ³) ⑤ Y, BAT, EU1
TW from 1 Jul 2018	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 200 ppm (475 mg/m ³)
KR	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,188 mg/m ³) ② 750 ppm (1,782 mg/m ³)
IS	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 250 ppm (600 mg/m ³)
HU from 7 Feb 2020	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 1,210 mg/m ³ ⑤ i, N
RU	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 200 mg/m ³ ③ 800 mg/m ³
GR from 1 Oct 2016	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 1,780 mg/m ³ ② 3,560 mg/m ³
NL from 1 Jan 2023	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³) ② 1,000 ppm (2,420 mg/m ³)
TR	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,210 mg/m ³)
IDLH (US) from 1 Jan 1994	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 2,500 ppm
OSHA (US)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 1,000 ppm (2,400 mg/m ³)
NIOSH (US)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 250 ppm (590 mg/m ³)



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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
ACGIH (US) from 1 Jan 2015	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 250 ppm ② 500 ppm
MY from 1 Jan 2000	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,187 mg/m ³)
Québec (CA) from 1 Dec 2022	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 250 ppm ② 500 ppm
TRGS 900 (DE)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	① 500 ppm (1,200 mg/m ³) ② 1,000 ppm (2,400 mg/m ³) ⑤ AGS, DFG, EU, Y
MY from 1 Jan 2000	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 800 ppm (1,900 mg/m ³)
CH from 1 Jan 2022	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 800 ppm (1,900 mg/m ³) ② 3,200 ppm (7,600 mg/m ³) ⑤ Tox: ZNS
MAK (AT)	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 800 ppm (1,900 mg/m ³)
PL	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,900 mg/m ³ ② 3,000 mg/m ³
TRGS 900 (DE)	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,000 ppm (2,400 mg/m ³) ② 4,000 ppm (9,600 mg/m ³) ⑤ DFG
NO	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 250 ppm (600 mg/m ³)
IE from 5 Dec 2011	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,000 ppm
HTP (FI)	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 800 ppm (1,900 mg/m ³) ② 1,000 ppm (2,400 mg/m ³) ⑤ liite 4
DK	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 500 ppm (1,200 mg/m ³) ② 1,000 ppm (2,400 mg/m ³)
MAK (AT)	butane CAS No.: 106-97-8 EC No.: 203-448-7	② 1,600 ppm (3,800 mg/m ³) ⑤ (max. 3x60 min./Schicht, Momentanwert)
BG	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,900 mg/m ³
HR	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 600 ppm (1,450 mg/m ³) ② 750 ppm (1,810 mg/m ³) ⑤ Karc 1A, Muta 1B
BE from 3 Oct 2018	butane CAS No.: 106-97-8 EC No.: 203-448-7	② 980 ppm (2,370 mg/m ³)
EE	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 800 ppm (1,500 mg/m ³)



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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
Alberta (CA) from 1 Jun 2018	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,000 ppm
ES from 1 Jan 2015	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,000 ppm
LV	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 300 mg/m ³
BC (CA) from 1 Jun 2018	butane CAS No.: 106-97-8 EC No.: 203-448-7	② 1,000 ppm ⑤ EX
TSH (SK) from 1 May 2019	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,000 ppm (2,400 mg/m ³) ⑤ karc 1A
VLA (FR)	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 800 ppm (1,900 mg/m ³)
WEL (GB)	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 600 ppm (1,450 mg/m ³) ② 750 ppm (1,810 mg/m ³)
SI	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,000 ppm (2,400 mg/m ³) ② 4,000 ppm (9,600 mg/m ³)
TW	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 800 ppm (1,900 mg/m ³)
KR	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 800 ppm (1,900 mg/m ³)
IS	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 500 ppm (1,200 mg/m ³)
HU	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 2,350 mg/m ³ ② 9,400 mg/m ³ ⑤ N
GR from 1 Oct 2016	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,000 ppm (2,350 mg/m ³)
JP	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 500 ppm (1,200 mg/m ³)
RU	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 300 mg/m ³ ③ 900 mg/m ³
IDLH (US) from 1 Jan 2016	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,600 ppm [>10% LEL]
NIOSH (US)	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 800 ppm (1,900 mg/m ³)
ACGIH (US) from 1 Jan 2017	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 1,000 ppm
Québec (CA)	butane CAS No.: 106-97-8 EC No.: 203-448-7	① 800 ppm (1,900 mg/m ³)



