

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
SDS Reference Number: USPS355
Issue date: 2015/6/17 Revision date: 2025/1/5 Supersedes version of: 2022/1/2 Version: 1.4

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

1.1. Product identifier

Product form	: Substance
Trade name	: Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP)
Chemical name	: ethanol; ethyl alcohol
IUPAC name	: Ethanol
EC Index-No.	: 603-002-00-5
EC-No.	: 200-578-6
CAS-No.	: 64-17-5
REACH registration No.	: 01-2119457610-43-XXXX
Product code	: USPS355
Type of product	: Pure substance
Formula	: C ₂ H ₆ O
Synonyms	: 1-hydroxyethane / absolute alcohol / absolute ethanol / alcohol / alcohol 200 proof / alcohol, absolute / alcohol, anhydrous / alcohol, dehydrated / ethanol (ethyl alcohol) / ethanol, absolute / ethyl alcohol / ethyl alcohol, anhydrous / ethyl hydrate / ethyl hydroxide / ethylic alcohol / hydrated oxide of ethyl
BIG No	: 10113

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

Relevant identified uses

Main use category	: Professional use
Use of the substance/mixture	: Laboratory chemical
Function or use category	: Laboratory chemicals

1.3. Details of the supplier of the safety data sheet

Spectracer UK Ltd.

20 Seymour Mews,
London,
W1H 6BQ,
United Kingdom.

Tel: +44 (0) 207 193 9114
Fax: +44 (0) 203 432 4686
Email: contact@spectracer.com
Web: www.spectracer.com

1.4. Emergency telephone number

Country/Area	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	Beaumont Hospital Beaumont Road 9 Dublin	: +353 1 8379964	
Malta	Medicines & Poisons Info Office	Mater Dei Hospital Msida MSD 2090 Msida	112 +356 2545 6508	
United Kingdom	National Poisons Information Service (NHS Direct)	http://www.npis.org	111 (England & Wales only) or 112 (EU) or 08454 24 24 24 (Scotland)	

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flammable liquids, Category 2 H225

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

Adverse physicochemical, human health and environmental effects

Highly flammable liquid and vapour.

2.2. Label elements

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

Hazard pictograms (CLP)

:



GHS02

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H225 - Highly flammable liquid and vapour.

Precautionary statements (CLP)

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.

No smoking.

Listed on CLP Annex VI

: EC Index-No.: 603-002-00-5

2.3. Other hazards

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

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type

: Mono-constituent

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
ethanol	CAS-No.: 64-17-5 EC-No.: 200-578-6 EC Index-No.: 603-002-00-5 REACH-no: 01-2119457610-43-XXXX	> 99	Flam. Liq. 2, H225

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 general

: If you feel unwell, seek medical advice.

First-aid measures after inhalation

: Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact

: Rinse skin with water/shower. Take off immediately all contaminated clothing.

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.

First-aid measures for first aider

: First aid workers will be equipped with suitable personal protective equipment.

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

Symptoms/effects after inhalation	: None under normal conditions.
Symptoms/effects after skin contact	: None under normal conditions.
Symptoms/effects after eye contact	: None under normal conditions.
Symptoms/effects after ingestion	: None under normal conditions.

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.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Highly flammable liquid and vapour.
Explosion hazard	: No direct explosion hazard.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions	: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.
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For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Ventilate spillage area. No open flames, no sparks, and no smoking.

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".
Emergency procedures	: Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.
Methods for cleaning up	: Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
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.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling	: Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment.
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

Technical measures	: Ground/bond container and receiving equipment.
Storage conditions	: Store in a well-ventilated place. Keep cool. Keep container tightly closed.
Packaging materials	: Store always product in container of same material as original container.

