

## Brake Fluid DOT 5.1

Revision nr : 4.0  
Issue date : 03/02/2026  
Supersedes : 25/06/2024**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**Product form : Mixture  
Trade name/designation : Brake Fluid DOT 5.1  
UFI : RQ4K-3T42-HH6U-5F1Y  
Product Codes : E451-001**1.2. Relevant identified uses of the substance or mixture and uses advised against****1.2.1. Relevant identified uses**Intended for general public  
Main use category : Consumer use, Professional use, Industrial use  
Use of the substance/mixture : Brake Fluids**1.2.2. Uses advised against**

No additional information available

**1.3. Details of the supplier of the safety data sheet****Rapid Group UK**Rutland Mill,  
Adelaide Street,  
Bolton,  
BL3 3NY  
01204 324 268**Rapid Ireland**Rock Street,  
Tralee,  
Co Kerry  
V92 WR9P  
+353 151 363 47**1.4. Emergency telephone number**Emergency number : +32 (0)3 575 55 55  
This telephone number is available 24 hours per day, 7 days per week.

Country/Area	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)	

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Reproductive toxicity, Category 2 H361fd

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

**Adverse physicochemical, human health and environmental effects**

No additional information available

**2.2. Label elements****Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms (CLP)

:



GHS08

Signal word

: Warning

Contains

: tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate

Hazard statements (CLP)

: H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child.

Precautionary statements (CLP)

: P101 - If medical advice is needed, have product container or label at hand.  
P102 - Keep out of reach of children.  
P201 - Obtain special instructions before use.  
P280 - Wear protective gloves, protective clothing, eye protection, face protection.  
P308+P313 - IF exposed or concerned: Get medical advice, medical attention.  
P405 - Store locked up.  
P501 - Dispose of contents and container to an approved waste disposal plant.  
: EUH208 - Contains dihydro-3-(tetrapropenyl)furan-2,5-dione. May produce an allergic reaction.  
: Not applicable  
: Applicable

Extra phrases

Child-resistant fastening

Tactile warning

**2.3. Other hazards**

Other hazards

: Results of PBT and vPvB assessment : Contains no PBT and/or vPvB substances  $\geq 0.1\%$  assessed in accordance with REACH Annex XIII.

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

**SECTION 3: Composition/information on ingredients****3.1. Substances**

Not applicable

**3.2. Mixtures**

Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	CAS-No.: 30989-05-0 EC-No.: 250-418-4 REACH-no: 01-2119462824-33-0009	< 80	Repr. 2, H361fd
dihydro-3-(tetrapropenyl)furan-2,5-dione	CAS-No.: 26544-38-7 EC-No.: 247-781-6 REACH-no: 01-2119979080-37-XXXX	< 0,1	Eye Irrit. 2, H319 Skin Sens. 1A, H317 Aquatic Chronic 4, H413
2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether substance with a Community workplace exposure limit	CAS-No.: 111-77-3 EC-No.: 203-906-6 EC Index-No.: 603-107-00-6 REACH-no: 01-2119475100-52-xxxx/ UK-01-3871630072-8-0001	< 0,05	Repr. 1B, H360D

**Specific concentration limits:**

Substance name	Product identifier	Specific concentration limits (%)
dihydro-3-(tetrapropenyl)furan-2,5-dione	CAS-No.: 26544-38-7 EC-No.: 247-781-6 REACH-no: 01-2119979080-37-XXXX	(0,1 ≤ C < 100) Skin Sens. 1A; H317
2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether	CAS-No.: 111-77-3 EC-No.: 203-906-6 EC Index-No.: 603-107-00-6 REACH-no: 01-2119475100-52-xxxx/ UK-01-3871630072-8-0001	(3 ≤ C ≤ 100) Repr. 1B; H360D

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

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

Additional advice	: First aider: Pay attention to self-protection. Concerning personal protective equipment to use, see section 8. Never give anything by mouth to an unconscious person. In case of doubt or persistent symptoms, consult always a physician. Show this safety data sheet to the doctor in attendance.
Inhalation	: Remove casualty to fresh air and keep warm and at rest. In case of doubt or persistent symptoms, consult always a physician.
Skin contact	: Remove contaminated clothing and shoes. Gently wash with plenty of soap and water. In case of doubt or persistent symptoms, consult always a physician.