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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
CZ from 1 Mar 2020	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 187.75 ppm (250 mg/m ³) ② 751 ppm (1,000 mg/m ³) ⑤ (může pronikat pokožkou) D, B
PL	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 100 mg/m ³ ② 300 mg/m ³ ⑤ (może przenikać przez skórę do organizmu) skóra
NO	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 100 ppm (130 mg/m ³) ⑤ (kan absorberes gjennom huden) HE
IE from 5 Dec 2011	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (may be absorbed through the skin) Sk, IOELV
HTP (FI)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (270 mg/m ³) ② 250 ppm (330 mg/m ³) ⑤ (voivat imeytyä ihon läpi) iho
LT	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (tikėtinas įsisavinimas per odą) O
SE	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (250 mg/m ³) ③ 250 ppm (350 mg/m ³) ⑤ (kan absorberas genom huden)
NPEL (SK)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (rátajte so vstrebávaním cez pokožku) K
MAK (AT)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	② 800 ppm (1,040 mg/m ³) ⑤ (max. 4x15 min./Schicht, kann über die Haut aufgenommen werden) H
DK	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ② 400 ppm (520 mg/m ³) ⑤ (kan optages gennem huden) EH
BG from 6 Jan 2012	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (трябва да се очаква абсорбиране през кожата)
MY from 1 Jan 2000	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (262 mg/m ³) ⑤ (resapan melalui kulit hendaklah diambil kira)
HR	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (mora se uzeti u obzir prodiranje kroz kožu) koža
BE	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (266 mg/m ³) ② 250 ppm (333 mg/m ³) ⑤ (peut être absorbé par la peau) D
RO from 21 Aug 2018	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (e de așteptat asimilarea prin piele) P
ES from 1 May 2021	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (266 mg/m ³) ⑤ (puede ser absorbido a través dérmica) vía dérmica, VLB®, VLI, r
EE from 17 Jan 2020	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (250 mg/m ³) ② 250 ppm (350 mg/m ³) ⑤ (naha kaudu kergesti absorbeeruvad ained) A



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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
LV	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (var absorbet caur adu) Āda
Alberta (CA) from 1 Dec 2021	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (262 mg/m ³) ② 250 ppm (328 mg/m ³) ⑤ (may be absorbed through the skin) 1
MAK (AT)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (kann über die Haut aufgenommen werden) H
BC (CA)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm ② 250 ppm ⑤ (may be absorbed through the skin) Skin
IOELV (EU)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (may be absorbed through the skin)
VRC (FR) from 9 May 2012	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (peut être absorbé par la peau)
JP	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (#####)
WEL (GB)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (266 mg/m ³) ② 250 ppm (333 mg/m ³) ⑤ (may be absorbed through the skin)
SI from 4 Dec 2018	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ② 800 ppm (1,040 mg/m ³) ⑤ (računati je treba z možnostjo prodiranja skozi kožo) K, Y, BAT, EU2
TW	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (262 mg/m ³) ⑤ (#####)
KR	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ② 250 ppm (310 mg/m ³) ⑤ (#### ## #### ##### ##)
IS	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (efnið getur auðveldlega borist inn í líkamann gegnum húð) H
CH from 1 Jan 2022	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ② 400 ppm (520 mg/m ³) ⑤ (kann über die Haut aufgenommen werden) H SSC B; Tox: ZNS; Messmeth: INRS NIOSH
CN from 1 Apr 2020	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 25 mg/m ³ ② 50 mg/m ³ ⑤ (#####)
HU from 28 May 2022	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 260 mg/m ³ ⑤ (felvehető a bőron keresztül) b, i, BEM, R+T
RU	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 5 mg/m ³ ③ 15 mg/m ³
GR from 1 Oct 2016	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ② 250 ppm (325 mg/m ³) ⑤ (αναμένετε απορρόφηση από το δέρμα)



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NL from 1 Jan 2023	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 100 ppm (133 mg/m ³) ⑤ (kan door de huid in het lichaam worden opgenomen) H
TR	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ⑤ (cilt yoluyla alınabilir) Deri
IDLH (US) from 1 Jan 1994	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 6,000 ppm
Québec (CA)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (262 mg/m ³) ② 250 ppm (328 mg/m ³) ⑤ (may be absorbed through the skin)
OSHA (US)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³)
NIOSH (US)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (260 mg/m ³) ② 250 ppm (325 mg/m ³) ⑤ (may be absorbed through the skin)
ACGIH (US) from 1 Mar 2014	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 200 ppm (262 mg/m ³) ② 250 ppm (328 mg/m ³) ⑤ (may be absorbed through the skin)
TRGS 900 (DE) from 13 Mar 2020	methanol CAS No.: 67-56-1 EC No.: 200-659-6	① 100 ppm (130 mg/m ³) ② 200 ppm (260 mg/m ³) ⑤ (kann über die Haut aufgenommen werden) DFG, EU, H, Y

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 12 Jun 2023	acetone CAS No.: 67-64-1 EC No.: 200-662-2	50 mg/L Creatinin	① Aceton ② Urin ③ Expositionsende bzw. Schichtende
BAT (CH) from 1 Jan 2023	acetone CAS No.: 67-64-1 EC No.: 200-662-2	50 mg/L	① Aceton ② Urin ③ Expositionsende bzw. Schichtende
VLB (ES)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	50 mg/L	① acetona ② orina ③ fin de exposición o fin de turno
OEL-B (JP)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	40 mg/L	① ##### ② # ③ #####
VLBO (RO)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	50 mg/L	① acetona ② urina ③ finalul expunerii, resp. finalul schimbului
BMH (SK)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	80 mg/L	① acetón ② urín ③ koniec expozície, príp. koniec zmeny



