Mixed Indicator TAC (total alkalinity)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Issue date: 4/14/2020 Revision date: 8/16/2023 Supersedes version of: 4/14/2020 Version: 1.1

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

1.1. Product identifier

Product form : Mixture
Product name : Mixed Indicator TAC (total alkalinity)
UFI : 4250-S07F-C00P-6JHV
Product code : 1IM000 ; 1IM001 ; 1IM002 ; 1IM003 ; 1IM008

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
Use of the substance/mixture : Use as laboratory reagent

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer
AQUALABO
90 rue du Professeur Paul Milliez
94506 Champigny-sur-Marne - FRANCE
T +33 1 55 09 10 10
safety@aqualabo.fr - www.aqualabo.fr

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	
Malta	Medicines & Poisons Info Office	Mater Dei Hospital MSD Msida	+356 2545 6504	
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH Birmingham	0344 892 0111	
United Kingdom	National Poisons Information Service (Cardiff Centre) Gwenwyn Ward, Llandough Hospital	Penarth CF64 2XX Cardiff	0344 892 0111	
United Kingdom	National Poisons Information Service Edinburgh Royal Infirmary of Edinburgh	Little France Crescent EH16 4SA Edinburgh	0344 892 0111	
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	
United Kingdom	National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit	Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle	0344 892 0111	
United Kingdom	National Poisons Information Service (Belfast Centre) Royal Victoria Hospital	Grosvenor Road BT12 6BA Belfast	0344 892 0111	

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.

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	≥ 50 – < 80	Flam. Liq. 2, H225 Eye Irrit. 2, H319
Butanone substance with a Community workplace exposure limit	(CAS-No.) 78-93-3 (EC-No.) 201-159-0 (EC Index-No.) 606-002-00-3 (REACH-no) 01-2119457290-43	≥ 1 – < 5	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336
Propane-2-ol	(CAS-No.) 67-63-0 (EC-No.) 200-661-7 (EC Index-No.) 603-117-00-0 (REACH-no) 01-2119457558-25	≥ 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

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 : 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

8.1.1 National occupational exposure and biological limit values

Butanone (78-93-3)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Butanone
IOEL TWA	600 mg/m³
IOEL TWA [ppm]	200 ppm
IOEL STEL	900 mg/m³
IOEL STEL [ppm]	300 ppm
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Albania - Occupational Exposure Limits	
Local name	Butanon
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES “PËR MBROJTJEN E SIGURISË DHE SHËNDETIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKË NË PUNË”
Austria - Occupational Exposure Limits	
Local name	Butanon
MAK (OEL TWA)	295 mg/m³
MAK (OEL TWA) [ppm]	100 ppm
MAK (OEL STEL)	590 mg/m³ (4x 30(Miw) min)
MAK (OEL STEL) [ppm]	200 ppm (4x 30(Miw) min)
Remark (AT)	H

Butanone (78-93-3)	
Regulatory reference	BGBl. II Nr. 238/2018
Belgium - Occupational Exposure Limits	
Local name	2-Butanone # 2-Butanon
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 21/01/2020
Bulgaria - Occupational Exposure Limits	
Local name	Метилетилкетон (бутанон)
OEL TWA	590 mg/m³
OEL STEL	885 mg/m³
Notes	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
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.5 от 17 Януари 2020 г.)
Croatia - Occupational Exposure Limits	
Local name	Butanon; etil-metil-keton
GVI (OEL TWA) [1]	600 mg/m³
GVI (OEL TWA) [2]	200 ppm
KGVI (OEL STEL)	900 mg/m³
KGVI (OEL STEL) [ppm]	300 ppm
Naznake (HR)	Direktiva: 2000/39/EZ
Regulatory reference	Pravilnik o izmjenama i dopunama Pravilnika o graničnim vrijednostima izloženosti opasnim tvarima pri radu i o biološkim graničnim vrijednostima (NN 91/2018)
Croatia - Biological limit values	
Local name	Butanon (etil-metil-keton)
BLV	4.08 mmol/mol Creatinine Karakteristični pokazatelj: etil-metil-keton - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene 2.6 mg/g creatinine Karakteristični pokazatelj: etil-metil-keton - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene
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 - Occupational Exposure Limits	
Local name	2-Butanon (Methylethylketon)
PEL (OEL TWA)	600 mg/m³
PEL (OEL TWA) [ppm]	200 ppm
NPK-P (OEL C)	900 mg/m³
NPK-P (OEL C) [ppm]	301 ppm
Remark (CZ)	I - dráždí sliznice (oči, dýchací cesty), respektive kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 41/2020 Sb.)

