

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

1.1. Product identifier

Product form : Mixture
 Product name : butanone; ethyl methyl ketone 2% (v / v) in Ethanol
 Product code : CM27585

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

1.2.1. Relevant identified uses

Main use category : Professional use, Industrial use
 Use of the substance/mixture : Reference material
 Function or use category : Laboratory chemicals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Spectracer UK Ltd.

Second Floor,
 27 Gloucester Place,
 London,
 W1U 8HU,
 United Kingdom.

Tel: +44 (0) 207 193 9114

Fax: +44 (0) 203 432 4686

Email: contact@spectracer.co.uk

Web: www.spectracer.com

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	Beaumont Hospital Beaumont Road 9 Dublin	: +353 1 8379964	
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)	

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

Serious eye damage/eye irritation, Category 2 H319

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Highly flammable liquid and vapour. Causes serious eye irritation.

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02

GHS07

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H225 - Highly flammable liquid and vapour.
 H319 - Causes serious eye irritation.

butanone; ethyl methyl ketone 2% (v / v) in Ethanol

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Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P337+P313 - If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

No additional information available

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]
ethanol	(CAS-No.) 64-17-5 (EC-No.) 200-578-6 (EC Index-No.) 603-002-00-5 (REACH-no) 01-2119457610-43-XXXX	>= 90	Flam. Liq. 2, H225 Eye Irrit. 2, H319
butanone, ethyl methyl ketone	(CAS-No.) 78-93-3 (EC-No.) 201-159-0 (EC Index-No.) 606-002-00-3 (REACH-no) 01-2119457290-43-XXXX	1 - 5	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336

Full text of H-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 : Rinse skin with water/shower. Take off immediately all contaminated clothing.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
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

Symptoms/effects after eye contact : Eye irritation.

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.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapour.
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.

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. Avoid contact with skin and eyes.

6.1.2. For emergency responders

:

6.2. Environmental precautions

Avoid release to the environment.

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6.3. Methods and material for containment and cleaning up

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.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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. Avoid contact with skin and eyes.

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.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

ethanol (64-17-5)		
Austria	Local name	Ethanol
Austria	MAK (mg/m ³)	1900 mg/m ³
Austria	MAK (ppm)	1000 ppm
Austria	MAK Short time value (mg/m ³)	3800 mg/m ³
Austria	MAK Short time value (ppm)	2000 ppm
Austria	Regulatory reference	BGBl. II Nr. 186/2015
Belgium	Local name	Alcool éthylique # Ethanol
Belgium	Limit value (mg/m ³)	1907 mg/m ³
Belgium	Limit value (ppm)	1000 ppm
Belgium	Regulatory reference	Koninklijk besluit/Arrêté royal 02/09/2018
Bulgaria	Local name	Етилов алкохол
Bulgaria	OEL TWA (mg/m ³)	1000 mg/m ³
Bulgaria	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.73 от 4 септември 2018 г.)
Croatia	Local name	Etanol; (Etil-alkohol)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	1900 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	1000 ppm
Croatia	Naznake (HR)	F (lako zapaljivo)
Croatia	Regulatory reference	Pravilnik o izmjenama i dopunama Pravilnika o graničnim vrijednostima izloženosti opasnim tvarima pri radu i o biološkim graničnim vrijednostima (NN, br. 75/13)
Czech Republic	Local name	Ethanol (Ethylalkohol)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1000 mg/m ³
Czech Republic	Expoziční limity (PEL) (ppm)	530 ppm
Czech Republic	Expoziční limity (NPK-P) (mg/m ³)	3000 mg/m ³