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Limit value type (country of origin)	Substance name	Limit value	① Parameter ② Test material ③ Time of sampling: ④ Remark
ACGIH-BEI (US) from 1 Apr 2016	acetone CAS No.: 67-64-1 EC No.: 200-662-2	25 mg/L	① acetone ② urine ③ end of exposure or end of shift
BIO (HR)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	20 mg/L	① acetone ② krv ③ kraj izloženosti, odnosno kraj smjene
BIO (HR)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	20 mg/g kreatinin	① acetone ② urin ③ kraj izloženosti, odnosno kraj smjene
BAT (SI) from 4 Dec 2018	acetone CAS No.: 67-64-1 EC No.: 200-662-2	80 mg/L	① acetone ② urin ③ ob koncu delovne izmene
BIO (HU) from 7 Feb 2020	acetone CAS No.: 67-64-1 EC No.: 200-662-2	80 mg/L	① Acetone ② vizelet ③ expozíció vége illetve műszak vége
BIO (BG)	acetone CAS No.: 67-64-1 EC No.: 200-662-2	80 mg/L	① ацетон ② урина ③ край на експозицията, респ. край на работната смяна
TRGS 903 (DE) from 13 Mar 2020	methanol CAS No.: 67-56-1 EC No.: 200-659-6	15 mg/L	① Methanol ② Urin ③ bei Langzeitexposition, Expositionsende bzw. Schichtende
BAT (CH)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	30 mg/L	① Methanol ② Urin ③ bei Langzeitexposition, Expositionsende bzw. Schichtende
VLB (ES)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	15 mg/L	① Metanol ② orina ③ fin de exposición o fin de turno
OEL-B (JP)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	20 mg/L	① ##### ② # ③ #####
VLBO (RO)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	6 mg/L	① Metanol ② urina ③ finalul expunerii, resp. finalul schimbului
BMH (SK)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	30 mg/L	① Metanol ② urín ③ pri dlhodobej expozícií, koniec expozície, príp. koniec zmeny
ACGIH-BEI (US)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	15 mg/L	① Methanol ② urine ③ end of exposure or end of shift
BIO (HR)	methanol CAS No.: 67-56-1 EC No.: 200-659-6	7 mg/g kreatinin	① metanol ② urin ③ kraj izloženosti, odnosno kraj smjene



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Limit value type (country of origin)	Substance name	Limit value	① Parameter ② Test material ③ Time of sampling: ④ Remark
BAT (SI) from 11 May 2021	methanol CAS No.: 67-56-1 EC No.: 200-659-6	15 mg/L	① metanol ② urin ③ po več zaporednih delavnikih, ob koncu delovne izmene
BIO (HU) from 7 Feb 2020	methanol CAS No.: 67-56-1 EC No.: 200-659-6	30 mg/L	① Metanol ② vizelet ③ expozíció vége illetve műszak vége

8.1.3. DNEL-/PNEC-values

Substance name	DNEL value	① DNEL type ② Exposure route
tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1	178.5 mg/m ³	① DNEL worker ② Long-term - inhalation, systemic effects
Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane EC No.: 921-024-6	2,035 mg/m ³	① DNEL worker ② Long-term - inhalation, systemic effects
Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane EC No.: 921-024-6	608 mg/m ³	① DNEL Consumer ② Long-term - inhalation, systemic effects
Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane EC No.: 921-024-6	773 mg/kg bw/day	① DNEL worker ② Long-term - dermal, systemic effects
Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane EC No.: 921-024-6	699 mg/kg bw/day	① DNEL Consumer ② Long-term - dermal, systemic effects
Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane EC No.: 921-024-6	699 mg/kg bw/day	① DNEL Consumer ② Long-term - oral, systemic effects
Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	2,085 mg/m ³	① DNEL worker ② Long-term - inhalation, systemic effects
Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	447 mg/m ³	① DNEL Consumer ② Long-term - inhalation, systemic effects
Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	300 mg/kg bw/day	① DNEL worker ② Long-term - dermal, systemic effects
Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	149 mg/kg bw/day	① DNEL Consumer ② Long-term - dermal, systemic effects
Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4	149 mg/kg bw/day	① DNEL Consumer ② Long-term - oral, systemic effects
acetone CAS No.: 67-64-1 EC No.: 200-662-2	1,210 mg/m ³	① DNEL worker ② Long-term - inhalation, systemic effects
acetone CAS No.: 67-64-1 EC No.: 200-662-2	200 mg/m ³	① DNEL Consumer ② Long-term - inhalation, systemic effects
acetone CAS No.: 67-64-1 EC No.: 200-662-2	2,420 mg/m ³	① DNEL worker ② Acute - inhalation, systemic effects