- Eyes contact : Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. In case of doubt or persistent symptoms, consult always a physician.
- Ingestion : Rinse mouth thoroughly with water. Get medical advice/attention.

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

- Inhalation : May cause irritation to the respiratory tract.
- Skin contact : May produce an allergic reaction. The following symptoms may occur: Dry skin.
- Eyes contact : May cause eye irritation.
- Ingestion : May cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
- Chronic symptoms : Suspected of damaging fertility. Suspected of damaging the unborn child.

**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 : carbon dioxide (CO<sub>2</sub>), powder, alcohol-resistant foam, water spray.
- Unsuitable extinguishing media : Strong water jet.

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

- Specific hazards : Not flammable. Heating will cause a rise in pressure with a risk of bursting.
- Hazardous decomposition products in case of fire : Carbon oxides (CO, CO<sub>2</sub>). Boron Oxides.

**5.3. Advice for firefighters**

- Firefighting instructions : Evacuate area. Use water spray or fog for cooling exposed containers. Contain the extinguishing fluids by bunding. Prevent fire fighting water from entering the environment.
- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.
- Other information : Do not allow run-off from fire-fighting to enter drains or water courses. Dispose of waste in accordance with environmental legislation.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures****6.1.1. For non-emergency personnel**

For non-emergency personnel : Evacuate unnecessary personnel. Keep upwind. Provide adequate ventilation. Do not breathe vapours. Avoid contact with skin, eyes and clothing. Wear recommended personal protective equipment. Concerning personal protective equipment to use, see section 8. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**6.1.2. For emergency responders**

For emergency responders : Ensure procedures and training for emergency decontamination and disposal are in place. Concerning personal protective equipment to use, see section 8.

**6.2. Environmental precautions**

Do not allow to enter into surface water or drains. Notify authorities if product enters sewers or public waters.

**6.3. Methods and material for containment and cleaning up**

Methods for cleaning up : Stop leak if safe to do so. Dam up the liquid spill. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. Recover large spills by pumping (use an explosion proof or hand pump). Place in a suitable container for disposal in accordance with the waste regulations (see Section 13). This material and its container must be disposed of in a safe way, and as per local legislation.

**6.4. Reference to other sections**

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

Precautions for safe handling : Provide adequate ventilation. Do not breathe vapours. Avoid contact with skin, eyes and clothing. Use personal protective equipment as required. Concerning personal protective equipment to use, see section 8. Take any precaution to avoid mixing with Incompatible materials, Refer to Section 10 on Incompatible Materials. Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH, time). Avoid release to the environment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Hygiene measures : Keep good industrial hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feedingstuffs. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse.

**7.2. Conditions for safe storage, including any incompatibilities**

Technical measures : Keep out of reach of children.  
 Storage conditions : Store in a dry, cool and well-ventilated place. Do not store near or with any of the incompatible materials listed in section 10. Bund storage facilities to prevent soil and water pollution in the event of spillage.  
 Incompatible materials : Strong acids. Strong oxidizing agents. Strong bases.  
 Heat and ignition sources : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 Special rules on packaging : Tactile warning. Containers which are opened should be properly resealed and kept upright to prevent leakage. Keep in properly labelled containers.  
 Packaging materials : Keep only in the original container.

**Germany**

German storage class (LGK) : LGK 12 - Non-combustible liquids

**Switzerland**

Storage class (LK) : LK 6.1 - Toxic materials

**7.3. Specific end use(s)**

brake fluids.

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**8.1.1 National occupational exposure and biological limit values**

<b>2-(2-(2-methoxyethoxy)ethoxy)ethanol (112-35-6)</b>	
<b>Germany - Occupational Exposure Limits (TRGS 900)</b>	
Local name	2-(2-(2-Methoxyethoxy)ethoxy)ethanol
Occupational exposure limit value (mg/m <sup>3</sup> ) (TRGS900)	50 mg/m <sup>3</sup> (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-inhalable fraction)
Peak exposure limitation factor	2(II)

