

QUADRI MULTI FOAM SPRAY

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Reference number: 140000108

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

1.1. Product identifier

Product form : Mixture
Trade name : Quadri Multi Foam Spray
Type of product : Detergent
Vaporizer : Aerosol

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Household cleaning product

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

DRD BV
Wayenborgstraat, 16
2800 Mechelen
Belgium

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Belgium	Centre Anti-Poisons/Antigifcentrum c/o Hôpital Militaire Reine Astrid	Rue Bruyn 1 1120 Brussels	+32 70 245 245	Please dial: 070 245 245 for any urgent questions about intoxication (free of charge 24/7), if not accessible, dial: 02 264 96 30 (standard fee)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Aerosol, Category 1 H222;H229

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

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

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02

Signal word (CLP) : Danger

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Hazard statements (CLP)	: H222 - Extremely flammable aerosol. H229 - Pressurised container: May burst if heated.
Precautionary statements (CLP)	: 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. P410+P412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C, 122 °F.

2.3. Other hazards

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

Component	
butane (106-97-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
propane (74-98-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
isopropanol (67-63-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
2-butoxyethanol (111-76-2)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
butane substance with national workplace exposure limit(s) (AT, BE, BG, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, LV, PL, PT, SI, SK)	CAS-No.: 106-97-8 EC-No.: 203-448-7 EC Index-No.: 601-004-00-0	≤ 8	Flam. Gas 1A, H220 Press. Gas (Liq.), H280
2-butoxyethanol substance with national workplace exposure limit(s) (BE, FR, GB, NL); substance with a Community workplace exposure limit	CAS-No.: 111-76-2 EC-No.: 203-905-0 EC Index-No.: 603-014-00-0 REACH-no: 01-2119475108-36	≤ 5	Acute Tox. 3 (Inhalation), H331 (ATE=1,5 mg/l/4h) Acute Tox. 4 (Oral), H302 (ATE=1414 mg/kg bodyweight) Skin Irrit. 2, H315 Eye Irrit. 2, H319
propane substance with national workplace exposure limit(s) (AT, BE, BG, DE, DK, EE, ES, FI, GR, LV, PL, RO, SI)	CAS-No.: 74-98-6 EC-No.: 200-827-9 EC Index-No.: 601-003-00-5	≤ 2	Flam. Gas 1A, H220 Press. Gas (Liq.), H280

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
isopropanol substance with national workplace exposure limit(s) (BE, BG, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, LT, LV, NL, PL, PT, RO, SE, SI, SK)	CAS-No.: 67-63-0 EC-No.: 200-661-7 EC Index-No.: 603-117-00-0 REACH-no: 01-2119457558-25	≤ 1	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336
ammonia, aqueous solution substance with national workplace exposure limit(s) (FI)	CAS-No.: 1336-21-6 EC-No.: 215-647-6 EC Index-No.: 007-001-01-2 REACH-no: 01-2119488876-14	≤ 0.2	Skin Corr. 1B, H314 Aquatic Acute 1, H400

Specific concentration limits:

Name	Product identifier	Specific concentration limits (%)
ammonia, aqueous solution	CAS-No.: 1336-21-6 EC-No.: 215-647-6 EC Index-No.: 007-001-01-2 REACH-no: 01-2119488876-14	(5 ≤ C ≤ 100) STOT SE 3, H335

Product subject to CLP Article 1.1.3.7. The disclosure rules of the components is modified in this case.

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

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

No additional information available

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
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5.2. Special hazards arising from the substance or mixture

Fire hazard	: Extremely flammable aerosol.
Explosion hazard	: Pressurised container: May burst if heated.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F. Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

butane (106-97-8)

Austria - Occupational Exposure Limits

Local name	Butan (beide Isomeren): n-Butan (R 600)
MAK (OEL TWA)	1900 mg/m ³
MAK (OEL TWA) [ppm]	800 ppm
MAK (OEL STEL)	3800 mg/m ³ (3x 60(Mow) min)
MAK (OEL STEL) [ppm]	1600 ppm (3x 60(Mow) min)
Regulatory reference	BGBI. II Nr. 156/2021

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butane (106-97-8)	
Belgium - Occupational Exposure Limits	
Local name	Butane, tous isomères: n-butane # Butaan, alle isomeren: n-butaan
OEL STEL	2370 mg/m ³
OEL STEL [ppm]	980 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	n-Бутан
OEL TWA	1900 mg/m ³
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Croatia - Occupational Exposure Limits	
Local name	Butan
GVI (OEL TWA) [1]	1450 mg/m ³
GVI (OEL TWA) [2]	600 ppm
KGVI (OEL STEL)	1810 mg/m ³
KGVI (OEL STEL) [ppm]	750 ppm
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граниčnim vrijednostima izloženosti i biološkim граниčnim vrijednostima (NN 1/2021)
Denmark - Occupational Exposure Limits	
Local name	n-Butan
OEL TWA [1]	1200 mg/m ³
OEL TWA [2]	500 ppm
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	n-butaan
OEL TWA	1500 mg/m ³
OEL TWA [ppm]	800 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	n-Butaani
HTP (OEL TWA) [1]	1900 mg/m ³
HTP (OEL TWA) [2]	800 ppm
HTP (OEL STEL)	2400 mg/m ³
HTP (OEL STEL) [ppm]	1000 ppm
Remark	Happea syrjäyttämällä tukahduttavat kaasut.
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	n-Butane