Germany

Storage class (LGK, TRGS 510)	: LGK 3 - Flammable liquids																									
Joint storage table	: <table border="1"><tr><td>LGK 1</td><td>LGK 2A</td><td>LGK 2B</td><td>LGK 3</td><td>LGK 4.1A</td></tr><tr><td>LGK 4.1B</td><td>LGK 4.2</td><td>LGK 4.3</td><td>LGK 5.1A</td><td>LGK 5.1B</td></tr><tr><td>LGK 5.1C</td><td>LGK 5.2</td><td>LGK 6.1A</td><td>LGK 6.1B</td><td>LGK 6.1C</td></tr><tr><td>LGK 6.1D</td><td>LGK 6.2</td><td>LGK 7</td><td>LGK 8A</td><td>LGK 8B</td></tr><tr><td>LGK 10</td><td>LGK 11</td><td>LGK 12</td><td>LGK 13</td><td>LGK 10-13</td></tr></table>	LGK 1	LGK 2A	LGK 2B	LGK 3	LGK 4.1A	LGK 4.1B	LGK 4.2	LGK 4.3	LGK 5.1A	LGK 5.1B	LGK 5.1C	LGK 5.2	LGK 6.1A	LGK 6.1B	LGK 6.1C	LGK 6.1D	LGK 6.2	LGK 7	LGK 8A	LGK 8B	LGK 10	LGK 11	LGK 12	LGK 13	LGK 10-13
LGK 1	LGK 2A	LGK 2B	LGK 3	LGK 4.1A																						
LGK 4.1B	LGK 4.2	LGK 4.3	LGK 5.1A	LGK 5.1B																						
LGK 5.1C	LGK 5.2	LGK 6.1A	LGK 6.1B	LGK 6.1C																						
LGK 6.1D	LGK 6.2	LGK 7	LGK 8A	LGK 8B																						
LGK 10	LGK 11	LGK 12	LGK 13	LGK 10-13																						
Joint storage not permitted for	: LGK 1, LGK 2A, LGK 4.1A, LGK 4.1B, LGK 4.2, LGK 4.3, LGK 5.1A, LGK 5.1C, LGK 5.2, LGK 6.1B, LGK 6.2, LGK 7																									
Joint storage with restrictions permitted for	: LGK 5.1B, LGK 6.1D, LGK 11, LGK 10-13																									
Joint storage permitted for	: LGK 2B, LGK 3, LGK 6.1A, LGK 6.1C, LGK 8A, LGK 8B, LGK 10, LGK 12, LGK 13																									

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure and biological limit values

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)	
Austria - Occupational Exposure Limits	
Local name	Ethanol (Ethylalkohol)
MAK (OEL TWA)	1900 mg/m ³
	1000 ppm
MAK (OEL STEL)	3800 mg/m ³ (3x 60(Mow) min)
	2000 ppm (3x 60(Mow) min)
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Alcool éthylique # Ethanol
OEL TWA	1907 mg/m ³

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Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)	
	1000 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Етилов алкохол
OEL TWA	1000 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. 28 от 2024 г., в сила от 05.04.2024 г.)
Croatia - Occupational Exposure Limits	
Local name	Etanol; etil-alkohol
GVI (OEL TWA)	1900 mg/m ³ 1000 ppm
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
Czech Republic - Occupational Exposure Limits	
Local name	Ethanol (Ethylalkohol)
PEL (OEL TWA)	1000 mg/m ³ 522 ppm
NPK-P (OEL C)	3000 mg/m ³ 1566 ppm
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Ethanol (Ethylalkohol)
OEL TWA	1900 mg/m ³ 1000 ppm
Regulatory reference	BEK nr 291 af 19/03/2024
Estonia - Occupational Exposure Limits	
Local name	Etanool (etüülalkohol)
OEL TWA	1000 mg/m ³ 500 ppm
OEL STEL	1900 mg/m ³ 1000 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
Finland - Occupational Exposure Limits	
Local name	Etanoli
HTP (OEL TWA)	1900 mg/m ³ 1000 ppm
HTP (OEL STEL)	2500 mg/m ³

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	1300 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
France - Occupational Exposure Limits	
Local name	Alcool éthylique
VME (OEL TWA)	1900 mg/m ³ 1000 ppm
VLE (OEL C/STEL)	9500 mg/m ³ 5000 ppm
Remark	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 6443, 2022; Outil65)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Ethanol
AGW (OEL TWA)	380 mg/m ³ 200 ppm
Peak exposure limitation factor	4(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
Greece - Occupational Exposure Limits	
Local name	Αιθνόλη
OEL TWA	1900 mg/m ³ 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	ETIL-ALKOHOL
AK (OEL TWA)	1900 mg/m ³
CK (OEL STEL)	3800 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	Ethanol [Ethyl alcohol]
OEL STEL	1000 ppm
Remark	Advisory OELV (Advisory Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024