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Substance name	DNEL value	① DNEL type ② Exposure route
acetone CAS No.: 67-64-1 EC No.: 200-662-2	186 mg/kg bw/ day	① DNEL worker ② Long-term - dermal, systemic effects
acetone CAS No.: 67-64-1 EC No.: 200-662-2	62 mg/kg bw/ day	① DNEL Consumer ② Long-term - dermal, systemic effects
acetone CAS No.: 67-64-1 EC No.: 200-662-2	62 mg/kg bw/ day	① DNEL Consumer ② Long-term - oral, systemic effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	260 mg/m ³	① DNEL worker ② Long-term - inhalation, systemic effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	50 mg/m ³	① DNEL Consumer ② Long-term - inhalation, systemic effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	50 mg/m ³	① DNEL Consumer ② Acute - inhalation, systemic effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	260 mg/m ³	① DNEL worker ② Long-term - inhalation, local effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	50 mg/m ³	① DNEL Consumer ② Long-term - inhalation, local effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	260 mg/m ³	① DNEL worker ② Acute - inhalation, local effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	260 mg/m ³	① DNEL worker ② Acute - inhalation, local effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	50 mg/m ³	① DNEL Consumer ② Acute - inhalation, local effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	40 mg/kg bw/ day	① DNEL worker ② Long-term - dermal, systemic effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	8 mg/kg bw/ day	① DNEL Consumer ② Long-term - dermal, systemic effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	40 mg/kg bw/ day	① DNEL worker ② Acute - dermal, systemic effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	8 mg/kg bw/ day	① DNEL Consumer ② Acute - dermal, systemic effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	8 mg/kg bw/ day	① DNEL Consumer ② Long-term - oral, systemic effects
methanol CAS No.: 67-56-1 EC No.: 200-659-6	8 mg/kg bw/ day	① DNEL Consumer ② Acute - oral, systemic effects

Substance name	PNEC Value	① PNEC type
methanol CAS No.: 67-56-1 EC No.: 200-659-6	20.8 mg/L	① PNEC aquatic, freshwater
methanol CAS No.: 67-56-1 EC No.: 200-659-6	2.08 mg/L	① PNEC aquatic, marine water
methanol CAS No.: 67-56-1 EC No.: 200-659-6	100 mg/L	① PNEC sewage treatment plant



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Substance name	PNEC Value	① PNEC type
methanol CAS No.: 67-56-1 EC No.: 200-659-6	77 mg/kg	① PNEC sediment, freshwater
methanol CAS No.: 67-56-1 EC No.: 200-659-6	7.7 mg/kg	① PNEC sediment, marine water
methanol CAS No.: 67-56-1 EC No.: 200-659-6	1,540 mg/L	① PNEC aquatic, intermittent release
methanol CAS No.: 67-56-1 EC No.: 200-659-6	100 mg/kg	① PNEC soil, freshwater

* 8.2. Exposure controls

8.2.1. Appropriate engineering controls

See section 7. No additional measures necessary.

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)

Thickness of the glove material: $\geq 0,45$ 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.

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.

Tested protective gloves must be worn: EN ISO 374

Suitable protective clothing: Protective clothing

Respiratory protection:

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Suitable respiratory protection apparatus: Combination filtering device

Filtering device with filter or ventilator filtering device of type: AX

Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190).

8.2.3. Environmental exposure controls

See section 7. No additional measures necessary.

SECTION 9: Physical and chemical properties

* 9.1. Information on basic physical and chemical properties

Appearance

Physical state: Aerosol

Colour: colourless

Odour: characteristic

Safety relevant basis data

Parameter	Value	at °C	① Method ② Remark
pH	<i>not applicable</i>		
Initial boiling point and boiling range	-40 °C		
Flash point	-80 °C		
Evaporation rate	<i>No data available</i>		
Auto-ignition temperature	<i>No data available</i>		



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Parameter	Value	at °C	① Method ② Remark
Upper/lower flammability or explosive limits	0.6 – 14.3 Vol-%		
Vapour pressure	No data available		
Density	742.9 kg/m ³	20 °C	
Bulk density	not applicable		
Water solubility	practically insoluble		

* **9.2. Other information**

The information relates to the active ingredient.

SECTION 10: Stability and reactivity

10.1. Reactivity

Extremely flammable aerosol.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

* **10.3. Possibility of hazardous reactions**

Extremely flammable aerosol. Pressurized container: May burst if heated. Do not expose to temperatures above 50 °C. Heating causes rise in pressure with risk of bursting.

* **10.4. Conditions to avoid**

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours can form explosive mixtures with air. Take precautionary measures against static discharge.

10.5. Incompatible materials

Oxidizing agent

Pyrophoric or self-heating substances

10.6. Hazardous decomposition products

Nitrogen oxides (NO_x), Carbon monoxide, Carbon dioxide (CO₂), carbon black, aldehydes

Gases/vapours, toxic

Further information

Do not mix with other chemicals.