butanone; ethyl methyl ketone 2% (v / v) in Ethanol

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ethanol (64-17-5)		
Czech Republic	Expoziční limity (NPK-P) (ppm)	1600 ppm
Czech Republic	Regulatory reference	Nařízení vlády č. 361/2007 Sb. (zpracovány změny č. 246/2018 Sb.)
Denmark	Local name	Ethanol (Ethylalkohol)
Denmark	Grænseværdie (langvarig) (mg/m ³)	1900 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	1000 ppm
Denmark	Regulatory reference	BEK nr 655 af 31/05/2018
Estonia	Local name	Etanool (etüülalkohol)
Estonia	OEL TWA (mg/m ³)	1000 mg/m ³
Estonia	OEL TWA (ppm)	500 ppm
Estonia	OEL STEL (mg/m ³)	1900 mg/m ³
Estonia	OEL STEL (ppm)	1000 ppm
Estonia	Regulatory reference	Vabariigi Valitsuse 18. septembri 2001. a määruse nr 293 (RT I, 30.11.2011, 5)
Finland	Local name	Etanoli
Finland	HTP-arvo (8h) (mg/m ³)	1900 mg/m ³
Finland	HTP-arvo (8h) (ppm)	1000 ppm
Finland	HTP-arvo (15 min)	2500 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	1300 ppm
Finland	Regulatory reference	HTP-ARVOT 2018 (Sosiaali- ja terveystieteiden ministeriö)
France	Local name	Alcool éthylique
France	VME (mg/m ³)	1900 mg/m ³
France	VME (ppm)	1000 ppm
France	VLE (mg/m ³)	9500 mg/m ³
France	VLE (ppm)	5000 ppm
France	Note (FR)	Valeurs recommandées/admises
France	Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Germany	TRGS 900 Local name	Ethanol
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	380 mg/m ³
Germany	TRGS 900 Occupational exposure limit value (ppm)	200 ppm
Germany	TRGS 900 Limitation of exposure peaks	2(II)
Germany	TRGS 900 Remark	DFG;Y
Germany	TRGS 900 Regulatory reference	TRGS900
Germany	TRGS 910 Acceptable concentration notes	
Greece	Local name	Αιθνόλη
Greece	OEL TWA (mg/m ³)	1900 mg/m ³
Greece	OEL TWA (ppm)	1000 ppm
Greece	Regulatory reference	Π.Δ. 90/1999
Hungary	Local name	ETIL-ALKOHOL
Hungary	AK-érték	1900 mg/m ³
Hungary	CK-érték	7600 mg/m ³
Hungary	Megjegyzések (HU)	IV. (NAGYON GYENGE KÁROSÍTÓ HATÁSÚ ANYAGOK (ÁK > 500 ml/m ³))

butanone; ethyl methyl ketone 2% (v / v) in Ethanol

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ethanol (64-17-5)		
Hungary	Regulatory reference	25/2000. (IX. 30.) EüM–SZCSM együttes rendelet a munkahelyek kémiai biztonságáról
Ireland	Local name	Ethanol
Ireland	OEL (15 min ref) (ppm)	1000 ppm
Ireland	Regulatory reference	Code of Practice for the Chemical Agents Regulations 2018
Latvia	Local name	Etilspirts (etanols)
Latvia	OEL TWA (mg/m ³)	1000 mg/m ³
Latvia	Regulatory reference	Ministru kabineta 2007.gada 15.maija noteikumiem Nr.325
Lithuania	Local name	Etanolis (etilo alkoholis)
Lithuania	IPRV (mg/m ³)	1000 mg/m ³
Lithuania	IPRV (ppm)	500 ppm
Lithuania	TPRV (mg/m ³)	1900 mg/m ³
Lithuania	TPRV (ppm)	1000 ppm
Lithuania	Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Netherlands	Local name	Ethanol
Netherlands	Grenswaarde TGG 8H (mg/m ³)	260 mg/m ³
Netherlands	Grenswaarde TGG 8H (ppm)	136 ppm (Ethanol; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	1900 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (ppm)	992 ppm (Ethanol; Netherlands; Short time value; Public occupational exposure limit value)
Netherlands	Remark (MAC)	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.
Netherlands	Regulatory reference	Arbeidsomstandighedenregeling 2018
Poland	Local name	Etanol (alkohol etylowy)
Poland	NDS (mg/m ³)	1900 mg/m ³
Poland	Regulatory reference	Dz. U. 2018 poz. 1286
Portugal	Local name	Etanol (Álcool etílico)
Portugal	OEL STEL (ppm)	1000 ppm
Slovakia	Regulatory reference	Norma Portuguesa NP 1796:2014
Romania	Local name	Alcool etilic/Etanol
Romania	OEL TWA (mg/m ³)	1900 mg/m ³
Romania	OEL TWA (ppm)	1000 ppm
Romania	OEL STEL (mg/m ³)	9500 mg/m ³
Romania	OEL STEL (ppm)	5000 ppm
Romania	Regulatory reference	Hotărârea nr. 584/2018
Slovakia	Local name	Etylalkohol (etanol)
Slovakia	NPHV (priemerná) (mg/m ³)	960 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	500 ppm