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Latvia - Occupational Exposure Limits	
Local name	Etilspirts (etanols)
OEL TWA	1000 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).
Lithuania - Occupational Exposure Limits	
Local name	Etanolis (etilo alkoholis)
IPRV (OEL TWA)	1000 mg/m ³
	500 ppm
TPRV (OEL STEL)	1900 mg/m ³
	1000 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Netherlands - Occupational Exposure Limits	
Local name	Ethanol
TGG-8u (OEL TWA)	260 mg/m ³
	136 ppm (Ethanol; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)
TGG-15min (OEL STEL)	1900 mg/m ³
	992 ppm (Ethanol; Netherlands; Short time value; Public occupational exposure limit value)
Remark	Kankerverwekkende stof. H (Huidopname) Stoffen die relatief gemakkelijk door de huid kunnen worden opgenomen, hetgeen een substantiële bijdrage kan betekenen aan de totale inwendige blootstelling, hebben in de lijst een H-aanduiding. Bij deze stoffen moeten naast maatregelen tegen inademing ook adequate maatregelen ter voorkoming van huidcontact worden genomen.
Regulatory reference	Arbeidsomstandighedenregeling 2024
Portugal - Occupational Exposure Limits	
Local name	Etanol (Álcool etílico)
OEL STEL	1000 ppm
Remark	A3 (Agente carcinogénico confirmado nos animais de laboratorio con relevância desconhecida no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Alcool etilic/Etanol
OEL TWA	1900 mg/m ³
	1000 ppm
OEL STEL	9500 mg/m ³
	5000 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)

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Slovakia - Occupational Exposure Limits	
Local name	Etylalkohol (etanol)
NPHV (OEL TWA)	960 mg/m ³
	500 ppm
NPHV (OEL STEL)	1920 mg/m ³
	1000 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	etanol (etilalkohol)
OEL TWA	960 mg/m ³
	500 ppm
OEL STEL	7600 mg/m ³
	4000 ppm
Remark	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti)
Regulatory reference	Uradni list RS, št. 29/2024 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
Spain - Occupational Exposure Limits	
Local name	Etanol (Alcohol etílico)
VLA-EC (OEL STEL)	1910 mg/m ³
	1000 ppm
Remark	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 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Etanol
NGV (OEL TWA)	1000 mg/m ³
	500 ppm
KGV (OEL STEL)	1900 mg/m ³
	1000 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	Ethanol
WEL TWA (OEL TWA)	1920 mg/m ³

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Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)	
	1000 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Etanól (etýlalkóhól)
OEL TWA	1900 mg/m ³ 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	Etanól
Grenseverdi (OEL TWA)	950 mg/m ³ 500 ppm
Regulatory reference	FOR-2024-04-05-581
North Macedonia - Occupational Exposure Limits	
Local name	етанол (етилалкохол)
OEL TWA	1900 mg/m ³ 1000 ppm
KTV	4
Short time value [mg/m ³]	7600 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; (Y)
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	Ethanol
MAK (OEL TWA)	960 mg/m ³ 960 mg/m ³ 500 ppm 500 ppm
KZGW (OEL STEL)	1920 mg/m ³ 1920 mg/m ³ 1000 ppm 1000 ppm
Notation	SS _c / SS _c

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Remark	SS _c - OAW, Formal ^{KT} ^{HU} - INRS, NIOSH
Regulatory reference	www.suva.ch, 01.01.2024
USA - ACGIH - Occupational Exposure Limits	
Local name	Ethanol
ACGIH OEL STEL	1000 ppm
Remark (ACGIH)	TLV [®] Basis: URT irr. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
Regulatory reference	ACGIH 2024

DNEL and PNEC

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)	
DNEL/DMEL (Workers)	
Acute - local effects, inhalation	1900 mg/m ³
Long-term - systemic effects, dermal	343 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	950 mg/m ³
DNEL/DMEL (General population)	
Acute - local effects, inhalation	950 mg/m ³
Long-term - systemic effects, oral	87 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	114 mg/m ³
Long-term - systemic effects, dermal	206 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0,96 mg/l
PNEC aqua (marine water)	0,79 mg/l
PNEC aqua (intermittent, freshwater)	2,75 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	3,6 mg/kg dwt
PNEC sediment (marine water)	2,9 mg/kg dwt
PNEC (Soil)	
PNEC soil	0,63 mg/kg dwt
PNEC (Oral)	
PNEC oral (secondary poisoning)	0,72 g/kg food
PNEC (STP)	
PNEC sewage treatment plant	580 mg/l

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

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Personal protection equipment

Personal protective equipment:

Avoid all unnecessary exposure. Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the protective equipment.