Butanone (78-93-3)	
Denmark - Occupational Exposure Limits	
Local name	Butanon (Ethylmethylketon; MEK; Methylethylketon)
OEL TWA [1]	145 mg/m³
OEL TWA [2]	50 ppm
Anmærkninger (DK)	E (betyder, at stoffet har en EF-grænseværdi); H (betyder, at stoffet kan optages gennem huden)
Regulatory reference	BEK nr 1458 af 13/12/2019
Estonia - Occupational Exposure Limits	
Local name	2-butanoon
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 17.10.2019, 2); Vabariigi Valitsuse 10. märtsi 2019. a määruse nr 84
France - Occupational Exposure Limits	
Local name	Méthyléthylcétone, 2-Butanone (Butanone)
VME (OEL TWA)	600 mg/m³
VME (OEL TWA) [ppm]	200 ppm
VLE (OEL C/STEL)	900 mg/m³
VLE (OEL C/STEL) [ppm]	300 ppm
Note (FR)	Valeurs règlementaires contraignantes; risque de pénétration percutanée
Regulatory reference	Article R4412-149 du Code du travail (réf.: INRS ED 984, 2016; Décret n° 2019-1487)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Butanon
AGW (OEL TWA) [1]	600 mg/m³
AGW (OEL TWA) [2]	200 ppm
Peak exposure limitation factor	1(I)
Remark	DFG;EU;H;Y
Regulatory reference	TRGS900
Germany - Biological limit values (TRGS 903)	
Local name	2-Butanon (Methylethylketon)
BLV	2 mg/l Parameter: 2-Butanon - Untersuchungsmaterial: U = Urin - Probenahmezeitpunkt: b) Expositionsende, bzw. Schichtende - Festlegung/Begründung: 05/2015 DFG
Regulatory reference	TRGS 903
Gibraltar - Occupational Exposure Limits	
Name of agent	Butanone
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm

Butanone (78-93-3)	
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Μεθυλοαιθυλο-κετόνη
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 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	METIL-ETIL-KETON
AK (OEL TWA)	600 mg/m³
CK (OEL STEL)	900 mg/m³
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); 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
Hungary - Biological limit values	
Local name	Metil-etil-keton
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	Methyl ethyl ketone (MEK)
OEL TWA [1]	600 mg/m³
OEL TWA [2]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
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)
Regulatory reference	Chemical Agents Code of Practice 2020
Italy - Occupational Exposure Limits	
Local name	Butanone
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	2-Butanons (metiletilketons, etilmetilketons)
OEL TWA	200 mg/m³

Butanone (78-93-3)	
OEL TWA [ppm]	67 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325
Lithuania - Occupational Exposure Limits	
Local name	Butanonas (metiletilketonas)
IPRV (OEL TWA)	600 mg/m³
IPRV (OEL TWA) [ppm]	200 ppm
TPRV (OEL STEL)	900 mg/m³
TPRV (OEL STEL) [ppm]	300 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Butanone
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Regulatory reference	Mémorial A Nº 684 de 2018 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
Malta - Occupational Exposure Limits	
Local name	Butanone
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.57 of 2018)
Netherlands - Occupational Exposure Limits	
Local name	2-Butanon
MAC-TGG (OEL TWA)	590 mg/m³
MAC-15 (OEL STEL)	900 mg/m³
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.
Regulatory reference	Arbeidsomstandighedenregeling 2020
Poland - Occupational Exposure Limits	
Local name	Butan-2-on
NDS (OEL TWA)	450 mg/m³
NDSCh (OEL STEL)	900 mg/m³
Remark (PL)	Skóra (Oznakowanie substancji notacją „skóra” oznacza, że wchłanianie substancji przez skórę może być tak samo istotne jak przy narażeniu drogą oddechową).