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butane (106-97-8)	
VME (OEL TWA)	1900 mg/m ³
VME (OEL TWA) [ppm]	800 ppm
Remark	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	2400 mg/m ³
AGW (OEL TWA) [2]	1000 ppm
Peak exposure limitation factor	4(II)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)
Regulatory reference	TRGS900
Greece - Occupational Exposure Limits	
Local name	Βουτάνιο
OEL TWA	2350 mg/m ³
OEL TWA [ppm]	1000 ppm
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	n-BUTÁN
AK (OEL TWA)	2350 mg/m ³
CK (OEL STEL)	9400 mg/m ³
Remark	N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Butane, all isomers: Butane
OEL STEL [ppm]	1000 ppm
Regulatory reference	Chemical Agents Code of Practice 2021
Latvia - Occupational Exposure Limits	
Local name	Butāns (kas satur vairāk nekā 0,1 % butadiēna)
OEL TWA	300 mg/m ³
Remark	Carc. 1A; Muta. 1B
Regulatory reference	Ministru kabineta 2008. gada 29. septembra noteikumi Nr. 803 (Grozījumi Ministru kabineta 2020. gada 7. janvārī noteikumiem Nr. 10).
Poland - Occupational Exposure Limits	
Local name	Butan (n-butan)
NDS (OEL TWA)	1900 mg/m ³
NDSCh (OEL STEL)	3000 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286

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butane (106-97-8)	
Portugal - Occupational Exposure Limits	
Local name	Butano, todos os isómeros
OEL STEL [ppm]	1000 ppm
Regulatory reference	Norma Portuguesa NP 1796:2014
Slovakia - Occupational Exposure Limits	
Local name	Bután s obsahom \geq 0,1% butadiénu (n-bután)
NPHV (OEL TWA) [1]	2400 mg/m ³ (TSH)
NPHV (OEL TWA) [2]	1000 ppm (TSH)
Remark	Kategória karcinogénov 1A – Dokázaný karcinogén pre ľudí
Regulatory reference	Nariadenie vlády č. 356/2006 Z. z. (235/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	butan
OEL TWA	2400 mg/m ³
OEL TWA [ppm]	1000 ppm
OEL STEL	9600 mg/m ³
OEL STEL [ppm]	4000 ppm
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Butano
VLA-ED (OEL TWA) [2]	1000 ppm Hidrocarburos alifáticos alcanos (C1 – C4) y sus mezclas, gases (Butano; Etano; Metano; Propano)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
United Kingdom - Occupational Exposure Limits	
Local name	Butane
WEL TWA (OEL TWA) [1]	1450 mg/m ³
WEL TWA (OEL TWA) [2]	600 ppm
WEL STEL (OEL STEL)	1810 mg/m ³
WEL STEL (OEL STEL) [ppm]	750 ppm
Remark	Carc (Capable of causing cancer and/or heritable genetic damage, only applies if Butane contains more than 0.1% of buta-1,3-diene)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	n-Bútan
OEL TWA	1200 mg/m ³
OEL TWA [ppm]	500 ppm
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Butan

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butane (106-97-8)	
Grenseverdi (OEL TWA) [1]	600 mg/m ³
Grenseverdi (OEL TWA) [2]	250 ppm
Regulatory reference	FOR-2021-06-28-2248
North Macedonia - Occupational Exposure Limits	
Local name	Бутан
OEL TWA	2400 mg/m ³
OEL TWA [ppm]	1000 ppm
KTV	4
Short time value [mg/m ³]	9600 mg/m ³
Short time value [ppm]	4000 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m ³ или во ml/m ³ (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија“ бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	n-Butane / n-Butan
MAK (OEL TWA) [1]	1900 mg/m ³
MAK (OEL TWA) [2]	800 ppm
KZGW (OEL STEL)	7600 mg/m ³
KZGW (OEL STEL) [ppm]	3200 ppm
Critical toxicity	SNC / ZNS
Regulatory reference	www.suva.ch, 28.03.2022
USA - ACGIH - Occupational Exposure Limits	
Local name	Butane
ACGIH OEL STEL [ppm]	1000 ppm
Remark (ACGIH)	TLV® Basis: CNS impair
Regulatory reference	ACGIH 2022
propane (74-98-6)	
Austria - Occupational Exposure Limits	
Local name	Propan (R 290)
MAK (OEL TWA)	1800 mg/m ³
MAK (OEL TWA) [ppm]	1000 ppm
MAK (OEL STEL)	3600 mg/m ³ (3x 60(Mow) min)
MAK (OEL STEL) [ppm]	2000 ppm (3x 60(Mow) min)