Personal protective equipment symbol(s):



Eye and face protection

Eye protection:

Safety glasses

Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

Other skin protection		
Materials for protective clothing		
Condition	Material	Standard
Excellent resistance:	Butyl rubber, Viton	
Good resistance:	Neoprene, Tetrafluoroethylene	
Less resistance:	Nitrile rubber, Polyethylene	
Poor resistance:	Natural rubber, Polyvinylalcohol (PVA), Polyvinylchloride (PVC)	

Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

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.
Molecular mass	: 46,07 g/mol
Odour	: Alcohol odour. Pleasant odour.
Odour threshold	: 100 ppm 188 mg/m ³
Melting point	: -115 °C
Freezing point	: Not available
Boiling point	: 78,29001 °C 1013,25 hPa
Flammability	: Highly flammable liquid and vapour.
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: 13 °C
Auto-ignition temperature	: 363 °C
Decomposition temperature	: Not available

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pH	: Not available
Viscosity, kinematic	: 1,481 mm ² /s
Viscosity, dynamic	: 1,17 mPa·s (20 °C)
Solubility	: Soluble in water. Soluble in ether. Soluble in acetone. Soluble in chloroform. Soluble in oils/fats. Soluble in methanol. Soluble in acids.
Partition coefficient n-octanol/water (Log Kow)	: Not available
Partition coefficient n-octanol/water (Log Pow)	: -0,31
Vapour pressure	: 59 hPa (20 °C)
Vapour pressure at 50°C	: 300 hPa
Critical pressure	: 63840 hPa
Saturation concentration	: 112 g/m ³
Density	: 790 kg/m ³
Relative density	: 0,79
Relative vapour density at 20°C	: 1,6
Relative density of saturated gas/air mixture	: 1,04
Particle characteristics	: Not applicable

9.2. Other information

Information with regard to physical hazard classes

Explosion limits	: 3,3 – 19 vol % 67 – 290 g/m ³
Critical temperature	: 243 °C

Other safety characteristics

Relative evaporation rate (butylacetate=1)	: 2,4
Relative evaporation rate (ether=1)	: 8,3
Specific conductivity	: 130000 pS/m
VOC content	: 100 %
Other properties	: Gas/vapour heavier than air at 20°C,clear,Hygroscopic,Volatile,Neutral

SECTION 10: Stability and reactivity

10.1. Reactivity

Highly flammable liquid and vapour.

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
Acute toxicity (dermal)	: Not classified

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Acute toxicity (inhalation) : Not classified

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)

LD50 oral rat	15010 mg/kg bodyweight
LD50 oral	8300 mg/kg bodyweight mouse
LD50 dermal rabbit	> 16000 mg/kg

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)

IARC group	1 - Carcinogenic to humans
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Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)

LOAEL (oral, rat, 90 days)	3200 mg/kg bodyweight
NOAEL (oral, rat, 90 days)	1730 mg/kg bodyweight
NOAEL (subchronic, oral, animal/male, 90 days)	< 9700 mg/kg bodyweight mouse
NOAEL (subchronic, oral, animal/female, 90 days)	> 9400 mg/kg bodyweight mouse

Aspiration hazard : Not classified

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)

Viscosity, kinematic	1,481 mm ² /s
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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

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)

LC50 - Fish [1]	14,2 g/l Pimephales promelas (Fathead minnow)
EC50 - Crustacea [1]	> 10000 mg/l Daphnia magna (Water flea)
EC50 96h - Algae [1]	≈ 22000 mg/l Pseudokirchneriella subcapitata
NOEC (chronic)	9,6 mg/l Daphnia magna (Water flea)

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12.2. Persistence and degradability

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)

Persistence and degradability	Readily biodegradable in water. Biodegradable in soil. Very mobile in soil.
Biochemical oxygen demand (BOD)	0,8 – 0,967 g O ₂ /g substance
Chemical oxygen demand (COD)	1,7 g O ₂ /g substance
ThOD	2,1 g O ₂ /g substance
BOD (% of ThOD)	0,43

12.3. Bioaccumulative potential

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)

BCF - Fish [1]	1 Cyprinus carpio (Common carp)
Partition coefficient n-octanol/water (Log Pow)	-0,31
Bioaccumulative potential	Low bioaccumulation potential (Log Kow < 4).