Butanone (78-93-3)	
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Metiletilcetona (MEK) (2-Butanona)
OEL TWA [ppm]	200 ppm
OEL STEL [ppm]	300 ppm
Regulatory reference	Norma Portuguesa NP 1796:2014
Portugal - Biological limit values	
Local name	Metiletilcetona (MEK)
BEI	2 mg/l Parâmetro: Metiletilcetona (MEK) - Meio: urina - Momento da amostragem: Fim do turno - Notaçao: Ns (Não específico)
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	2 Butanonă/Etil metil cetonă/Butanonă
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 157/2020)
Romania - Biological limit values	
Local name	Metiletilcetonă
BLV	2 mg/l Indicador biologic: Metiletilcetonă - Material biologic: urină - Momentul recoltarii: sfârşit de schimb
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 584/2018)
Serbia - Occupational Exposure Limits	
Local name	бутанон; метил-етил-кетон
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Notes	EU* – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2000/39/ЕЗ (прва листа)
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09 и 117/17)
Slovakia - Occupational Exposure Limits	
Local name	Butanón (etylmetylketón)
NPHV (OEL TWA) [1]	600 mg/m³
NPHV (OEL TWA) [2]	200 ppm
NPHV (OEL STEL)	900 mg/m³
NPHV (OEL STEL) [ppm]	300 ppm
Regulatory reference	Nariadenie vlády č. 33/2018 Z. z.

Butanone (78-93-3)	
Slovenia - Occupational Exposure Limits	
Local name	butanon (etilmetilketon)
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
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
Regulatory reference	Uradni list RS, št. 78/2019 z dne 20.12.2019
Slovenia - Biological limit values	
Local name	2-butanon (metiletilketon)
Regulatory reference	Uradni list RS, št. 78/2018 z dne 4.12.2018
Spain - Occupational Exposure Limits	
Local name	Metiletilcetona (Butanona)
VLA-ED (OEL TWA) [1]	600 mg/m³
VLA-ED (OEL TWA) [2]	200 ppm
VLA-EC (OEL STEL)	900 mg/m³
VLA-EC (OEL STEL) [ppm]	300 ppm
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).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
Spain - Biological limit values	
Local name	Metiletilcetona (Butanona)
BLV	2 mg/l Parámetro: Metiletilcetona - Medio: Orina - Momento de muestreo: Final de la jornada laboral
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
Sweden - Occupational Exposure Limits	
Local name	Metyletylketon (MEK)
NGV (OEL TWA)	150 mg/m³
NGV (OEL TWA) [ppm]	50 ppm
KTV (OEL STEL)	900 mg/m³
KTV (OEL STEL) [ppm]	300 ppm
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Butan-2-one (methyl ethyl ketone)
WEL TWA (OEL TWA) [1]	600 mg/m³
WEL TWA (OEL TWA) [2]	200 ppm
WEL STEL (OEL STEL)	899 mg/m³
WEL STEL (OEL STEL) [ppm]	300 ppm

Butanone (78-93-3)	
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)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
United Kingdom - Biological limit values	
Local name	Butan-2-one (methyl ethyl ketone)
BMGV	70 µmol/l Parameter: butan-2-one - Medium: urine - Sampling time: Post shift
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Metýletýlketón (bútanón, etýlmetýlketón, MEK)
OEL TWA	145 mg/m³
OEL TWA [ppm]	50 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Notes (IS)	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	Butanon (Metyletylketon)
Grenseverdi (OEL TWA) [1]	220 mg/m³
Grenseverdi (OEL TWA) [2]	75 ppm
Merknader (NO)	E: EU har en veiledende grenseverdi for stoffet.
Regulatory reference	FOR-2020-04-06-695
Switzerland - Occupational Exposure Limits	
Local name	2-Butanone / 2-Butanon [Ethylmethylketon, Methylethylketon (MEK)]
MAK (OEL TWA) [1]	590 mg/m³
MAK (OEL TWA) [2]	200 ppm
KZGW (OEL STEL)	590 mg/m³
KZGW (OEL STEL) [ppm]	200 ppm
Critical toxicity	VRS, SN / OAW, NS
Notation	R, SS_C, B / H, SS_C, B
Remark	INRS, NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2020
Turkey - Occupational Exposure Limits	
Local name	Butanon
OEL TWA	600 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	900 mg/m³
OEL STEL [ppm]	300 ppm
Regulatory reference	12 Ağustos 2013 Tarihli ve 28733 Sayılı Resmî Gazete