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propane (74-98-6)	
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Hydrocarbures aliphatiques sous forme gazeuse: (Alcanes C1-C3) # Alifatische koolwaterstoffen in gas-vorm: Alkanen (C1-C3)
OEL TWA [ppm]	1000 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Пропан
OEL TWA	1800 mg/m ³
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Denmark - Occupational Exposure Limits	
Local name	Propan (Flaskegas)
OEL TWA [1]	1800 mg/m ³
OEL TWA [2]	1000 ppm
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Propaan
OEL TWA	1800 mg/m ³
OEL TWA [ppm]	1000 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Propaani
HTP (OEL TWA) [1]	1500 mg/m ³
HTP (OEL TWA) [2]	800 ppm
HTP (OEL STEL)	2000 mg/m ³
HTP (OEL STEL) [ppm]	1100 ppm
Remark	Happea syrjäyttämällä tukahduttavat kaasut.
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	1800 mg/m ³
AGW (OEL TWA) [2]	1000 ppm
Peak exposure limitation factor	4(II)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)
Regulatory reference	TRGS900
Greece - Occupational Exposure Limits	
Local name	Προπάνιο
OEL TWA	1800 mg/m ³

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propane (74-98-6)	
OEL TWA [ppm]	1000 ppm
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Ireland - Occupational Exposure Limits	
Local name	Aliphatic hydrocarbon gases Alkanes (C1-C3): Propane
Remark	Asphx. (Gaseous chemical substances which may not produce significant physiological effects in the exposed employee, but when present in high concentrations will act as simple asphyxiants)
Regulatory reference	Chemical Agents Code of Practice 2021
Latvia - Occupational Exposure Limits	
Local name	Propāns
OEL TWA	1800 mg/m ³
OEL TWA [ppm]	1000 ppm
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2015. gada 7. aprīlī noteikumiem Nr. 163)
Poland - Occupational Exposure Limits	
Local name	Propan
NDS (OEL TWA)	1800 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286
Romania - Occupational Exposure Limits	
Local name	Propan
OEL TWA	1400 mg/m ³
OEL TWA [ppm]	778 ppm
OEL STEL	1800 mg/m ³
OEL STEL [ppm]	1000 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Slovenia - Occupational Exposure Limits	
Local name	propan
OEL TWA	1800 mg/m ³
OEL TWA [ppm]	1000 ppm
OEL STEL	7200 mg/m ³
OEL STEL [ppm]	4000 ppm
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Propano
VLA-ED (OEL TWA) [2]	1000 ppm Hidrocarburos alifáticos alcanos (C1 – C4) y sus mezclas, gases (Butano; Etano; Metano; Propano)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Iceland - Occupational Exposure Limits	
Local name	Própan (flöskugas)

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propane (74-98-6)	
OEL TWA	1800 mg/m ³
OEL TWA [ppm]	1000 ppm
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Propan
Grenseverdi (OEL TWA) [1]	900 mg/m ³
Grenseverdi (OEL TWA) [2]	500 ppm
Regulatory reference	FOR-2021-06-28-2248
North Macedonia - Occupational Exposure Limits	
Local name	Пропан
OEL TWA	1800 mg/m ³
OEL TWA [ppm]	1000 ppm
KTV	4
Short time value [mg/m ³]	7200 mg/m ³
Short time value [ppm]	4000 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m ³ или во ml/m ³ (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија“ бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	Propane / Propan
MAK (OEL TWA) [1]	1800 mg/m ³
MAK (OEL TWA) [2]	1000 ppm
KZGW (OEL STEL)	7200 mg/m ³
KZGW (OEL STEL) [ppm]	4000 ppm
Critical toxicity	Formel / Formal
Remark	NIOSH
Regulatory reference	www.suva.ch, 28.03.2022
USA - ACGIH - Occupational Exposure Limits	
Local name	Propane
Remark (ACGIH)	TLV® Basis: Simple Asphyxiant
Regulatory reference	ACGIH 2022

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isopropanol (67-63-0)	
Belgium - Occupational Exposure Limits	
Local name	Alcool isopropylique # Isopropylalcohol
OEL TWA	500 mg/m ³
OEL TWA [ppm]	200 ppm
OEL STEL	1000 mg/m ³
OEL STEL [ppm]	400 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Изопропилов алкохол
OEL TWA	980 mg/m ³
OEL STEL	1225 mg/m ³
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Croatia - Occupational Exposure Limits	
Local name	Propan-2-ol; izopropil-alkohol; izopropanol
GVI (OEL TWA) [1]	999 mg/m ³
GVI (OEL TWA) [2]	400 ppm
KGVI (OEL STEL)	1250 mg/m ³
KGVI (OEL STEL) [ppm]	500 ppm
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граниčnim vrijednostima izloženosti i biološkim граниčnim vrijednostima (NN 1/2021)
Croatia - Biological limit values	
Local name	Propan-2-ol
BLV	50 mg/l Karakteristični pokazatelj: aceton - Biološki uzorak: krv - Vrijeme uzorkovanja: na kraju radne smjene 0,86 µmol/l Karakteristični pokazatelj: aceton - Biološki uzorak: krv - Vrijeme uzorkovanja: na kraju radne smjene 0,86 µmol/l Karakteristični pokazatelj: aceton - Biološki uzorak: mokraćna - Vrijeme uzorkovanja: na kraju radne smjene 50 mg/l Karakteristični pokazatelj: aceton - Biološki uzorak: mokraćna - Vrijeme uzorkovanja: na kraju radne smjene
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граниčnim vrijednostima izloženosti i biološkim граниčnim vrijednostima (NN 91/2018)
Czech Republic - Occupational Exposure Limits	
Local name	2-Propanol (Isopropanol; Izopropylalkohol)
PEL (OEL TWA)	500 mg/m ³
PEL (OEL TWA) [ppm]	200 ppm
NPK-P (OEL C)	1000 mg/m ³
NPK-P (OEL C) [ppm]	400 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty), respektive kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)