12.4. Mobility in soil

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)

Surface tension	0,022 N/m (20 °C)
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12.5. Results of PBT and vPvB assessment

Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP) (64-17-5)

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

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
Additional information	: Flammable vapours may accumulate in the container. Do not re-use empty containers.

SECTION 14: Transport information






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

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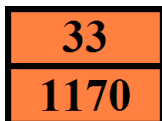
according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 1170	UN 1170	UN 1170	UN 1170	UN 1170
14.2. UN proper shipping name				
ETHANOL (ETHYL ALCOHOL)	ETHANOL (ETHYL ALCOHOL)	Ethanol	ETHANOL (ETHYL ALCOHOL)	ETHANOL (ETHYL ALCOHOL)
Transport document description				
UN 1170 ETHANOL (ETHYL ALCOHOL), 3, II, (D/E)	UN 1170 ETHANOL (ETHYL ALCOHOL), 3, II	UN 1170 Ethanol, 3, II	UN 1170 ETHANOL (ETHYL ALCOHOL), 3, II	UN 1170 ETHANOL (ETHYL ALCOHOL), 3, II
14.3. Transport hazard class(es)				
3	3	3	3	3
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No EmS-No. (Fire): F-E EmS-No. (Spillage): S-D	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) : F1
 Special provisions (ADR) : 144, 601
 Limited quantities (ADR) : 1I
 Excepted quantities (ADR) : E2
 Packing instructions (ADR) : P001, IBC02, R001
 Mixed packing provisions (ADR) : MP19
 Portable tank and bulk container instructions (ADR) : T4
 Portable tank and bulk container special provisions (ADR) : TP1
 Tank code (ADR) : LGBF
 Vehicle for tank carriage : FL
 Transport category (ADR) : 2
 Special provisions for carriage - Operation (ADR) : S2, S20
 Hazard identification number (Kemler No.) : 33
 Orange plates :



Tunnel restriction code (ADR) : D/E
 EAC code : •2YE

Transport by sea

Transport regulations (IMDG) : Subject to the provisions

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Special provisions (IMDG)	: 144
Limited quantities (IMDG)	: 1 L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T4
Tank special provisions (IMDG)	: TP1
Stowage category (IMDG)	: A

Air transport

Transport regulations (IATA)	: Subject to the provisions
PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y341
PCA limited quantity max net quantity (IATA)	: 1L
PCA packing instructions (IATA)	: 353
PCA max net quantity (IATA)	: 5L
CAO packing instructions (IATA)	: 364
CAO max net quantity (IATA)	: 60L
Special provisions (IATA)	: A3, A58, A180
ERG code (IATA)	: 3L

Inland waterway transport

Classification code (ADN)	: F1
Special provisions (ADN)	: 144, 601
Limited quantities (ADN)	: 1 L
Excepted quantities (ADN)	: E2
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01
Number of blue cones/lights (ADN)	: 1

Rail transport

Transport regulations (RID)	: Subject to the provisions
Classification code (RID)	: F1
Special provisions (RID)	: 144, 601
Limited quantities (RID)	: 1L
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P001, IBC02, R001
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T4
Portable tank and bulk container special provisions (RID)	: TP1
Tank codes for RID tanks (RID)	: LGBF
Transport category (RID)	: 2
Colis express (express parcels) (RID)	: CE7
Hazard identification number (RID)	: 33

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

EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
3(a)	Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP)	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
40.	Aldehyde-free Alcohol As specified in the US Pharmacopoeia (USP)	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (2024/590)

Not listed on the Ozone Depletion list (Regulation EU 2024/590)

Council Regulation (EC) for the control of dual-use items

Not listed on the COUNCIL REGULATION (EC) of dual-use items.