butanone; ethyl methyl ketone 2% (v / v) in Ethanol

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ethanol (64-17-5)		
Slovakia	OEL STEL (mg/m ³)	1920 mg/m ³
Slovakia	OEL STEL (ppm)	1000 ppm
Slovakia	Regulatory reference	Nariadenie vlády č. 33/2018 Z.z.
Slovenia	Local name	etanol (etilalkohol)
Slovenia	OEL TWA (mg/m ³)	960 mg/m ³
Slovenia	OEL TWA (ppm)	500 ppm
Slovenia	OEL STEL (mg/m ³)	7600 mg/m ³
Slovenia	OEL STEL (ppm)	4000 ppm
Slovenia	Remark (SI)	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti)
Slovenia	Regulatory reference	Uradni list RS, št. 78/2018 z dne 4.12.2018
Spain	Local name	Etanol (Alcohol etílico)
Spain	VLA-EC (mg/m ³)	1910 mg/m ³
Spain	VLA-EC (ppm)	1000 ppm
Spain	Notes	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).
Spain	Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
Sweden	Local name	Etanol
Sweden	nivågränsvärde (NVG) (mg/m ³)	1000 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	500 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	1900 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	1000 ppm
Sweden	Anmärkning (SE)	V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas)
Sweden	Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom	Local name	Ethanol
United Kingdom	WEL TWA (mg/m ³)	1920 mg/m ³
United Kingdom	WEL TWA (ppm)	1000 ppm
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE
Iceland	Local name	Etanól (etýlalkóhól)
Iceland	OEL (8 hours ref) (mg/m ³)	1900 mg/m ³
Iceland	OEL (8 hours ref) (ppm)	1000 ppm
Iceland	Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway	Local name	Etanol
Norway	Grenseverdier (AN) (mg/m ³)	950 mg/m ³
Norway	Grenseverdier (AN) (ppm)	500 ppm
Norway	Regulatory reference	FOR-2018-08-21-1255
Switzerland	Local name	Ethanol

butanone; ethyl methyl ketone 2% (v / v) in Ethanol

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ethanol (64-17-5)		
Switzerland	MAK (mg/m ³)	960 mg/m ³ 960 mg/m ³
Switzerland	MAK (ppm)	500 ppm 500 ppm
Switzerland	KZGW (mg/m ³)	1920 mg/m ³ 1920 mg/m ³
Switzerland	KZGW (ppm)	1000 ppm 1000 ppm
Switzerland	Critical toxicity	VRS, Formel / OAW, Formal
Switzerland	Notation	SS _C / SS _C
Switzerland	Remark	SS _C - OAW, Formal ^{KT HU} - INRS, NIOSH
Switzerland	Regulatory reference	www.suva.ch, 01.11.2018
USA - ACGIH	Local name	Ethanol
USA - ACGIH	ACGIH STEL (ppm)	1000 ppm
USA - ACGIH	Remark (ACGIH)	TLV® Basis: URT irr. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
USA - ACGIH	Regulatory reference	ACGIH 2019

butanone, ethyl methyl ketone (78-93-3)		
EU	Local name	Butanone
EU	IOELV TWA (mg/m ³)	600 mg/m ³
EU	IOELV TWA (ppm)	200 ppm
EU	IOELV STEL (mg/m ³)	900 mg/m ³
EU	IOELV STEL (ppm)	300 ppm
EU	Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Austria	Local name	Butanon
Austria	MAK (mg/m ³)	295 mg/m ³
Austria	MAK (ppm)	100 ppm
Austria	MAK Short time value (mg/m ³)	590 mg/m ³
Austria	MAK Short time value (ppm)	200 ppm
Austria	Remark (AT)	H
Austria	Regulatory reference	BGBl. II Nr. 186/2015
Belgium	Local name	2-Butanone # 2-Butanon
Belgium	Limit value (mg/m ³)	600 mg/m ³
Belgium	Limit value (ppm)	200 ppm
Belgium	Short time value (mg/m ³)	900 mg/m ³
Belgium	Short time value (ppm)	300 ppm
Belgium	Regulatory reference	Koninklijk besluit/Arrêté royal 02/09/2018
Bulgaria	Local name	Метилетилкетон (бутанон)
Bulgaria	OEL TWA (mg/m ³)	590 mg/m ³
Bulgaria	OEL STEL (mg/m ³)	885 mg/m ³
Bulgaria	Notes	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)