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isopropanol (67-63-0)	
Denmark - Occupational Exposure Limits	
Local name	Isopropylalkohol (Isopropanol; 2-Propanol; sec-Propylalkohol)
OEL TWA [1]	490 mg/m ³
OEL TWA [2]	200 ppm
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	2-propanool (isopropüülalkohol, isopropanool)
OEL TWA	350 mg/m ³
OEL TWA [ppm]	150 ppm
OEL STEL	600 mg/m ³
OEL STEL [ppm]	250 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	2-Propanoli
HTP (OEL TWA) [1]	500 mg/m ³
HTP (OEL TWA) [2]	200 ppm
HTP (OEL STEL)	620 mg/m ³
HTP (OEL STEL) [ppm]	250 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Alcool isopropylique
VLE (OEL C/STEL)	980 mg/m ³
VLE (OEL C/STEL) [ppm]	400 ppm
Remark	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	500 mg/m ³
AGW (OEL TWA) [2]	200 ppm
AGW (OEL C)	1000 mg/m ³
Peak exposure limitation factor	2(II)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden
Regulatory reference	TRGS900
Germany - Biological limit values (TRGS 903)	
Local name	Propan-2-ol

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isopropanol (67-63-0)	
Biological limit value	25 mg/l Parameter: Aceton - Untersuchungsmaterial: B = Vollblut, U = Urin - Probenahmezeitpunkt: b) Expositionsende, bzw. Schichtende - Festlegung/Begründung: 11/2012 DFG 25 mg/l Parameter: Aceton - Untersuchungsmaterial: U = Urin - Probenahmezeitpunkt: b) Expositionsende, bzw. Schichtende - Festlegung/Begründung: 11/2012 DFG
Regulatory reference	TRGS 903
Greece - Occupational Exposure Limits	
Local name	Ισοπροπιλική αλκοόλη
OEL TWA	980 mg/m ³
OEL TWA [ppm]	400 ppm
OEL STEL	1225 mg/m ³
OEL STEL [ppm]	500 ppm
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	IZOPROPIL-ALKOHOL
AK (OEL TWA)	500 mg/m ³
CK (OEL STEL)	1000 mg/m ³
Remark	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát); R (Azok az anyagok, amelyek egészségkárosító hatása RÖVID expozíció hatására jelentkezik)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Hungary - Biological Exposure Indices	
Local name	Izopropil-alkohol (2-Propanol)
BEI	25 mg/l Biológiai expozíciós (hatás) mutató: aceton - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 430 µmol/l Biológiai expozíciós (hatás) mutató: aceton - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén)
Remark	A foglalkozási vegyi expozíció esetén ajánlott biológiai expozíciós és hatásmutatók határértékei
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Isopropyl alcohol [Propan-2-ol]
OEL TWA [2]	200 ppm
OEL STEL [ppm]	400 ppm
Remark	Sk (Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body)
Regulatory reference	Chemical Agents Code of Practice 2021
Latvia - Occupational Exposure Limits	
Local name	Izopropanols (2-propanols, izopropilspirts, 1-metil-1-etanols)
OEL TWA	350 mg/m ³

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isopropanol (67-63-0)	
OEL STEL	600 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2011. gada 1. februārī noteikumiem Nr. 92)
Lithuania - Occupational Exposure Limits	
Local name	2-propanolis (izopropanolis, izopropilo alkoholis)
IPRV (OEL TWA)	350 mg/m ³
IPRV (OEL TWA) [ppm]	150 ppm
TPRV (OEL STEL)	600 mg/m ³
TPRV (OEL STEL) [ppm]	250 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	650 mg/m ³
TGG-15min (OEL STEL)	0 mg/m ³
Poland - Occupational Exposure Limits	
Local name	Propan-2-ol (izopropylowy alkohol)
NDS (OEL TWA)	900 mg/m ³
NDSch (OEL STEL)	1200 mg/m ³
Remark	Skóra (Oznakowanie substancji notacją „skóra” oznacza, że wchłanianie substancji przez skórę może być tak samo istotne jak przy narażeniu drogą oddechową).
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	2-Propanol (isopropanol ou álcool isopropílico)
OEL TWA [ppm]	200 ppm
OEL STEL [ppm]	400 ppm
Remark	A4 (Agente não classificável como carcinogénico no Homem); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014
Portugal - Biological Exposure Indices	
Local name	2-Propanol
BEI	40 mg/l Parâmetro: Acetona - Meio: urina - Momento da amostragem: Fim do turno no fim da semana de trabalho - Notação: Vb (Valor basal), Ne (Não específico)
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Alcool izopropilic/2-Propanol
OEL TWA	200 mg/m ³
OEL TWA [ppm]	81 ppm
OEL STEL	500 mg/m ³
OEL STEL [ppm]	203 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)