Ethanol (64-17-5)	
Austria - Occupational Exposure Limits	
Local name	Ethanol
MAK (OEL TWA)	1900 mg/m³
MAK (OEL TWA) [ppm]	1000 ppm
MAK (OEL STEL)	3800 mg/m³ (3x 60(Mow) min)
MAK (OEL STEL) [ppm]	2000 ppm (3x 60(Mow) min)
Regulatory reference	BGBl. II Nr. 238/2018
Belgium - Occupational Exposure Limits	
Local name	Alcool éthylique # Ethanol
OEL TWA	1907 mg/m³
OEL TWA [ppm]	1000 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 21/01/2020
Bulgaria - Occupational Exposure Limits	
Local name	Етилов алкохол
OEL TWA	1000 mg/m³
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.5 от 17 Януари 2020 г.)
Croatia - Occupational Exposure Limits	
Local name	Etanol; etil-alkohol
GVI (OEL TWA) [1]	1900 mg/m³
GVI (OEL TWA) [2]	1000 ppm
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 - Occupational Exposure Limits	
Local name	Ethanol (Ethylalkohol)
PEL (OEL TWA)	1000 mg/m³
PEL (OEL TWA) [ppm]	522 ppm
NPK-P (OEL C)	3000 mg/m³
NPK-P (OEL C) [ppm]	1566 ppm
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 41/2020 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Ethanol (Ethylalkohol)
OEL TWA [1]	1900 mg/m³
OEL TWA [2]	1000 ppm
Regulatory reference	BEK nr 1458 af 13/12/2019
Estonia - Occupational Exposure Limits	
Local name	Etanool (etüülalkohol)
OEL TWA	1000 mg/m³
OEL TWA [ppm]	500 ppm
OEL STEL	1900 mg/m³

Ethanol (64-17-5)	
OEL STEL [ppm]	1000 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 17.10.2019, 2); Vabariigi Valitsuse 10. märtsi 2019. a määruse nr 84
France - Occupational Exposure Limits	
Local name	Alcool éthylique
VME (OEL TWA)	1900 mg/m³
VME (OEL TWA) [ppm]	1000 ppm
VLE (OEL C/STEL)	9500 mg/m³
VLE (OEL C/STEL) [ppm]	5000 ppm
Note (FR)	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Ethanol
AGW (OEL TWA) [1]	380 mg/m³
AGW (OEL TWA) [2]	200 ppm
Peak exposure limitation factor	2(II)
Remark	DFG;Y
Regulatory reference	TRGS900
Greece - Occupational Exposure Limits	
Local name	Αιθνόλη
OEL TWA	1900 mg/m³
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	ETIL-ALKOHOL
AK (OEL TWA)	1900 mg/m³
CK (OEL STEL)	3800 mg/m³
Megjegyzések (HU)	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 [ppm]	1000 ppm
Regulatory reference	Chemical Agents Code of Practice 2020
Latvia - Occupational Exposure Limits	
Local name	Etilspirts (etanols)
OEL TWA	1000 mg/m³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325
Lithuania - Occupational Exposure Limits	
Local name	Etanolis (etilo alkoholis)

Ethanol (64-17-5)	
IPRV (OEL TWA)	1000 mg/m³
IPRV (OEL TWA) [ppm]	500 ppm
TPRV (OEL STEL)	1900 mg/m³
TPRV (OEL STEL) [ppm]	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
MAC-TGG (OEL TWA)	260 mg/m³
MAC-15 (OEL STEL)	1900 mg/m³
Remark (MAC)	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 2020
Poland - Occupational Exposure Limits	
Local name	Etanol (alkohol etylowy)
NDS (OEL TWA)	1900 mg/m³
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Etanol (Álcool etílico)
OEL STEL [ppm]	1000 ppm
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Alcool etilic/Etanol
OEL TWA	1900 mg/m³
OEL TWA [ppm]	1000 ppm
OEL STEL	9500 mg/m³
OEL STEL [ppm]	5000 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 157/2020)
Slovakia - Occupational Exposure Limits	
Local name	Etylalkohol (etanol)
NPHV (OEL TWA) [1]	960 mg/m³
NPHV (OEL TWA) [2]	500 ppm
NPHV (OEL STEL)	1920 mg/m³
NPHV (OEL STEL) [ppm]	1000 ppm
Regulatory reference	Nariadenie vlády č. 33/2018 Z. z.
Slovenia - Occupational Exposure Limits	
Local name	etanol (etilalkohol)
OEL TWA	960 mg/m³
OEL TWA [ppm]	500 ppm