butanone; ethyl methyl ketone 2% (v / v) in Ethanol

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butanone, ethyl methyl ketone (78-93-3)		
Bulgaria	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.73 от 4 септември 2018 г.)
Croatia	Local name	Butanon; etil-metil-keton
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	600 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	200 ppm
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	900 mg/m ³
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (ppm)	300 ppm
Croatia	Naznake (HR)	Direktiva: 2000/39/EZ
Croatia	Regulatory reference	Pravilnik o izmjenama i dopunama Pravilnika o graničnim vrijednostima izloženosti opasnim tvarima pri radu i o biološkim graničnim vrijednostima (NN 91/2018)
Czech Republic	Local name	2-Butanon (Methylethylketon)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	600 mg/m ³
Czech Republic	Expoziční limity (PEL) (ppm)	203 ppm
Czech Republic	Expoziční limity (NPK-P) (mg/m ³)	900 mg/m ³
Czech Republic	Expoziční limity (NPK-P) (ppm)	305 ppm
Czech Republic	Remark (CZ)	I (dráždí sliznice (oči, dýchací cesty) resp. kůži)
Czech Republic	Regulatory reference	Nařízení vlády č. 361/2007 Sb. (zpracovány změny č. 246/2018 Sb.)
Denmark	Local name	Butanon (Ethylmethylketon; MEK; Methylethylketon)
Denmark	Grænseværdie (langvarig) (mg/m ³)	145 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	50 ppm
Denmark	Anmærkninger (DK)	E (betyder, at stoffet har en EF-grænseværdi); H (betyder, at stoffet kan optages gennem huden)
Denmark	Regulatory reference	BEK nr 655 af 31/05/2018
Estonia	Local name	2-butanon
Estonia	OEL TWA (mg/m ³)	600 mg/m ³
Estonia	OEL TWA (ppm)	200 ppm
Estonia	OEL STEL (mg/m ³)	900 mg/m ³
Estonia	OEL STEL (ppm)	300 ppm
Estonia	Regulatory reference	Vabariigi Valitsuse 18. septembri 2001. a määruse nr 293 (RT I, 30.11.2011, 5)
Finland	Local name	2-Butanoni
Finland	HTP-arvo (15 min)	300 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	100 ppm
Finland	Huomautus (FI)	iho
Finland	Regulatory reference	HTP-ARVOT 2018 (Sosiaali- ja terveysministeriö)
France	Local name	Méthyléthylcétone, 2-Butanone
France	VME (mg/m ³)	600 mg/m ³
France	VME (ppm)	200 ppm
France	VLE (mg/m ³)	900 mg/m ³
France	VLE (ppm)	300 ppm

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butanone, ethyl methyl ketone (78-93-3)		
France	Note (FR)	Valeurs réglementaires contraignantes; risque de pénétration percutanée
France	Regulatory reference	Article R4412-149 du Code du travail (réf.: INRS ED 984, 2016)
Germany	TRGS 900 Local name	Butanon
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	600 mg/m ³
Germany	TRGS 900 Occupational exposure limit value (ppm)	200 ppm
Germany	TRGS 900 Limitation of exposure peaks	1(l)
Germany	TRGS 900 Remark	DFG;EU;H;Y
Germany	TRGS 900 Regulatory reference	TRGS900
Germany	TRGS 903 Local name	2-Butanon (Methylethylketon)
Germany	TRGS 903 Biological limit value	2 mg/l Parameter: 2-Butanon - Untersuchungsmaterial: U = Urin - Probenahmezeitpunkt: b) Expositionsende, bzw. Schichtende - Festlegung/Begründung: 05/2015 DFG
Germany	TRGS 903 Regulatory reference	TRGS 903
Germany	TRGS 910 Acceptable concentration notes	
Gibraltar	Eight hours mg/m ³	600 mg/m ³
Gibraltar	Eight hours ppm	200 ppm
Gibraltar	Short-term mg/m ³	900 mg/m ³
Gibraltar	Short-term ppm	300 ppm
Gibraltar	Name of agent	Butanone
Gibraltar	Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece	Local name	Μεθυλοαιθυλο-κετόνη
Greece	OEL TWA (mg/m ³)	600 mg/m ³
Greece	OEL TWA (ppm)	200 ppm
Greece	OEL STEL (mg/m ³)	900 mg/m ³
Greece	OEL STEL (ppm)	300 ppm
Greece	Regulatory reference	Π.Δ. 90/1999
Hungary	Local name	METIL-ETIL-KETON (2-butanon)
Hungary	AK-érték	600 mg/m ³
Hungary	CK-érték	900 mg/m ³
Hungary	Megjegyzések (HU)	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármat); EU1 (2000/39/EK irányelvben közölt érték)
Hungary	Regulatory reference	25/2000. (IX. 30.) EüM–SZCSM együttes rendelet a munkahelyek kémiai biztonságáról
Ireland	Local name	Methyl ethyl ketone (MEK)
Ireland	OEL (8 hours ref) (mg/m ³)	600 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	200 ppm
Ireland	OEL (15 min ref) (mg/m ³)	900 mg/m ³
Ireland	OEL (15 min ref) (ppm)	300 ppm
Ireland	Notes (IE)	Sk (Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body), IOELV (Indicative Occupational Exposure Limit Values)