**2-(2-(2-methoxyethoxy)ethoxy)ethanol (112-35-6)**

Remark	Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden; 11 - Summe aus Dampf und Aerosolen; DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)
Regulatory reference	TRGS900
<b>Slovenia - Occupational Exposure Limits</b>	
Local name	2-(2-(2-metoksietoksi)etoksi)etanol
OEL TWA	50 mg/m <sup>3</sup> (inhalable fraction)
OEL STEL	100 mg/m <sup>3</sup> (inhalable fraction)
Remark	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti)
Regulatory reference	Uradni list RS, št. 29/2024 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu

**2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)**

**EU - Indicative Occupational Exposure Limit (IOEL)**

Local name	2-(2-Methoxyethoxy)ethanol
IOEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	Possibility of significant uptake through the skin
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC

**Albania - Occupational Exposure Limits**

Local name	(Metoksi-2-etoksi)- 2- etanol
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	Lëkurë (tregon mundësinë e një marrjeje të rëndësishme nëpërmjet lëkurës)
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	2-(2-Methoxyethoxy)-ethanol
MAK (OEL TWA)	50,1 mg/m <sup>3</sup>
	10 ppm

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
Remark	H. Fortpflanzungsgefährdend: d
OEL chemical category	Skin notation
Regulatory reference	BGBl. II Nr. 156/2021
<b>Belgium - Occupational Exposure Limits</b>	
Local name	2-(2-Méthoxyéthoxy)éthanol # 2-(2-Methoxyethoxy)ethanol
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	D: la mention "D" signifie que la résorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette résorption peut se faire tant par contact direct que par présence de l'agent dans l'air. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.
OEL chemical category	Skin, Skin notation
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
<b>Bulgaria - Occupational Exposure Limits</b>	
Local name	2-(2-Метоксиетокси) етанол
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	Кожа (възможна е значителна резорбция чрез кожата); • (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. 28 от 2024 г., в сила от 05.04.2024 г.)
<b>Croatia - Occupational Exposure Limits</b>	
Local name	2-(2-Metoksietoksi)etanol; dietilen-glikol monometil-eter
GVI (OEL TWA)	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	Direktiva: 2006/15/EZ. Napomena: Koža (razvrstana kao tvar koja nadražuje kožu (H315))
OEL chemical category	Skin notation
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граниčnim vrijednostima izloženosti i biološkim граниčnim vrijednostima (NN 148/2023)

**2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)****Croatia - Biological limit values**

Local name	2-(2-Metoksietoksi)etanol
BLV	15 mg/g creatinine Parameter: Methoxyacetic acid - Medium: urine - Sampling time: at the end of the work shift (calculated on the average Creatinine value of 1.2 g/L urine)
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 91/2018)

**Cyprus - Occupational Exposure Limits**

Local name	2-(2-Μεθοξυαιθοξυ)αιθανόλη
OEL TWA	50,1 mg/m <sup>3</sup> 10 ppm
OEL chemical category	Skin-potential for cutaneous absorption
Remark	δέρμα
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)

**Czech Republic - Occupational Exposure Limits**

Local name	2-(2-Methoxyethoxy)ethanol (Diethylenglykol monomethylether)
PEL (OEL TWA)	50 mg/m <sup>3</sup> 10 ppm
NPK-P (OEL C)	100 mg/m <sup>3</sup> 20 ppm
Remark	D - při expozici se významně uplatňuje pronikání faktoru kůží.
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)

**Denmark - Occupational Exposure Limits**

Local name	Diethylenglycolmonomethylether
8-timers grænseværdi (OEL TWA)	50 mg/m <sup>3</sup> 10 ppm
Korttidsgrænseværdi (OEL STEL)	100 mg/m <sup>3</sup> 20 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi); H (betyder, at stoffet kan optages gennem huden)
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	BEK nr 291 af 19/03/2024

**2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)****Finland - Occupational Exposure Limits**

Local name	2-(2-Metoksietoksi)etanoli
HTP (OEL TWA)	50 mg/m <sup>3</sup>
	10 ppm
Remark	Iho
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)

**France - Occupational Exposure Limits**

Local name	2-(2-Méthoxyéthoxy)éthanol
VLEP 8h (OEL TWA)	50,1 mg/m <sup>3</sup> (indicative limit)
	10 ppm (indicative limit)
Remark	Valeurs réglementaires indicatives. Risque de pénétration percutanée, Toxique pour la reproduction de catégorie 1B dans la 18ième ATP
OEL chemical category	Reproductive Toxin category 2, Risk of cutaneous absorption
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 6443, 2022; Outil65; Arrêté du 26 octobre 2007)