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isopropanol (67-63-0)	
Romania - Biological limit values	
Local name	Alcool izopropilic
BLV	50 mg/l Indicator biologic: Acetonă - Material biologic: urină - Momentul recoltării: sfârșit de schimb
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 584/2018)
Slovakia - Occupational Exposure Limits	
Local name	Izopropylalkohol (propán-2-ol)
NPHV (OEL TWA) [1]	500 mg/m ³
NPHV (OEL TWA) [2]	200 ppm
NPHV (OEL STEL)	1000 mg/m ³
NPHV (OEL STEL) [ppm]	400 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	propan-2-ol (izopropilalkohol; izopropanol)
OEL TWA	500 mg/m ³
OEL TWA [ppm]	200 ppm
OEL STEL	1000 mg/m ³
OEL STEL [ppm]	400 ppm
Remark	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), BAT (Biološka mejna vrednost)
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Slovenia - Biological limit values	
Local name	2-propanol
BLV	25 mg/l Parameter: aceton - Biološki vzorec: kri - Čas vzorčenja: ob koncu delovne izmene 25 mg/l Parameter: aceton - Biološki vzorec: urin - Čas vzorčenja: ob koncu delovne izmene
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Isopropanol (Alcohol isopropílico)
VLA-ED (OEL TWA) [1]	500 mg/m ³
VLA-ED (OEL TWA) [2]	200 ppm
VLA-EC (OEL STEL)	1000 mg/m ³
VLA-EC (OEL STEL) [ppm]	400 ppm
Remark	VLB® (Agente químico que tiene Valor Límite Biológico), s (Esta sustancia tiene prohibida total o parcialmente su comercialización y uso como fitosanitario y/o como biocida. Para una información detallada acerca de las prohibiciones consúltese: Base de datos de productos biocidas: http://www.msssi.gob.es/ciudadanos/productos.do?tipo=plaguicidas Base de datos de productos fitosanitarios http://www.magrama.gob.es/agricultura/pags/fitos/registro/fichas/pdf/Lista_sa.pdf).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT

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isopropanol (67-63-0)	
Spain - Biological limit values	
Local name	Isopropanol (Alcohol isopropílico)
BLV	40 mg/l Parámetro: Acetona - Medio: Orina - Momento de muestreo: Final de la semana laboral - Notas: F (Fondo. El indicador está generalmente presente en cantidades detectables en personas no expuestas laboralmente. Estos niveles de fondo están considerados en el valor VLB), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Sweden - Occupational Exposure Limits	
Local name	Isopropanol
NGV (OEL TWA)	350 mg/m ³
NGV (OEL TWA) [ppm]	150 ppm
KTV (OEL STEL)	600 mg/m ³
KTV (OEL STEL) [ppm]	250 ppm
Remark	V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Propan-2-ol
WEL TWA (OEL TWA) [1]	999 mg/m ³
WEL TWA (OEL TWA) [2]	400 ppm
WEL STEL (OEL STEL)	1250 mg/m ³
WEL STEL (OEL STEL) [ppm]	500 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	2-Própanól (Ísóprópanól, Ísóprópylalkóhól, sec-própylalkóhól)
OEL TWA	490 mg/m ³
OEL TWA [ppm]	200 ppm
Remark	H (efnið getur auðveldlega borist inn í líkamann gegnum húð)
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	2-propanol (Isopropanol)
Grenseverdi (OEL TWA) [1]	245 mg/m ³
Grenseverdi (OEL TWA) [2]	100 ppm
Regulatory reference	FOR-2021-06-28-2248
North Macedonia - Occupational Exposure Limits	
Local name	пропан-2-ол (изопропилалкохол; изопропанол)
OEL TWA	500 mg/m ³
OEL TWA [ppm]	200 ppm

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isopropanol (67-63-0)	
KTV	4
Short time value [mg/m ³]	2000 mg/m ³
Short time value [ppm]	800 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m ³ или во ml/m ³ (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (Y); (BAT) биолошка гранична вредност – праг на биолошка гранична вредност, што значи предупредување на опасна хемиска супстанца и нејзини метаболити во ткивата, телесните течности или издишувањето на воздухот, без оглед на тоа, дали опасната хемиска супстанца е внесена во организмот со вдишување, голтање или преку кожата
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија“ бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	2-Propanol / 2-Propanol [iso-Propylalkohol, Isopropanol, Isopropylalkohol]
MAK (OEL TWA) [1]	500 mg/m ³
MAK (OEL TWA) [2]	200 ppm
KZGW (OEL STEL)	1000 mg/m ³
KZGW (OEL STEL) [ppm]	400 ppm
Critical toxicity	VRS, Foie, SNC, Yeux / OAW, Leber, ZNS, Auge
Notation	SS _c , B / SS _c , B
Remark	INRS, NIOSH
Regulatory reference	www.suva.ch, 28.03.2022
Switzerland - BAT	
Local name	2-Propanol / 2-Propanol
BAT	25 mg/l (0.4 mmol/l; Paramètre biologique: Acétone; Substrat d'examen: Sang complet; Moment du prélèvement: Fin de l'exposition, de la période de travail.) / (0.4 mmol/l; Biologischer Parameter: Aceton; Untersuchungsmaterial: Vollblut; Probennahmezeitpunkt: Expositionsende, bzw. Schichtende.) 25 mg/l (0.4 mmol/l; Paramètre biologique: Acétone; Substrat d'examen: Urine; Moment du prélèvement: Fin de l'exposition, de la période de travail.) / (0.4 mmol/l; Biologischer Parameter: Aceton; Untersuchungsmaterial: Urin; Probennahmezeitpunkt: Expositionsende, bzw. Schichtende.)
Regulatory reference	Ordonnance 832.30 (OPA), article 50 al. 3, www.suva.ch/valeurs-limites / Verordnung 832.30 (VUV), Art. 50 Abs. 3, www.suva.ch/grenzwerte
USA - ACGIH - Occupational Exposure Limits	
Local name	2-Propanol
ACGIH OEL TWA [ppm]	200 ppm
ACGIH OEL STEL [ppm]	400 ppm
Remark (ACGIH)	TLV® Basis: Eye & URT irr; CNS impair. Notations: A4 (Not classifiable as a Human Carcinogen); BEI