VOC Directive (2004/42)

Organic solvent : Yes
VOC content : 100 %

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)

National regulations

Listed on IARC (International Agency for Research on Cancer)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

France

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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

VOC ordinance (ChemVOCFarbV)	: VOC content	: 100 %
Water hazard class (WGK)	: WGK 1, Slightly hazardous to water (Classification according to AwSV; ID No. 96).	
WGK remark	: Classification in compliance with Verwaltungsvorschriftwassergefährdender Stoffe (VwVwS) of 27 July 2005.	
Hazardous Incident Ordinance (12. BImSchV)	: Is not subject to the Hazardous Incident Ordinance (12. BImSchV)	

Netherlands

ABM category	: B(5) - low hazard for aquatic organisms
SZW-lijst van kankerverwekkende stoffen	: ethanol is listed
SZW-lijst van mutagene stoffen	: The substance is not listed
SZW-lijst van reprotoxische stoffen – Borstvoeding	: ethanol is listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid	: ethanol is listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling	: ethanol is listed

Denmark

Class for fire hazard	: Class I-1
Store unit	: 1 liter
Classification remarks	: F <Flam. Liq. 2>; Emergency management guidelines for the storage of flammable liquids must be followed
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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Poland

Polish National Regulations

: Act of 25 February 2011 on chemical substances and their mixtures (J. o L. No. 63, item 322 as amended; consolidated text J. o L. 2019, item 1225).
Act of 14 December 2012 on waste (J. o L. 2013, item 322 as amended; consolidated text J. o L. 2020, item 797).
The announcement of Marshal of the Sejm of the Republic of Poland dated 19 October 2016 concerning the consolidated text announcement of the decree on the management of packaging and packaging waste (J. o L. 2016, item 1863 as amended).
Decree of the Minister of Environment of 14 December 2014 on the catalogue of waste (J. o L. 2014, item 1923).
Act of 19 August 2011 on the Carriage of Dangerous Goods (J. o L. 2011 No. 227, item 1367 as amended; consolidated text J. o L. 2020, item 154).
Regulation of the Minister of Family, Labour and Social Policy of 12 June 2018 on the highest permissible concentration and intensity of noxious agents for health at work environment (J. o L. item 1286 as amended).
The announcement of Minister of Health dated 9 September 2016 concerning the consolidated text announcement of the decree of the Minister of Health of 30 December 2004 on health and safety at work related to exposure to chemical agents at work (J. o L. of 16 September 2016, item 1488)
Regulation of the Minister of Health of 2 February 2011 on tests and measurements of the noxious agents for health at work environment (J. o L. No. 33, item 166 as amended).
Regulation of the Minister of Environment of 9 December 2003 on particularly hazardous substances to the environment (J. o L. No. 217, item 2141).
ADR Agreement: Government Statement of 13 March 2023 on the entry into force of amendments to Annexes A and B to the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), signed in Geneva on 30 September 1957 (J. o. L. 2023, item 891)

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes		
Section	Changed item	Comments
	CSR applicable	Added
	Revision date	Modified
	Substance type	Added
1.1	Name	Added
1.2	Main use category	Modified
1.2	Use of the substance/mixture	Modified
4.1	First-aid measures for first aider	Added
4.1	First-aid measures after inhalation	Added
4.1	First-aid measures after ingestion	Added
4.1	First-aid measures general	Added
4.1	First-aid measures after eye contact	Added
4.1	First-aid measures after skin contact	Added
4.2	Symptoms/effects after skin contact	Added
4.2	Symptoms/effects after inhalation	Added

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Indication of changes		
Section	Changed item	Comments
4.2	Symptoms/effects after ingestion	Added
4.2	Symptoms/effects after eye contact	Added
5.1	Unsuitable extinguishing media	Added
5.1	Suitable extinguishing media	Added
5.2	Explosion hazard	Added
5.2	Fire hazard	Added
5.3	Protection during firefighting	Added
5.3	Firefighting instructions	Added
6.1	Emergency procedures	Added
6.1	Protective equipment	Added
6.1	General measures	Added
6.1	Emergency procedures	Added
6.2	Environmental precautions	Added
6.3	For containment	Added
6.3	Methods for cleaning up	Added
7.1	Additional hazards when processed	Added
7.1	Precautions for safe handling	Added
7.2	Packaging materials	Added
8	Regulatory reference	Added
8	Regulatory reference	Added
8	Regulatory reference	Added
8	Regulatory reference	Added
8	Regulatory reference	Modified
8	Regulatory reference	Modified
8	Regulatory reference	Modified
8	Regulatory reference	Removed
8	NDS (OEL TWA)	Removed
8	Local name	Removed
8	Regulatory reference	Modified
8	Regulatory reference	Modified
8	Regulatory reference	Modified
8	Regulatory reference	Modified
8	Regulatory reference	Modified
8	Regulatory reference	Modified
8	Regulatory reference	Modified
8	Regulatory reference	Modified
8	Regulatory reference	Modified
8	Regulatory reference	Modified