SECTION 11: Toxicological information

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

Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane EC No.: 921-024-6
LD₅₀ oral: >5,000 mg/kg (Rat)
LD₅₀ dermal: >2,800 – 3,100 mg/kg (Rabbit)
LC₅₀ Acute inhalation toxicity (vapour): >25.2 mg/L 4 h (Rat)
Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes CAS No.: 64742-49-0 EC No.: 927-510-4
LD₅₀ oral: 5,500 mg/kg (Rat)
LD₅₀ dermal: 2,770 mg/kg (Rat)
LC₅₀ Acute inhalation toxicity (gas): 23.3 mg/L (Rat)
acetone CAS No.: 67-64-1 EC No.: 200-662-2
LD₅₀ oral: 5,800 mg/kg (Rat) RTECS
LD₅₀ dermal: >15,800 mg/kg (Rabbit) ICLUID
LC₅₀ Acute inhalation toxicity (gas): 76 mg/L 4 h (Rat)
LC₅₀ Acute inhalation toxicity (vapour): 76 mg/L 4 h (Rat)
butane CAS No.: 106-97-8 EC No.: 203-448-7
LC₅₀ Acute inhalation toxicity (gas): 658 ppmV 4 h (Rat) GESTIS



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methanol	CAS No.: 67-56-1	EC No.: 200-659-6
ATE inhalativ Dämpfe: 0.5 mg/L		
LD₅₀ oral: 5,628 mg/kg (Rat)		
LD₅₀ dermal: 17,000 mg/kg (Rabbit)		
LC₅₀ Acute inhalation toxicity (vapour): 79.43 mg/L (Mouse)		
isobutane	CAS No.: 75-28-5	EC No.: 200-857-2
LC₅₀ Acute inhalation toxicity (vapour): 1,237 mg/L		
tert-butyl methyl ether	CAS No.: 1634-04-4	EC No.: 216-653-1
LD₅₀ oral: 3,866 mg/kg (Rat)		
LD₅₀ dermal: >2,000 mg/kg (Rat)		
LC₅₀ Acute inhalation toxicity (vapour): 85 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:

Causes skin irritation.

Serious eye damage/irritation:

Causes serious eye irritation.

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:

May cause drowsiness or dizziness.

STOT-repeated exposure:

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

Aspiration hazard:

Observe risk of aspiration if vomiting occurs.

For viscosity data, see section 9.

Additional information:

No information available.

* **11.2. Information on other hazards**

Endocrine disrupting properties:

This product contains a substance that has endocrine disrupting properties with respect to humans.

Other information:

No information available.



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SECTION 12: Ecological information