**Germany - Occupational Exposure Limits (TRGS 900)**

Local name	2-(2-Methoxyethoxy)ethanol [Diethylenglykolmonomethylether (DEGME)]
Occupational exposure limit value (mg/m <sup>3</sup> ) (TRGS900)	50 mg/m <sup>3</sup> (the risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed)
Occupational exposure limit value (ppm) (TRGS900)	10 ppm (the risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed)
Peak exposure limitation factor	8(II)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); H - hautresorptiv; Z - Ein Risiko der Fruchtschädigung kann auch bei Einhaltung des AGW und des BGW nicht ausgeschlossen werden; 11 - Summe aus Dampf und Aerosolen
Chemical category	Skin notation
Regulatory reference	TRGS900

**Germany - Biological limit values (TRGS 903)**

Local name	Diethylenglykolmonomethylether
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<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
Biological limit value	15 mg/g creatinine Parameter: Methoxyessigsäure - Untersuchungsmaterial: U = Urin - Probenahmezeitpunkt: i) am Schichtende am Ende der Arbeitswoche nach mindestens 2-wöchiger Exposition - Festlegung/Begründung: 05/2024 DFG
Regulatory reference	TRGS 903
<b>Gibraltar - Occupational Exposure Limits</b>	
Local name	2-(2-Methoxyethoxy)ethanol
OEL TWA	50,1 mg/m <sup>3</sup> 10 ppm
Remark	Skin
OEL chemical category	Skin notation
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
<b>Greece - Occupational Exposure Limits</b>	
Local name	2-(2-μεθοξυαιθοξυ)αιθανόλη
OEL TWA	50,1 mg/m <sup>3</sup> 10 ppm
OEL chemical category	skin - potential for cutaneous absorption
Remark	Η ένδειξη «δέρμα» στις οριακές τιμές επαγγελματικής έκθεσης επισημαίνει το ενδεχόμενο σημαντικής διείσδυσης μέσω του δέρματος.
Regulatory reference	Π.Δ. 162/2007 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
<b>Hungary - Occupational Exposure Limits</b>	
Local name	2-(2-METOXIETOXI)-ETANOL
AK (OEL TWA)	50,1 mg/m <sup>3</sup>
Remark	EU2 (2006/15/EK irányelvben közölt érték); R+T (Azok az anyagok, amelyek RÖVID és TARTÓS expozíciója is egészségkárosodást okoz)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
<b>Ireland - Occupational Exposure Limits</b>	
Local name	2-(2-Methoxyethoxy)ethanol
OEL TWA	50,1 mg/m <sup>3</sup> 10 ppm
OEL STEL	150,3 mg/m <sup>3</sup> (calculated) 30 ppm (calculated)

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
Remark	IOELV (Indicative Occupational Exposure Limit Values), Skin (Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible)
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Chemical Agents Code of Practice 2024
<b>Italy - Occupational Exposure Limits</b>	
Local name	2-(2-Metossietossi)etanolo
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	Cute
OEL chemical category	skin - potential for cutaneous absorption
Regulatory reference	Allegato XXXVIII del Decreto Legislativo 4 settembre 2024, n. 135
<b>Latvia - Occupational Exposure Limits</b>	
Local name	2-(2-Metoksietoksi) etanols
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	Āda
OEL chemical category	skin - potential for cutaneous exposure
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).
<b>Lithuania - Occupational Exposure Limits</b>	
Local name	2-(2-metoksietoksi)etanolis
IPRV (OEL TWA)	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	R (reprodukcijai toksiškas poveikis); O (medžiaga į organizmą gali prasiskverbti pro nepažeistą odą)
OEL chemical category	Reproductive toxin, Skin notation
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
<b>Luxembourg - Occupational Exposure Limits</b>	
Local name	2-(2-méthoxyéthoxy)éthanol
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
OEL chemical category	Possibility of significant uptake through the skin