butanone; ethyl methyl ketone 2% (v / v) in Ethanol

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butanone, ethyl methyl ketone (78-93-3)		
Ireland	Regulatory reference	Code of Practice for the Chemical Agents Regulations 2018
Italy	Local name	Butanone
Italy	OEL TWA (mg/m ³)	600 mg/m ³
Italy	OEL TWA (ppm)	200 ppm
Italy	OEL STEL (mg/m ³)	900 mg/m ³
Italy	OEL STEL (ppm)	300 ppm
Italy	Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia	Local name	2-Butanons (metiletilketons, etilmetilketons)
Latvia	OEL TWA (mg/m ³)	200 mg/m ³
Latvia	OEL TWA (ppm)	67 ppm
Latvia	OEL STEL (mg/m ³)	900 mg/m ³
Latvia	OEL STEL (ppm)	300 ppm
Latvia	Regulatory reference	Ministru kabineta 2007.gada 15.maija noteikumiem Nr.325
Lithuania	Local name	Butanonas (metiletilketonas)
Lithuania	IPRV (mg/m ³)	600 mg/m ³
Lithuania	IPRV (ppm)	200 ppm
Lithuania	TPRV (mg/m ³)	900 mg/m ³
Lithuania	TPRV (ppm)	300 ppm
Lithuania	Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg	Local name	Butanone
Luxembourg	OEL TWA (mg/m ³)	600 mg/m ³
Luxembourg	OEL TWA (ppm)	200 ppm
Luxembourg	OEL STEL (mg/m ³)	900 mg/m ³
Luxembourg	OEL STEL (ppm)	300 ppm
Luxembourg	Regulatory reference	Mémorial A N° 684 de 2018
Malta	Local name	Butanone
Malta	OEL TWA (mg/m ³)	600 mg/m ³
Malta	OEL TWA (ppm)	200 ppm
Malta	OEL STEL (mg/m ³)	900 mg/m ³
Malta	OEL STEL (ppm)	300 ppm
Malta	Regulatory reference	S.L.424.24 (L.N.57 of 2018)
Netherlands	Local name	2-Butanon
Netherlands	Grenswaarde TGG 8H (mg/m ³)	590 mg/m ³
Netherlands	Grenswaarde TGG 8H (ppm)	197 ppm (2-Butanon; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	900 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (ppm)	300 ppm (2-Butanon; Netherlands; Short time value; Public occupational exposure limit value)