* 12.1. Toxicity

Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane	EC No.: 921-024-6
LC ₅₀ : 1 - 10 mg/L 4 d (fish, Pimephales promelas (fathead minnow))	
LC ₅₀ : >1 - 10 mg/L 4 d (fish, Pimephales promelas (fathead minnow))	
LC ₅₀ : 8.2 mg/L	
LC ₅₀ : >1 - 10 mg/L 4 d (fish, Pimephales promelas)	
EC ₅₀ : >1 - 10 mg/L 2 d (crustaceans, Daphnia magna (Big water flea))	
EC ₅₀ : 4.5 mg/L 2 d (crustaceans, Daphnia magna (Big water flea))	OECD- Prüfrichtlinie 202
EC ₅₀ : >1 - 10 mg/L 2 d (crustaceans, Daphnia magna)	
NOEC: 2.045 mg/L 28 d (fish, Oncorhynchus mykiss (Rainbow trout))	CONCAWE Brussel, Belgium (2010)
NOEC: 1 mg/L 21 d (crustaceans, Daphnia magna (Big water flea))	SIDS Initial Assessment Report For SIAM
NOEC: 1 mg/L 21 d (crustaceans, Daphnia magna)	
ErC ₅₀ : >10 - 30 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata)	
ErC ₅₀ : 10 - 30 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata)	Result of epidemiological study. (1995)
ErC ₅₀ : 10 - 30 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata)	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclenes	CAS No.: 64742-49-0 EC No.: 927-510-4
LC ₅₀ : >1 - 10 mg/L 4 d (fish, Oncorhynchus mykiss (Rainbow trout))	
EC ₅₀ : >1 - 10 mg/L 2 d (crustaceans, Daphnia magna (Big water flea))	
NOEC: 1.534 mg/L 28 d (fish, Oncorhynchus mykiss (Rainbow trout))	CONCAWE Brussels Belgium (2010)
NOEC: 1 mg/L 21 d (crustaceans, Daphnia magna (Big water flea))	
ErC ₅₀ : 12 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata)	SIDS Initial Assessment Report For SIAM
propane	CAS No.: 74-98-6 EC No.: 200-827-9
LC ₅₀ : 49.9 mg/L 4 d (fish, fish)	United States Environmental Protection A
LC ₅₀ : 49.9 mg/L 4 d (fish)	
LC ₅₀ : 24.11 - 147.54 mg/L 4 d (fish)	
LC ₅₀ : 14.22 - 69.43 mg/L 2 d (crustaceans)	
EC ₅₀ : 69.43 mg/L 2 d (crustaceans, Daphnia pulex (water flea))	
EC ₅₀ : 69.43 mg/L 2 d (crustaceans, Daphnia)	
EC ₅₀ : 69.43 mg/L 2 d (crustaceans, Daphnia sp.)	
EC ₅₀ : 7.71 - 19.37 mg/L 4 d (Algae/water plant)	
EC ₅₀ : 69.43 mg/L	
ErC ₅₀ : 19.37 mg/L 4 d (Algae/water plant, Algae/water plant)	USEPA OPPT Risk Assessment Division (200)
ErC ₅₀ : 19.37 mg/L 4 d (Algae/water plant, Algae)	
ErC ₅₀ : 19.37 mg/L	
acetone	CAS No.: 67-64-1 EC No.: 200-662-2
LC ₅₀ : 5,540 mg/L 4 d (fish, Oncorhynchus mykiss (Rainbow trout))	
EC ₅₀ : 6,100 mg/L 2 d (crustaceans, Daphnia magna (Big water flea))	
ErC ₅₀ : 5,000 mg/L 4 d (Algae/water plant, Desmodesmus subspicatus)	
ErC ₅₀ : >1,000 mg/L 3 d (Pseudokirchneriella subcapitata)	
butane	CAS No.: 106-97-8 EC No.: 203-448-7
LC ₅₀ : 49.9 mg/L 4 d (fish, fish)	United States Environmental Protection A
LC ₅₀ : 49.9 mg/L 4 d (fish)	
LC ₅₀ : 24.11 - 147.54 mg/L 4 d (fish)	
LC ₅₀ : 14.22 - 69.43 mg/L 2 d (crustaceans)	
EC ₅₀ : 69.43 mg/L 2 d (crustaceans, Daphnia pulex (water flea))	USEPA OPPT Risk Assessment Division (200)
EC ₅₀ : 69.43 mg/L 2 d (crustaceans, Daphnia)	
EC ₅₀ : 7.71 - 19.37 mg/L 3 d (Algae/water plant)	
EC ₅₀ : 69.43 mg/L	
ErC ₅₀ : 19.37 mg/L 4 d (Algae/water plant, Algae/water plant)	USEPA OPPT Risk Assessment Division (200)
ErC ₅₀ : 19.37 mg/L 4 d (Algae/water plant)	



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methanol CAS No.: 67-56-1 EC No.: 200-659-6
LC₅₀ : 15,400 mg/L 4 d (fish, <i>Lepomis macrochirus</i> (Bluegill)) Bulletin of Environmental Contamination
EC₅₀ : >10,000 mg/L 2 d (crustaceans, <i>Daphnia magna</i> (Big water flea)) Water Research 23(4): 495-499 (1989)
NOEC : 446.7 mg/L 28 d (fish, <i>Pimephales promelas</i> (fathead minnow)) SAR and QSAR in Environmental Research
NOEC : 208 mg/L 21 d (crustaceans, <i>Daphnia magna</i> (Big water flea)) OECD QSAR Toolbox Report (2013)
ErC₅₀ : ≈22,000 mg/L 4 d (Algae/water plant, <i>Pseudokirchneriella subcapitata</i>) Ecotoxicology and Environmental Safety 7
isobutane CAS No.: 75-28-5 EC No.: 200-857-2
LC₅₀ : 91.42 mg/L 4 d (fish) United States Environmental Protection A
LC₅₀ : 91.42 mg/L 4 d (fish)
EC₅₀ : 69.43 mg/L 2 d (crustaceans, <i>Daphnia pulex</i> (water flea)) USEPA OPPT Risk Assessment Division (200
EC₅₀ : 69.43 mg/L 2 d (crustaceans, <i>Daphnia</i>)
EC₅₀ : 69.43 mg/L 2 d (crustaceans, <i>Daphnia</i> sp.)
ErC₅₀ : 19.37 mg/L 4 d (Algae/water plant) USEPA OPPT Risk Assessment Division (200
ErC₅₀ : 19.37 mg/L 4 d (Algae/water plant, Algae)
tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1
LC₅₀ : 672 mg/L 4 d (fish, <i>Oncorhynchus mykiss</i> (Rainbow trout))
EC₅₀ : 651 mg/L 2 d (crustaceans, <i>Daphnia magna</i> (Big water flea))
ErC₅₀ : >800 mg/L 3 d (Algae/water plant, <i>Desmodesmus subspicatus</i>)

Aquatic toxicity:

Harmful to aquatic life with long lasting effects.