Ethanol (64-17-5)	
OEL STEL	1920 mg/m³
OEL STEL [ppm]	1000 ppm
Remark (SI)	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti)
Regulatory reference	Uradni list RS, št. 78/2019 z dne 20.12.2019
Spain - Occupational Exposure Limits	
Local name	Etanol (Alcohol etílico)
VLA-EC (OEL STEL)	1910 mg/m³
VLA-EC (OEL STEL) [ppm]	1000 ppm
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).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT
Sweden - Occupational Exposure Limits	
Local name	Etanol
NGV (OEL TWA)	1000 mg/m³
NGV (OEL TWA) [ppm]	500 ppm
KTV (OEL STEL)	1900 mg/m³
KTV (OEL STEL) [ppm]	1000 ppm
Anmärkning (SE)	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) [1]	1920 mg/m³
WEL TWA (OEL TWA) [2]	1000 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Etanól (etýlalkóhól)
OEL TWA	1900 mg/m³
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	Etanol
Grenseverdi (OEL TWA) [1]	950 mg/m³
Grenseverdi (OEL TWA) [2]	500 ppm
Regulatory reference	FOR-2020-04-06-695

Ethanol (64-17-5)	
Switzerland - Occupational Exposure Limits	
Local name	Ethanol / Ethanol [Ethylalkohol]
MAK (OEL TWA) [1]	960 mg/m³
MAK (OEL TWA) [2]	500 ppm
KZGW (OEL STEL)	1920 mg/m³
KZGW (OEL STEL) [ppm]	1000 ppm
Critical toxicity	Formel / Formal
Notation	SS_C / SS_C
Remark	INRS, NIOSH
Regulatory reference	www.suva.ch, 01.01.2020

Propane-2-ol (67-63-0)	
Austria - Occupational Exposure Limits	
Local name	2-Propanol
MAK (OEL TWA)	500 mg/m³
MAK (OEL TWA) [ppm]	200 ppm
MAK (OEL STEL)	2000 mg/m³ (4x 15(Miw) min) 2000 mg/m³ (4x 30(Miw) min) (Kurzzeitwert für Großguss gilt bis 31.12.2013)
MAK (OEL STEL) [ppm]	800 ppm (4x 15(Miw) min) 800 ppm (4x 30(Miw) min) (Kurzzeitwert für Großguss gilt bis 31.12.2013)
Regulatory reference	BGBl. II Nr. 238/2018
Belgium - Occupational Exposure Limits	
Local name	Alcool isopropylique # Isopropylalcohol
OEL TWA	500 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	1000 mg/m³
OEL STEL [ppm]	400 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 21/01/2020
Bulgaria - Occupational Exposure Limits	
Local name	Изопропилов алкохол
OEL TWA	980 mg/m³
OEL STEL	1225 mg/m³
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.5 от 17 Януари 2020 г.)
Croatia - Occupational Exposure Limits	
Local name	Propan-2-ol; izopropil-alkohol; izopropanol
GVI (OEL TWA) [1]	999 mg/m³
GVI (OEL TWA) [2]	400 ppm
KGVI (OEL STEL)	1250 mg/m³
KGVI (OEL STEL) [ppm]	500 ppm