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Netherlands	Remark (MAC)	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.
Netherlands	Regulatory reference	Arbeidsomstandighedenregeling 2018
Poland	Local name	Butan-2-on
Poland	NDS (mg/m ³)	450 mg/m ³
Poland	NDSch (mg/m ³)	900 mg/m ³
Poland	Remark (PL)	Skóra (Oznakowanie substancji notacją „skóra” oznacza, że wchłanianie substancji przez skórę może być tak samo istotne jak przy narażeniu drogą oddechową)
Poland	Regulatory reference	Dz. U. 2018 poz. 1286
Portugal	Local name	Metiletilcetona (MEK) (2-Butanona)
Portugal	OEL TWA (ppm)	200 ppm
Portugal	OEL STEL (ppm)	300 ppm
Slovakia	Regulatory reference	Norma Portuguesa NP 1796:2014
Romania	Local name	2 Butanonă/Etil metil cetonă/Butanonă
Romania	OEL TWA (mg/m ³)	600 mg/m ³
Romania	OEL TWA (ppm)	200 ppm
Romania	OEL STEL (mg/m ³)	900 mg/m ³
Romania	OEL STEL (ppm)	300 ppm
Romania	Regulatory reference	Hotărârea nr. 584/2018
Slovakia	Local name	Butanón (etylmetylketón)
Slovakia	NPHV (priemerná) (mg/m ³)	600 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	200 ppm
Slovakia	OEL STEL (mg/m ³)	900 mg/m ³
Slovakia	OEL STEL (ppm)	300 ppm
Slovakia	Regulatory reference	Nariadenie vlády č. 33/2018 Z.z.
Slovenia	Local name	butanon (etilmetilketon)
Slovenia	OEL TWA (mg/m ³)	600 mg/m ³
Slovenia	OEL TWA (ppm)	200 ppm
Slovenia	OEL STEL (mg/m ³)	900 mg/m ³
Slovenia	OEL STEL (ppm)	300 ppm
Slovenia	Remark (SI)	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), BAT (Biološka mejna vrednost), EU
Slovenia	Regulatory reference	Uradni list RS, št. 78/2018 z dne 4.12.2018
Spain	Local name	Metiletilcetona (Butanona)
Spain	VLA-ED (mg/m ³)	600 mg/m ³
Spain	VLA-ED (ppm)	200 ppm
Spain	VLA-EC (mg/m ³)	900 mg/m ³
Spain	VLA-EC (ppm)	300 ppm

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butanone, ethyl methyl ketone (78-93-3)		
Spain	Notes	VLB® (Agente químico que tiene Valor Límite Biológico), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).
Spain		2 mg/l Parámetro: Metiletilcetona - Medio: Orina - Momento de muestreo: Final de la jornada laboral
Spain	Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
Sweden	Local name	Metyletylketon (MEK)
Sweden	nivågränsvärde (NVG) (mg/m³)	150 mg/m³
Sweden	nivågränsvärde (NVG) (ppm)	50 ppm
Sweden	kortidsvärde (KTV) (mg/m³)	900 mg/m³
Sweden	kortidsvärde (KTV) (ppm)	300 ppm
Sweden	Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom	Local name	Butan-2-one (methyl ethyl ketone)
United Kingdom	WEL TWA (mg/m³)	600 mg/m³
United Kingdom	WEL TWA (ppm)	200 ppm
United Kingdom	WEL STEL (mg/m³)	899 mg/m³
United Kingdom	WEL STEL (ppm)	300 ppm
United Kingdom	Remark (WEL)	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE
Iceland	Local name	Metýletýlketón (bútanón, etýlmetýlketón, MEK)
Iceland	OEL (8 hours ref) (mg/m³)	145 mg/m³
Iceland	OEL (8 hours ref) (ppm)	50 ppm
Iceland	OEL (15 min ref) (mg/m³)	900 mg/m³
Iceland	OEL (15 min ref) (ppm)	300 ppm
Iceland	Notes (IS)	H (efnið getur auðveldlega borist inn í líkamann gegnum húð)
Iceland	Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway	Local name	Butanon (Metyletylketon)
Norway	Grenseverdier (AN) (mg/m³)	220 mg/m³
Norway	Grenseverdier (AN) (ppm)	75 ppm
Norway	Merknader (NO)	E (EU har en veiledende grenseverdi for stoffet)
Norway	Regulatory reference	FOR-2018-08-21-1255
Switzerland	Local name	2-Butanon
Switzerland	MAK (mg/m³)	590 mg/m³ 590 mg/m³ 590 mg/m³
Switzerland	MAK (ppm)	200 ppm 200 ppm 200 ppm
Switzerland	KZGW (mg/m³)	590 mg/m³ 590 mg/m³ 590 mg/m³
Switzerland	KZGW (ppm)	200 ppm 200 ppm 200 ppm

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butanone, ethyl methyl ketone (78-93-3)

Switzerland	Critical toxicity	VRS, SN / OAW, NS
Switzerland	Notation	R, SS _C , B / H, SS _C , B
Switzerland	Remark	H B SS _C - NS, OAW ^{KT HU} - INRS, NIOSH, OSHA
Switzerland	Regulatory reference	www.suva.ch, 01.11.2018
USA - ACGIH	Local name	Methyl ethyl ketone (MEK)
USA - ACGIH	ACGIH TWA (ppm)	200 ppm
USA - ACGIH	ACGIH STEL (ppm)	300 ppm
USA - ACGIH	Remark (ACGIH)	TLV® Basis: URT irr; CNS & PNS impair. Notations: BEI
USA - ACGIH	Biological Exposure Indices (BEI)	2 mg/l Parameter: Methyl ethyl ketone - Medium: urine - Sampling time: End of shift - Notations: Ns
USA - ACGIH	Regulatory reference	ACGIH 2019