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
Remark	Peau
Regulatory reference	Mémorial A N° 226 de 2021 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
<b>Malta - Occupational Exposure Limits</b>	
Local name	2-(2-Methoxyethoxy)ethanol
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	Skin # Ġilda
OEL chemical category	Possibility of significant uptake through the skin
Regulatory reference	S.L. 424.24 - Chemical Agents at Work Regulations (L.N. 356 of 2021) # L.S. 424.24 - Regolamenti dwar Aġenti Kimiċi fuq il-Post tax-Xoġhol (A.L. 356 tal-2021)
<b>Netherlands - Occupational Exposure Limits</b>	
Local name	2-(Methoxyethoxy)ethanol
TGG-8u (OEL TWA)	45 mg/m <sup>3</sup>
	9 ppm
Remark	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.
MAC chemical category	Skin notation
Regulatory reference	Arbeidsomstandighedenregeling 2024
<b>Poland - Occupational Exposure Limits</b>	
Local name	2-(2-Metoksyetoksy)etanol
NDS (OEL TWA)	50 mg/m <sup>3</sup>
Remark	Skóra (Oznakowanie substancji notacją „skóra” oznacza, że wchłanianie substancji przez skórę może być tak samo istotne jak przy narażeniu drogą oddechową).
Regulatory reference	Dz. U. 2024 poz. 1017 wraz z późn. zm.
<b>Portugal - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	2-(2-Metoxietoxi)etanol
IOEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
Remark	Cutânea.
Regulatory reference	Decreto-Lei n.º 1/2021 de 6 de janeiro
<b>Portugal - Occupational Exposure Limits</b>	
OEL TWA	50,1 mg/m <sup>3</sup> (indicative limit value)
	10 ppm (indicative limit value)
OEL chemical category	skin - potential for cutaneous exposure indicative limit value
<b>Romania - Occupational Exposure Limits</b>	
Local name	2-(2-metoxietoxi)-etanol
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
OEL chemical category	Skin notation
Remark	P - posibilitatea unei penetrări cutanate importante; R2 - susceptibil de a dăuna fertilității
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
<b>Serbia - Occupational Exposure Limits</b>	
Local name	2-(2-метоксиетокси)етанол; диетиленгликоломнометилетар
OEL TWA	50 mg/m <sup>3</sup>
	10 ppm
Remark	ЕУ** – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2006/15/ЕЗ (друга листа); К – напомена да хемијска материја може штетно деловати на кожу
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
<b>Slovakia - Occupational Exposure Limits</b>	
Local name	2-(2-metoxietoxy) etanol
NPHV (OEL TWA)	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	К – znamená, že faktor môže byť ľahko absorbovaný kožou
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
<b>Slovenia - Occupational Exposure Limits</b>	
Local name	2-(2-metoksietoksi)etanol

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), EU
OEL chemical category	Category 2, Potential for cutaneous absorption
Regulatory reference	Uradni list RS, št. 29/2024 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
<b>Spain - Occupational Exposure Limits</b>	
Local name	2-(2-Metoxietoksi)etanol
VLA-ED (OEL TWA)	50,1 mg/m <sup>3</sup> (indicative limit value)
	10 ppm (indicative limit value)
Remark	Vía dérmica (Indica que, en las exposiciones a esta sustancia, la aportación por la vía cutánea puede resultar significativa para el contenido corporal total si no se adoptan medidas para prevenir la absorción. En estas situaciones, es aconsejable la utilización del control biológico para poder cuantificar la cantidad global absorbida del contaminante), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo), r (Esta sustancia tiene establecidas restricciones a la fabricación, la comercialización o el uso en los términos especificados en el "Reglamento (CE) nº 1907/2006 sobre Registro, Evaluación, Autorización y Restricción de sustancias y preparados químicos" (REACH) de 18 de diciembre de 2006 (DOUE L 369 de 30 de diciembre de 2006). Las restricciones de una sustancia pueden aplicarse a todos los usos o sólo a usos concretos. El anexo XVII del Reglamento REACH contiene la lista de todas las sustancias restringidas y especifica los usos que se han restringido).
OEL chemical category	TR1B, skin - potential for cutaneous absorption
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
<b>Sweden - Occupational Exposure Limits</b>	
Local name	Dietylenglykolmonometyleter
NGV (OEL TWA)	50 mg/m <sup>3</sup>
	10 ppm
Remark	H (Ämnet kan lätt upptas genom huden. Det föreskrivna gränsvärdet bedöms ge tillräckligt skydd endast under förutsättning att huden är skyddad mot exponering för ämnet ifråga); R (Ämnet är reproduktionsstörande. Med reproduktionsstörande ämnen avses ämnen som kan medföra skadliga effekter på fortplantningsförmågan eller avkommans utveckling)
OEL chemical category	Skin notation