Additional ecotoxicological information:

Do not allow uncontrolled discharge of product into the environment.

* 12.2. Persistence and degradability

Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane EC No.: 921-024-6
Biodegradation : Yes, rapidly
propane CAS No.: 74-98-6 EC No.: 200-827-9
Biodegradation : not applicable
butane CAS No.: 106-97-8 EC No.: 203-448-7
Biodegradation : not applicable
methanol CAS No.: 67-56-1 EC No.: 200-659-6
Biodegradation : Yes, rapidly

Additional information:

The product has not been tested.

* 12.3. Bioaccumulative potential

Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane EC No.: 921-024-6
Log K_{OW} : 5.2
propane CAS No.: 74-98-6 EC No.: 200-827-9
Log K_{OW} : 1.09
Bioconcentration factor (BCF) : 13.18
acetone CAS No.: 67-64-1 EC No.: 200-662-2
Log K_{OW} : -0.24
butane CAS No.: 106-97-8 EC No.: 203-448-7
Log K_{OW} : 1.09
Bioconcentration factor (BCF) : 33.88
methanol CAS No.: 67-56-1 EC No.: 200-659-6
Log K_{OW} : -0.77
Bioconcentration factor (BCF) : 1 Species: <i>Cyprinus carpio</i> (Common Carp)
isobutane CAS No.: 75-28-5 EC No.: 200-857-2
Log K_{OW} : 1.09
tert-butyl methyl ether CAS No.: 1634-04-4 EC No.: 216-653-1
Log K_{OW} : 0.94



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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

Hydrocarbons, C6-C7, n-alkanes, iso-alkanes, cyclics, <5% n-hexane	EC No.: 921-024-6
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.	
Hydrocarbons, C7, n-alkanes, Isoalkanes, cyclenes	CAS No.: 64742-49-0 EC No.: 927-510-4
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.	
propane	CAS No.: 74-98-6 EC No.: 200-827-9
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.	
acetone	CAS No.: 67-64-1 EC No.: 200-662-2
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.	
butane	CAS No.: 106-97-8 EC No.: 203-448-7
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.	
methanol	CAS No.: 67-56-1 EC No.: 200-659-6
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.	
isobutane	CAS No.: 75-28-5 EC No.: 200-857-2
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.	
tert-butyl methyl ether	CAS No.: 1634-04-4 EC No.: 216-653-1
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 contains a substance that has endocrine disrupting properties with respect to humans.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

* 13.1. Waste treatment methods

Do not allow to enter into surface water or drains. 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
HP 4	Irritant — skin irritation and eye damage
HP 14	Ecotoxic

Waste code packaging

15 01 04	metallic packaging
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Waste treatment options

Appropriate disposal / Product:

Dispose of waste according to applicable legislation.

Appropriate disposal / Package:

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

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 1950	UN 1950	UN 1950	UN 1950



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Land transport (ADR/RID)	Inland waterway craft (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.2. UN proper shipping name			
AEROSOLS	AEROSOLS	AEROSOLS	AEROSOLS
14.3. Transport hazard class(es)			
2.1	2.1	2.1	2.1
14.4. Packing group			
		-	
14.5. Environmental hazards			
No	No	No	No data available
14.6. Special precautions for user			
Limited quantity (LQ): 1L Classification code: 5F Tunnel restriction code: (D)	Limited quantity (LQ): 1L Classification code: 5F	Limited quantity (LQ): 1L EmS-No.: F-D; S-U	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):

Hazard categories:

- P3a 'Flammable' aerosols Category 1 or 2, containing flammable gases Category 1 or 2 or flammable liquids

Named dangerous substances:

- Liquefied flammable gases, Category 1 or 2 (including liquefied petroleum gas) and natural gas
- Methanol

Use restriction according to REACH annex XVII, no.: 3, 28, 40, 69, 75

Aerosol Directive (75/324/)

Maximum VOC content of the product in a ready to use condition: 594,32 g/L

Directive 2004/42/EC on the limitation of emissions of volatile organic compounds:

Volatile organic compounds (VOC) content in percent by weight: 80 weight-%

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:

- P3a 'Flammable' aerosols Category 1 or 2, containing flammable gases Category 1 or 2 or flammable liquids

Named dangerous substances:

- Liquefied flammable gases, Category 1 or 2 (including liquefied petroleum gas) and natural gas
- Methanol



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Technische Anleitung zur Reinhaltung der Luft (TA-Luft)

Remark:

To follow: 5.2.5

Water hazard class

WGK:

2 - obviously hazardous to water

Source:

Self-classification (mixture; calculation rule).

Technische Regeln für Gefahrstoffe

TRGS 500

TRGS 510

Berufsgenossenschaftliche Vorschriften (DGUV-Vorschriften)

Berufsgenossenschaftliche Informationen (DGUV-Informationen) 868

Berufsgenossenschaftliche Regeln (DGUV-Regeln) 189, 190, 192, 195



[SK] National regulations

Other regulations, restrictions and prohibition regulations

Zákon č. 67/2010 Z.z., o podmienkach uvedenia chemických látok a chemických zmesí na trh a o zmene a doplnení niektorých zákonov (chemický zákon).