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Hand protection:

Protective gloves

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

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.
Odour	: Alcohol odour. Pleasant odour.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: 78 °C
Flash point	: 13 °C
Auto-ignition temperature	: 363 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: 59 hPa (20 °C)
Vapour pressure at 50 °C	: 300 hPa
Relative vapour density at 20 °C	: 1,6
Relative density	: No data available
Solubility	: Miscible with water.
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

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Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 3,3 - 19,0 vol %

9.2. Other information

No additional information available

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 toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

ethanol (64-17-5)

LD50 oral rat	10470 mg/kg
LD50 dermal rabbit	17100 mg/kg
LC50 inhalation rat (mg/l)	117 mg/l/4h

butanone, ethyl methyl ketone (78-93-3)

LD50 oral rat	> 2000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

ethanol (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
Aspiration hazard	: Not classified

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.
Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

ethanol (64-17-5)

LC50 fish 1	11200 mg/l Pimephales promelas (Fathead minnow)
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EC50 Daphnia 1	5012 mg/l
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butanone, ethyl methyl ketone (78-93-3)

LC50 fish 2	2993 mg/l Pimephales promelas (Fathead minnow)
EC50 Daphnia 1	308 mg/l

12.2. Persistence and degradability

ethanol (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

butanone, ethyl methyl ketone (78-93-3)

Persistence and degradability	Readily biodegradable in water. Biodegradable in soil. Biodegradable in soil in anaerobic condition.
Biochemical oxygen demand (BOD)	2,03 g O ₂ /g substance
Chemical oxygen demand (COD)	2,31 g O ₂ /g substance
ThOD	2,44 g O ₂ /g substance
BOD (% of ThOD)	> 0,5

12.3. Bioaccumulative potential

ethanol (64-17-5)

Log Pow	-0,31
Bioaccumulative potential	Low bioaccumulation potential (Log Kow < 4).

butanone, ethyl methyl ketone (78-93-3)

Log Pow	0,3
Bioaccumulative potential	Low bioaccumulation potential (Log Kow < 4).

12.4. Mobility in soil

ethanol (64-17-5)

Surface tension	0,022 N/m (20 °C)
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butanone, ethyl methyl ketone (78-93-3)

Surface tension	0,024 N/m (20 °C)
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12.5. Results of PBT and vPvB assessment

Component

ethanol (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
butanone, ethyl methyl ketone (78-93-3)	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. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Additional information : Flammable vapours may accumulate in the container.

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SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 1170	UN 1170	UN 1170	UN 1170	UN 1170
14.2. UN proper shipping name				
ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	Ethanol solution	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
Transport document description				
UN 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 3, II, (D/E)	UN 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 3, II	UN 1170 Ethanol solution, 3, II	UN 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 3, II	UN 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 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	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

Special provisions (IMDG) : 144

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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
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-D
Stowage category (IMDG)	: A
Properties and observations (IMDG)	: Colourless, volatile liquids.Pure ETHANOL: flashpoint 13°C c.c. Explosive limits: 3.3% to 19% Miscible with water.

Air transport

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

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. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

3(a) 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	ethanol ; butanone, ethyl methyl ketone
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3(b) 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	ethanol ; butanone, ethyl methyl ketone
3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008	ethanol ; butanone, ethyl methyl ketone
40. 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.	ethanol ; butanone, ethyl methyl ketone

Contains no substance on the REACH candidate list

Organic solvent

Contains no REACH Annex XIV substances

Contains no substance subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

Substance(s) are not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC.

15.1.2. National regulations

Germany

Reference to AwSV : Water hazard class (WGK) 1, Slightly hazardous to water (Classification according to AwSV, Annex 1)

Storage class (LGK) : LGK 3 - Flammable liquids

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : ethanol is listed

SZW-lijst van mutagene stoffen : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : ethanol is listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : ethanol is listed

NIET-limitatieve lijst van voor de voortplanting giftige 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
The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Full text of H- and EUH-statements:	
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis

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H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

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

Flam. Liq. 2	H225	On basis of test data
Eye Irrit. 2	H319	Calculation method

SDS EU Mod H F (REACH ANNEX II)

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.