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Indication of changes		
Section	Changed item	Comments
8	Regulatory reference	Modified
8	Peak exposure limitation factor	Modified
8	Notation	Added
8	OEL STEL	Added
8	OEL STEL	Added
8	OEL TWA	Added
8	OEL TWA	Added
8	Local name	Added
8	Regulatory reference	Added
8	Remark	Added
8	KTV	Added
8	OEL TWA	Added
8	OEL TWA	Added
8	Local name	Added
8	OEL STEL	Added
8	Local name	Added
8	GVI (OEL TWA) [2]	Added
8	GVI (OEL TWA) [1]	Added
8	Local name	Added
8	Regulatory reference	Added
8	MAK (OEL STEL) [ppm]	Added
8	MAK (OEL STEL)	Added
8	MAK (OEL TWA) [ppm]	Added
8	MAK (OEL TWA)	Added
8	Local name	Added
8.1	PNEC soil	Added
8.1	PNEC sewage treatment plant	Added
8.1	PNEC sediment (marine water)	Added
8.1	PNEC sediment (freshwater)	Added
8.1	PNEC oral (secondary poisoning)	Added
8.1	PNEC aqua (marine water)	Added
8.1	PNEC aqua (intermittent, freshwater)	Added
8.1	PNEC aqua (freshwater)	Added
8.1	Long-term - systemic effects,oral	Added
8.1	Long-term - systemic effects, inhalation	Added
8.1	Long-term - systemic effects, inhalation	Added
8.1	Long-term - systemic effects, dermal	Added

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Indication of changes		
Section	Changed item	Comments
8.1	Long-term - systemic effects, dermal	Added
8.1	Acute - local effects, inhalation	Added
8.1	Acute - local effects, inhalation	Added
8.2	Respiratory protection	Added
8.2	Hand protection	Added
8.2	Eye protection	Added
8.2	Skin and body protection	Added
8.2	Personal protective equipment	Added
9	Flammability	Modified
9	Viscosity, dynamic	Modified
9	Boiling point	Modified
9	Partition coefficient n-octanol/water (Log Pow)	Modified
9	Vapour pressure at 50°C	Modified
9	Vapour pressure	Modified
10.1	Reactivity	Added
10.2	Chemical stability	Added
11.1	NOAEL (oral, rat, 90 days)	Added
11.1	LOAEL (oral, rat, 90 days)	Added
11.1	NOAEL (subchronic, oral, animal/male, 90 days)	Added
11.1	NOAEL (subchronic, oral, animal/female, 90 days)	Added
11.1	LD50 oral rat	Modified
11.1	LD50 oral	Added
11.1	LD50 dermal rabbit	Modified
11.1	ATE CLP (oral)	Modified
12.1	Ecology - general	Added
12.1	EC50 96h - Algae [1]	Added
12.1	EC50 Daphnia 1	Added
12.1	NOEC (chronic)	Added
12.1	LC50 - Fish [1]	Modified
12.3	BCF - Fish [1]	Modified
12.4	Surface tension	Modified
13.1	Product/Packaging disposal recommendations	Added
13.1	Sewage disposal recommendations	Added
13.1	Regional waste regulation	Added
13.1	Additional information	Added

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Indication of changes		
Section	Changed item	Comments
15.1	REACH Annex XVII	Modified
15.1	Storage class (LGK, TRGS 510)	Modified
15.2	Chemical safety assessment	Modified
16	Abbreviations and acronyms	Added

Abbreviations and acronyms:	
ACGIH	American Conference of Government 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
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
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
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified

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Abbreviations and acronyms:	
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Full text of H- and EUH-statements:	
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour.

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.