Zákon č. 124/2006 Z. z. o bezpečnosti a ochrane zdravia pri práci a o zmene a doplnení niektorých zákonov.

Zákon NR SR č. 355/2007 Z.z., o ochrane, podpore a rozvoji verejného zdravia a o zmene a doplnení niektorých

zákonov, v znení neskorších predpisov.

Nariadenie vlády SR 471/2011 Z.z., ktorým sa mení nariadenie vlády Slovenskej republiky č. 355/2006 Z. z.

o ochrane zamestnancov pred rizikami súvisiacimi s expozíciou chemickým faktorom pri práci, Príloha č.1.

Zákon č. 79/2015 Z.z. o odpadoch v znení neskorších predpisov.

Vyhláška MV SR č. 96/2004 Z.z., ktorou sa ustanovujú zásady protipožiarnej bezpečnosti pri manipulácii a

skladovaní horľavých kvapalín, ťažkých vykurovacích olejov a rastlinných a živočíšnych tukov a olejov.

Zákon NR SR č. 137/2010 Z.z. o ovzduší v znení neskorších predpisov.

Zákon č. 319/2013 Z.z. o pôsobnosti orgánov štátnej správy pre sprístupňovanie biocídnych výrobkov na trh a ich

používanie a o zmene a doplnení niektorých zákonov (biocídny zákon).

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

1.1.	Product identifier
1.3.	Details of the supplier of the safety data sheet
1.4.	Emergency telephone number
2.1.	Classification of the substance or mixture
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
5.1.	Extinguishing media
5.2.	Special hazards arising from the substance or mixture
5.3.	Advice for firefighters
5.4.	Additional information
6.1.	Personal precautions, protective equipment and emergency procedures
6.2.	Environmental precautions
7.1.	Precautions for safe handling
8.1.	Control parameters



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8.2.	Exposure controls
9.1.	Information on basic physical and chemical properties
9.2.	Other information
10.3.	Possibility of hazardous reactions
10.4.	Conditions to avoid
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
12.6.	Endocrine disrupting properties
13.1.	Waste treatment methods
14.1.	UN number or ID number
14.2.	UN proper shipping name
14.3.	Transport hazard class(es)
14.5.	Environmental hazards
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
16.2.	Abbreviations and acronyms
16.3.	Key literature references and sources for data
16.4.	Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

* **16.2. Abbreviations and acronyms**

ACGIH	American Conference of Governmental Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
BCF	Bioconcentration Factor
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
DIN	German Institute for Standardization / German Industrial Standard
DNEL	derived no-effect level
EC ₅₀	Effective Concentration 50%
ES	Exposure scenario
EWC	European Waste Catalogue
IBC	Intermediate Bulk Container
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
KG	body weight
LC ₅₀	Lethal (fatal) Concentration 50%
LD ₅₀	Lethal (fatal) Dose 50%
MAK	Maximum concentration in the workplace air (CH)
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety & Health
NOEC	No Observed Effect Concentration
OECD	Organisation for Economic Cooperation and Development
OEL	Threshold Limit Value
OSHA	Occupational Safety & Health Administration
PBT	persistent and bioaccumulative and toxic
PNEC	Predicted No Effect Concentration
QSAR	Quantitative Structure-Activity Relationship
REACH	Registration, Evaluation and Authorization of Chemicals
RID	Dangerous goods regulations for transport by rail
RTECS	Registry of Toxic Effects of Chemical Substances
SCL	Specific concentration limit
TRGS	Technische Regeln für Gefahrstoffe
UN	United Nations
VOC	Volatile organic compounds



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ZNS central nervous system

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)

* **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
Aerosols (<i>Aerosol 1</i>)	H222; H229: Extremely flammable aerosol. Pressurised container: May burst if heated.	On basis of test data.
Aspiration hazard (<i>Asp. Tox. 1</i>)	H304: May be fatal if swallowed and enters airways.	Calculation method.
Skin corrosion/irritation (<i>Skin Irrit. 2</i>)	H315: Causes skin irritation.	Calculation method.
STOT-single exposure (<i>STOT SE 3</i>)	H336: May cause drowsiness or dizziness.	Calculation method.
Hazardous to the aquatic environment (<i>Aquatic Chronic 3</i>)	H412: Harmful to aquatic life with long lasting effects.	Calculation method.

16.5. List of relevant hazard statements and/or precautionary statements from sections 2 to 15

Hazard statements	
H220	Extremely flammable gas.
H225	Highly flammable liquid and vapour.
H280	Contains gas under pressure; may explode if heated.
H301	Toxic if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
H370	Causes damage to organs.
H371	May cause damage to organs.
H411	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.



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* Data changed compared with the previous version.