Propane-2-ol (67-63-0)	
Regulatory reference	Pravilnik o izmjenama i dopunama Pravilnika o graničnim vrijednostima izloženosti opasnim tvarima pri radu i o biološkim graničnim vrijednostima (NN 91/2018)
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 50 mg/l Karakteristični pokazatelj: aceton - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene 0.86 µmol/l Karakteristični pokazatelj: aceton - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene
Regulatory reference	Pravilnik o izmjenama i dopunama Pravilnika o graničnim vrijednostima izloženosti opasnim tvarima pri radu i o biološkim graničnim vrijednostima (NN 91/2018)
Denmark - Occupational Exposure Limits	
Local name	Isopropylalkohol (Isopropanol; 2-Propanol; sec-Propylalkohol)
OEL TWA [1]	490 mg/m³
OEL TWA [2]	200 ppm
Regulatory reference	BEK nr 1458 af 13/12/2019
Estonia - Occupational Exposure Limits	
Local name	2-propanool (isopropüülalkohol, isopropanool)
OEL TWA	350 mg/m³
OEL TWA [ppm]	150 ppm
OEL STEL	600 mg/m³
OEL STEL [ppm]	250 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 17.10.2019, 2); Vabariigi Valitsuse 10. märtsi 2019. a määruse nr 84
France - Occupational Exposure Limits	
Local name	Alcool isopropylique
VLE (OEL C/STEL)	980 mg/m³
VLE (OEL C/STEL) [ppm]	400 ppm
Note (FR)	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Propan-2-ol
AGW (OEL TWA) [1]	500 mg/m³
AGW (OEL TWA) [2]	200 ppm
Peak exposure limitation factor	2(II)
Remark	DFG;Y
Regulatory reference	TRGS900
Germany - Biological limit values (TRGS 903)	
Local name	Propan-2-ol

Propane-2-ol (67-63-0)	
BLV	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	Ισοπροπυλική αλκοόλη
OEL TWA	980 mg/m³
OEL TWA [ppm]	400 ppm
OEL STEL	1225 mg/m³
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/m³
CK (OEL STEL)	1000 mg/m³
Megjegyzések (HU)	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármat); 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 limit values	
Local name	Izopropil-alkohol (2-Propanol)
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
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)
Regulatory reference	Chemical Agents Code of Practice 2020
Latvia - Occupational Exposure Limits	
Local name	Izopropanols (2-propanols, izopropilspirts, 1-metil-1-etanols)
OEL TWA	350 mg/m³
OEL STEL	600 mg/m³
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/m³
IPRV (OEL TWA) [ppm]	150 ppm

Propane-2-ol (67-63-0)	
TPRV (OEL STEL)	600 mg/m³
TPRV (OEL STEL) [ppm]	250 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Poland - Occupational Exposure Limits	
Local name	Propan-2-ol (izopropylowy alkohol)
NDS (OEL TWA)	900 mg/m³
NDSCh (OEL STEL)	1200 mg/m³
Remark (PL)	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
Regulatory reference	Norma Portuguesa NP 1796:2014
Portugal - Biological limit values	
Local name	2-Propanol
BEI	40 mg/l Parâmetro: Acetona - Meio: urina - Momento da amostragem: Fim do turno no fim da semana de trabalho - Notaçao: 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/m³
OEL TWA [ppm]	81 ppm
OEL STEL	500 mg/m³
OEL STEL [ppm]	203 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 157/2020)
Romania - Biological limit values	
Local name	Alcool izopropilic
BLV	50 mg/l Indicador biologic: Acetonă - Material biologic: urină - Momentul recoltarii: sfârşit 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/m³
NPHV (OEL TWA) [2]	200 ppm
NPHV (OEL STEL)	1000 mg/m³
NPHV (OEL STEL) [ppm]	400 ppm
Regulatory reference	Nariadenie vlády č. 33/2018 Z. z.
Slovenia - Occupational Exposure Limits	
Local name	propan-2-ol (izopropilalkohol; izopropanol)

Propane-2-ol (67-63-0)	
OEL TWA	500 mg/m³
OEL TWA [ppm]	200 ppm
OEL STEL	1000 mg/m³
OEL STEL [ppm]	400 ppm
Remark (SI)	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. 78/2019 z dne 20.12.2019
Slovenia - Biological limit values	
Local name	2-propanol
Regulatory reference	Uradni list RS, št. 78/2018 z dne 4.12.2018
Spain - Occupational Exposure Limits	
Local name	Isopropanol (Alcohol isopropílico)
VLA-ED (OEL TWA) [1]	500 mg/m³
VLA-ED (OEL TWA) [2]	200 ppm
VLA-EC (OEL STEL)	1000 mg/m³
VLA-EC (OEL STEL) [ppm]	400 ppm
Notes	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 2019. INSHT
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 laboraboralmente. 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 2019. INSHT
Sweden - Occupational Exposure Limits	
Local name	Isopropanol
NGV (OEL TWA)	350 mg/m³
NGV (OEL TWA) [ppm]	150 ppm
KTV (OEL STEL)	600 mg/m³
KTV (OEL STEL) [ppm]	250 ppm
Anmärkning (SE)	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/m³