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isopropanol (67-63-0)	
Regulatory reference	ACGIH 2022
2-butoxyethanol (111-76-2)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	98 mg/m ³
IOEL TWA [ppm]	20 ppm
IOEL STEL	246 mg/m ³
IOEL STEL [ppm]	50 ppm
Belgium - Occupational Exposure Limits	
OEL TWA	98 mg/m ³
OEL TWA [ppm]	20 ppm
OEL STEL	246 mg/m ³
OEL STEL [ppm]	50 ppm
France - Occupational Exposure Limits	
VME (OEL TWA)	49 mg/m ³
VME (OEL TWA) [ppm]	10 ppm
VLE (OEL C/STEL)	246 mg/m ³
VLE (OEL C/STEL) [ppm]	50 ppm
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	100 mg/m ³
TGG-8u (OEL TWA) [ppm]	20 ppm
TGG-15min (OEL STEL)	246 mg/m ³
TGG-15min (OEL STEL) [ppm]	50 ppm
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	123 mg/m ³
WEL TWA (OEL TWA) [2]	25 ppm
WEL STEL (OEL STEL)	246 mg/m ³
WEL STEL (OEL STEL) [ppm]	50 ppm
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA [ppm]	20 ppm
ammonia, aqueous solution (1336-21-6)	
Finland - Occupational Exposure Limits	
Local name	Ammoniakkiliuos
HTP (OEL TWA) [1]	14 mg/m ³
HTP (OEL TWA) [2]	20 ppm
HTP (OEL STEL)	36 mg/m ³
HTP (OEL STEL) [ppm]	50 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)

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8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

Hand protection					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Impermeable protective gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0.35		EN ISO 374

8.2.2.3. Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Colour : Colourless.
Appearance : Liquid.

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Odour	: characteristic.
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: Not available
Boiling point	: -42 – 173 °C
Flammability	: Extremely flammable aerosol.
Explosive properties	: Pressurised container: May burst if heated.
Lower explosion limit	: 1,13 vol %
Upper explosion limit	: 12 vol %
Flash point	: Not applicable
Auto-ignition temperature	: 230 °C
Decomposition temperature	: Not available
pH	: 10,4
Viscosity, kinematic	: 1 mm ² /s
Viscosity, dynamic	: 1 mPa·s
Solubility	: Soluble in water.
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: 853000 Pa
Vapour pressure at 50°C	: Not available
Density	: 0,992 kg/l
Relative density	: Not available
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

% of flammable ingredients : 14,5 %

9.2.2. Other safety characteristics

Relative evaporation rate (butylacetate=1) : 1,3
VOC content : 14,5 % (138.643 g/l)

SECTION 10: Stability and reactivity

10.1. Reactivity

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

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity (oral) : Not classified

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Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

butane (106-97-8)	
LC50 Inhalation - Rat [ppm]	> 800000 ppm (15 minutes, Rat, Male / female, Experimental value of similar product, Inhalation (gases))

propane (74-98-6)	
LC50 Inhalation - Rat [ppm]	> 800000 ppm (15 minutes, Rat, Male / female, Experimental value, Inhalation (gases))

isopropanol (67-63-0)	
LD50 oral rat	5840 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Experimental value, Oral, 14 day(s))
LD50 oral	4396 mg/kg bodyweight
LD50 dermal rabbit	16400 ml/kg (Equivalent or similar to OECD 402, 24 h, Rabbit, Experimental value, Dermal, 14 day(s))
LD50 dermal	12800 mg/kg bodyweight
LC50 Inhalation - Rat [ppm]	> 10000 ppm (Equivalent or similar to OECD 403, 6 h, Rat, Male / female, Experimental value, Inhalation (vapours), 14 day(s))
LC50 Inhalation - Rat (Dust/Mist)	46600 mg/l

2-butoxyethanol (111-76-2)	
LD50 oral rat	1746 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral, 14 day(s))
LD50 oral	1414 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Guinea pig, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal	435 mg/kg bodyweight