Propane-2-ol (67-63-0)	
WEL TWA (OEL TWA) [2]	400 ppm
WEL STEL (OEL STEL)	1250 mg/m³
WEL STEL (OEL STEL) [ppm]	500 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Norway - Occupational Exposure Limits	
Local name	2-propanol (Isopropanol)
Grenseverdi (OEL TWA) [1]	245 mg/m³
Grenseverdi (OEL TWA) [2]	100 ppm
Regulatory reference	FOR-2020-04-06-695
Switzerland - Occupational Exposure Limits	
Local name	2-Propanol / 2-Propanol [iso-Propylalkohol, Isopropanol, Isopropylalkohol]
MAK (OEL TWA) [1]	500 mg/m³
MAK (OEL TWA) [2]	200 ppm
KZGW (OEL STEL)	1000 mg/m³
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, 01.01.2020

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

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	:	dark red.
Appearance	:	Liquid.
Odour	:	alcohol odour.
Odour threshold	:	Not available
Melting point	:	Not applicable
Freezing point	:	Not available
Boiling point	:	≥ 78 °C
Flammability	:	Not applicable
Explosive limits	:	Not available
Lower explosive limit (LEL)	:	Not available
Upper explosive limit (UEL)	:	Not available
Flash point	:	13 °C
Auto-ignition temperature	:	The product is not easily ignited
Decomposition temperature	:	Not available
pH	:	6
Viscosity, kinematic	:	Not available
Solubility	:	Water: completely soluble
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50 °C	:	Not available
Density	:	Not available
Relative density	:	0.88
Relative vapour density at 20 °C	:	Not available
Particle size	:	Not applicable
Particle size distribution	:	Not applicable
Particle shape	:	Not applicable
Particle aspect ratio	:	Not applicable
Particle aggregation state	:	Not applicable
Particle agglomeration state	:	Not applicable
Particle specific surface area	:	Not applicable
Particle dustiness	:	Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

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 hazard classes as defined in Regulation (EC) No 1272/2008

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

Butanone (78-93-3)	
LD50 oral rat	> 2193 mg/kg (OCDE Guideline 423)
LD50 dermal rabbit	> 50000 mg/kg OCDE Guideline 402
LC50 Inhalation - Rat	34 mg/l/4h

Ethanol (64-17-5)	
LD50 oral rat	10470 mg/kg Animal: rat, Animal sex: male & female, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rabbit	> 2000 mg/kg OCDE Guideline 402
LC50 Inhalation - Rat (Vapours)	51 mg/l/4h OCDE Guideline 403

Propane-2-ol (67-63-0)	
LD50 oral rat	5840 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rabbit	13900 mg/kg OCDE Guideline 402
LC50 Inhalation - Rat	> 25 mg/l Vapour / 6h / OCDE GUIDELINE 403

Skin corrosion/irritation : Not classified
pH: 6

Serious eye damage/irritation : Causes serious eye irritation.
pH: 6

Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

Butanone (78-93-3)	
STOT-single exposure	May cause drowsiness or dizziness.

Propane-2-ol (67-63-0)	
STOT-single exposure	May cause drowsiness or dizziness.

STOT-repeated exposure : Not classified

Ethanol (64-17-5)	
NOAEL (subchronic, oral, animal/male, 90 days)	< 9700 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: EPA OPPTS 870.3100 (90-Day Oral Toxicity in Rodents)
NOAEL (subchronic, oral, animal/female, 90 days)	> 9400 mg/kg bodyweight Animal: mouse, Animal sex: female, Guideline: EPA OPPTS 870.3100 (90-Day Oral Toxicity in Rodents)

Aspiration hazard : Not classified

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

Butanone (78-93-3)	
LC50 - Fish [1]	2993 mg/l Test organisms (species): Pimephales promelas / OCDE Guideline 203 / 96h
EC50 - Crustacea [1]	308 mg/l Test organisms (species): Daphnia magna / 48h / OCDE Guideline 202
EC50 72h - Algae [1]	1972 mg/l Pseudokirchneriella subcapitata (algues vertes) / 72 h / OCDE Guideline 201)