Skin corrosion/irritation : Not classified
pH: 10,4

butane (106-97-8)	
pH	No data available in the literature

propane (74-98-6)	
pH	No data available in the literature

isopropanol (67-63-0)	
pH	No data available in the literature

2-butoxyethanol (111-76-2)	
pH	No data available in the literature

Serious eye damage/irritation : Not classified
pH: 10,4

butane (106-97-8)	
pH	No data available in the literature

propane (74-98-6)	
pH	No data available in the literature

isopropanol (67-63-0)	
pH	No data available in the literature

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2-butoxyethanol (111-76-2)	
pH	No data available in the literature
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
isopropanol (67-63-0)	
STOT-single exposure	May cause drowsiness or dizziness.
STOT-repeated exposure	: Not classified
2-butoxyethanol (111-76-2)	
NOAEL (dermal, rat/rabbit, 90 days)	> 150 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)
Aspiration hazard	: Not classified
BPB RUITENREINIGER	
Vaporizer	Aerosol
Viscosity, kinematic	1 mm ² /s
butane (106-97-8)	
Viscosity, kinematic	No data available in the literature
propane (74-98-6)	
Viscosity, kinematic	No data available in the literature
isopropanol (67-63-0)	
Viscosity, kinematic	2,66 mm ² /s (25 °C, Estimated value)
2-butoxyethanol (111-76-2)	
Viscosity, kinematic	3,642 mm ² /s (20 °C, Not relevant)

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified
Not rapidly degradable	

butane (106-97-8)	
LC50 - Fish [1]	24,11 mg/l (ECOSAR, 96 h, Pisces, Fresh water, QSAR)
EC50 96h - Algae [1]	7,71 mg/l (ECOSAR v1.00, Algae, Fresh water, QSAR)
propane (74-98-6)	
LC50 - Fish [1]	49,9 mg/l (96 h, Pisces, Fresh water, QSAR, Estimated value)

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propane (74-98-6)	
EC50 96h - Algae [1]	11,89 mg/l (ECOSAR v1.00, Algae, Fresh water, QSAR)
isopropanol (67-63-0)	
LC50 - Fish [1]	9640 – 10000 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal)
LC50 - Fish [2]	9640 mg/l Test organisms (species): Pimephales promelas
EC50 - Other aquatic organisms [1]	13299 mg/l waterflea
EC50 - Other aquatic organisms [2]	> 1000 mg/l
2-butoxyethanol (111-76-2)	
LC50 - Fish [1]	1474 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value, Nominal concentration)
EC50 - Crustacea [1]	1550 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
EC50 - Other aquatic organisms [1]	1550 mg/l waterflea
EC50 - Other aquatic organisms [2]	911 mg/l
ErC50 algae	1840 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)
NOEC (chronic)	100 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	≥ 100 mg/l Test organisms (species): Oryzias latipes Duration: '14 d'

12.2. Persistence and degradability

butane (106-97-8)	
Persistence and degradability	Readily biodegradable in water.
propane (74-98-6)	
Persistence and degradability	Readily biodegradable in water.
isopropanol (67-63-0)	
Persistence and degradability	Readily biodegradable in water.
Biochemical oxygen demand (BOD)	1,19 g O ₂ /g substance
Chemical oxygen demand (COD)	2,23 g O ₂ /g substance
ThOD	2,4 g O ₂ /g substance
2-butoxyethanol (111-76-2)	
Persistence and degradability	Readily biodegradable in water.

12.3. Bioaccumulative potential

butane (106-97-8)	
Partition coefficient n-octanol/water (Log Pow)	2,8 (Experimental value, 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
propane (74-98-6)	
Partition coefficient n-octanol/water (Log Pow)	1,09 – 2,8 (Experimental value, 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

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isopropanol (67-63-0)

Partition coefficient n-octanol/water (Log Pow)	0,05 (Weight of evidence approach, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

2-butoxyethanol (111-76-2)

Partition coefficient n-octanol/water (Log Pow)	0,81 (Experimental value, BASF test, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

12.4. Mobility in soil

butane (106-97-8)

Surface tension	No data available in the literature
Ecology - soil	Not applicable (gas).

propane (74-98-6)

Surface tension	No data available in the literature
Ecology - soil	Not applicable (gas).

isopropanol (67-63-0)

Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0,185 – 0,541 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

2-butoxyethanol (111-76-2)

Surface tension	65,03 mN/m (20 °C, 2 g/l)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0,5 – 0,9 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

12.5. Results of PBT and vPvB assessment

Component

butane (106-97-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
propane (74-98-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
isopropanol (67-63-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
2-butoxyethanol (111-76-2)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
European List of Waste (LoW) code : 16 05 04* - gases in pressure containers (including halons) containing dangerous substances
20 01 29* - detergents containing dangerous substances
15 01 10* - packaging containing residues of or contaminated by dangerous substances
14 06 00 - waste organic solvents, refrigerants and foam/aerosol propellants

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID /

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 1950	UN 1950	UN 1950	UN 1950	UN 1950
14.2. UN proper shipping name				
AEROSOLS	AEROSOLS	Aerosols, flammable	AEROSOLS	AEROSOLS
Transport document description				
UN 1950 AEROSOLS, 2.1, (D)	UN 1950 AEROSOLS, 2.1	UN 1950 Aerosols, flammable, 2.1	UN 1950 AEROSOLS, 2.1	UN 1950 AEROSOLS, 2.1
14.3. Transport hazard class(es)				
2.1	2.1	2.1	2.1	2.1
				
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : 5F
Special provisions (ADR) : 190, 327, 344, 625
Limited quantities (ADR) : 1I
Excepted quantities (ADR) : E0
Packing instructions (ADR) : P207, LP200
Special packing provisions (ADR) : PP87, RR6, L2
Mixed packing provisions (ADR) : MP9
Transport category (ADR) : 2
Special provisions for carriage - Packages (ADR) : V14
Special provisions for carriage - Loading, unloading and handling (ADR) : CV9, CV12
Special provisions for carriage - Operation (ADR) : S2
Tunnel restriction code (ADR) : D

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Transport by sea

Special provisions (IMDG)	: 63, 190, 277, 327, 344, 381, 959
Limited quantities (IMDG)	: SP277
Excepted quantities (IMDG)	: E0
Packing instructions (IMDG)	: P207, LP200
Special packing provisions (IMDG)	: PP87, L2
EmS-No. (Fire)	: F-D
EmS-No. (Spillage)	: S-U
Stowage category (IMDG)	: None
Stowage and handling (IMDG)	: SW1, SW22
Segregation (IMDG)	: SG69

Air transport

PCA Excepted quantities (IATA)	: E0
PCA Limited quantities (IATA)	: Y203
PCA limited quantity max net quantity (IATA)	: 30kgG
PCA packing instructions (IATA)	: 203
PCA max net quantity (IATA)	: 75kg
CAO packing instructions (IATA)	: 203
CAO max net quantity (IATA)	: 150kg
Special provisions (IATA)	: A145, A167, A802
ERG code (IATA)	: 10L

Inland waterway transport

Classification code (ADN)	: 5F
Special provisions (ADN)	: 190, 327, 344, 625
Limited quantities (ADN)	: 1 L
Excepted quantities (ADN)	: E0
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01, VE04
Number of blue cones/lights (ADN)	: 1

Rail transport

Classification code (RID)	: 5F
Special provisions (RID)	: 190, 327, 344, 625
Limited quantities (RID)	: 1L
Excepted quantities (RID)	: E0
Packing instructions (RID)	: P207, LP200
Special packing provisions (RID)	: PP87, RR6, L2
Mixed packing provisions (RID)	: MP9
Transport category (RID)	: 2
Special provisions for carriage – Packages (RID)	: W14
Special provisions for carriage - Loading, unloading and handling (RID)	: CW9, CW12
Colis express (express parcels) (RID)	: CE2
Hazard identification number (RID)	: 23

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

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SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
3(a)	BPB RUITENREINIGER ; isopropanol	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F
3(b)	isopropanol ; 2- butoxyethanol ; ammonia, aqueous solution	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10
3(c)	ammonia, aqueous solution	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

VOC Directive (2004/42)

VOC content : 14,5 % (138.643 g/l)

Detergent Regulation (648/2004)

Allergenic fragrances > 0.01 %:

d-limonene

Labelling of contents	
Component	%
aliphatic hydrocarbons	≥5-<15%
perfumes	
LIMONENE	

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

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15.1.2. National regulations

France

Occupational diseases	
Code	Description
RG 84	Conditions caused by liquid organic solvents for professional use: saturated or unsaturated aliphatic or cyclic liquid hydrocarbons and mixtures thereof; liquid halogenated hydrocarbons; nitrated derivatives of aliphatic hydrocarbons; alcohols; glycols, glycol ethers; ketones; aldehydes; aliphatic and cyclic ethers, including tetrahydrofuran; esters; dimethylformamide and dimethylacetamine; acetonitrile and propionitrile; pyridine; dimethylsulfone and dimethylsulfoxide

Germany

Employment restrictions	: Observe restrictions according Act on the Protection of Working Mothers (MuSchG). Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG).
Water hazard class (WGK)	: WGK 1, Slightly hazardous to water (Classification according to AwSV, Annex 1).
Storage class (LGK, TRGS 510)	: LGK 2B - Aerosol dispensers and lighters.
Hazardous Incident Ordinance (12. BImSchV)	: Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

ABM category	: A(3) - hazardous for aquatic organisms, may have longterm hazardous effects in aquatic environment
SZW-lijst van kankerverwekkende stoffen	: None of the components are listed
SZW-lijst van mutagene stoffen	: None of the components are listed
SZW-lijst van reprotoxische stoffen – Borstvoeding	: None of the components are listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid	: None of the components are listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling	: None of the components are listed

Denmark

Danish National Regulations	: Young people below the age of 18 years are not allowed to use the product Pregnant/breastfeeding women working with the product must not be in direct contact with the product
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Switzerland

Storage class (LK)	: LK 2 - Liquefied or pressurized gases
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15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
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
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number

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Abbreviations and acronyms:	
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aerosol 1	Aerosol, Category 1
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Gas 1A	Flammable gases, Category 1A
Flam. Liq. 2	Flammable liquids, Category 2
H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H225	Highly flammable liquid and vapour.
H229	Pressurised container: May burst if heated.
H280	Contains gas under pressure; may explode if heated.

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Full text of H- and EUH-statements:

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
Press. Gas (Liq.)	Gases under pressure : Liquefied gas
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Narcosis

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Aerosol 1	H222;H229	On basis of test data
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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.