Ethanol (64-17-5)	
LC50 - Fish [1]	15300 mg/l (Pimephales promelas (Vairon à grosse tête); 96 h) (Essai en dynamique; US-EPA)
LC50 - Fish [2]	11200 mg/l (Salmo gairdneri; 24 h) (Essai en dynamique; US-EPA)
LC50 - Other aquatic organisms [1]	13000 mg/l (Oncorhynchus mykiss; 96 h) (OCDE ligne directrice 203)
EC50 - Crustacea [1]	858 mg/l (Artemia salina; 24 h) (OCDE Ligne directrice 202)Eau de mer
EC50 - Crustacea [2]	12340 mg/l (Daphnia magna (Grande daphnie); 48 h) (ASTM E 729-80)Eau douce

EC50 - Other aquatic organisms [1]	5012 mg/l (Ceriodaphnia dubia (puce d'eau); 48 h) (Essai en statique; ASTM E 729-80)Eau douce
EC50 72h - Algae [1]	275 mg/l (Chlorella vulgaris (algue d'eau douce); 72 h) (Essai en statique; Fin: Taux de croissance; OCDE Ligne directrice 201)Eau douce
NOEC (chronic)	9.6 mg/l Test organisms (species): Daphnia magna Duration: '9 d'

Propane-2-ol (67-63-0)	
LC50 - Fish [1]	9640 mg/l (Pimephales promelas; 96 h) (OCDE Guideline 203)
EC50 - Crustacea [1]	9714 mg/l (Daphnia magna; 24 h) (OCDE Guideline 202)
EC50 72h - Algae [1]	> 100 mg/l (Scenedesmus subspicatus; 72 h)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

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

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

SECTION 14: Transport information

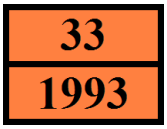
In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 1993	UN 1993	UN 1993	UN 1993	UN 1993
14.2. UN proper shipping name				
FLAMMABLE LIQUID, N.O.S.	FLAMMABLE LIQUID, N.O.S.	Flammable liquid, n.o.s.	FLAMMABLE LIQUID, N.O.S.	FLAMMABLE LIQUID, N.O.S.
Transport document description				
UN 1993 FLAMMABLE LIQUID, N.O.S., 3, II, (D/E)	UN 1993 FLAMMABLE LIQUID, N.O.S., 3, II	UN 1993 Flammable liquid, n.o.s., 3, II	UN 1993 FLAMMABLE LIQUID, N.O.S., 3, II	UN 1993 FLAMMABLE LIQUID, N.O.S., 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)	:	274, 601, 640D
Limited quantities (ADR)	:	1l
Excepted quantities (ADR)	:	E2
Packing instructions (ADR)	:	P001, IBC02, R001
Mixed packing provisions (ADR)	:	MP19
Portable tank and bulk container instructions (ADR)	:	T7
Portable tank and bulk container special provisions (ADR)	:	TP1, TP8, TP28
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	:	•3YE

Transport by sea

Special provisions (IMDG)	:	274
Limited quantities (IMDG)	:	1 L
Excepted quantities (IMDG)	:	E2
Packing instructions (IMDG)	:	P001
IBC packing instructions (IMDG)	:	IBC02
Tank instructions (IMDG)	:	T7
Tank special provisions (IMDG)	:	TP1, TP28, TP8
EmS-No. (Fire)	:	F-E
EmS-No. (Spillage)	:	S-E
Stowage category (IMDG)	:	B

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
ERG code (IATA)	:	3H

Inland waterway transport

Classification code (ADN)	:	F1
Special provisions (ADN)	:	274, 601, 640D
Limited quantities (ADN)	:	1 L
Excepted quantities (ADN)	:	E2
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)	:	274, 601, 640D
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)	:	T7
Portable tank and bulk container special provisions (RID)	:	TP1, TP8, TP28
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

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
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.
Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

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)
Hazardous Incident Ordinance (12. BImSchV)	:	Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

ABM category	:	A(4) - low hazard for aquatic organisms, may have longterm hazardous effects in aquatic environment
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	:	Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:			
Section	**Changed item**	**Change**	**Comments**
	Supersedes version of	Added	
	Revision date	Added	UFI Visible
2.1	Adverse physicochemical, human health and environmental effects	Modified	
5.2	Fire hazard	Modified	
10.1	Reactivity	Modified	
16	Abbreviations and acronyms	Modified	

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

The classification complies with : ATP 12

Safety Data Sheet (SDS), EU

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.