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	2-(2-Methoxyethoxy) ethanol
WEL TWA (OEL TWA)	50,1 mg/m <sup>3</sup>
	10 ppm
WEL STEL (OEL STEL)	150,3 mg/m <sup>3</sup> (calculated)
	30 ppm (calculated)
Remark	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)
WEL chemical category	Potential for cutaneous absorption
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Iceland - Occupational Exposure Limits</b>	
Local name	2-(2-metoxýetoxý)etanol
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm
Remark	H (efnið getur auðveldlega borist inn í líkamann gegnum húð)
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
<b>Norway - Occupational Exposure Limits</b>	
Local name	2-(2-metoksyetoksy)etanol
Grenseverdi (OEL TWA)	50 mg/m <sup>3</sup>
	10 ppm
Korttidsverdi (OEL STEL)	75 mg/m <sup>3</sup> (value calculated)
	20 ppm (value calculated)
Remark	H: Kjemikalier som kan tas opp gjennom huden; R: Kjemikalier som skal betraktes som reproduksjonstoksiske; E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
OEL chemical category	Skin notation, Potential reproductive hazard
Regulatory reference	FOR-2024-04-05-581
<b>North Macedonia - Occupational Exposure Limits</b>	
Local name	2-(2-метоксиетокси)етанол
OEL TWA	50,1 mg/m <sup>3</sup>
	10 ppm

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
Remark	(K) својство на полесно пренесување на супстанците во организмот преку кожата; (EU) European Union – гранична вредност, определена на ниво на Европската унија
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија” бр.46/10)

<b>methanol (67-56-1)</b>	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Methanol
IOEL TWA	260 mg/m <sup>3</sup>
	200 ppm
Remark	Possibility of significant uptake through the skin
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
<b>Albania - Occupational Exposure Limits</b>	
Local name	Metanol
OEL TWA	260 mg/m <sup>3</sup>
	200 ppm
Remark	Lëkurë (tregon mundësinë e një marrjeje të rëndësishme nëpërmjet lëkurës)
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”
<b>Austria - Occupational Exposure Limits</b>	
Local name	Methanol (Methylalkohol)
MAK (OEL TWA)	260 mg/m <sup>3</sup>
	200 ppm
MAK (OEL STEL)	1040 mg/m <sup>3</sup>
	800 ppm
Remark	H
OEL chemical category	Skin notation
Regulatory reference	BGBl. II Nr. 156/2021
<b>Belgium - Occupational Exposure Limits</b>	
Local name	Alcool méthylique # Methanol
OEL TWA	266 mg/m <sup>3</sup>

methanol (67-56-1)	
	200 ppm
OEL STEL	333 mg/m <sup>3</sup>
	250 ppm
Remark	D: la mention "D" signifie que la r�sorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette r�sorption peut se faire tant par contact direct que par pr�sence de l'agent dans l'air. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.
OEL chemical category	Skin, Skin notation
Regulatory reference	Koninklijk besluit/Arr�t� royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Метилов алкохол
OEL TWA	260 mg/m <sup>3</sup>
	200 ppm
Remark	Кожа (възможна е значителна резорбция чрез кожата); • (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. 28 от 2024 г., в сила от 05.04.2024 г.)
Croatia - Occupational Exposure Limits	
Local name	Metanol
GVI (OEL TWA)	260 mg/m <sup>3</sup>
	200 ppm
Remark	Direktiva: 2006/15/EZ. Napomena: Koža (razvrstana kao tvar koja nadražuje kožu (H315))
OEL chemical category	Skin notation
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
Croatia - Biological limit values	
Local name	Metanol
BLV	7 mg/g creatinine Parameter: Methanol - Medium: urine - Sampling time: at the end of the work shift (calculated on the average Creatinine value of 1.2 g/L urine)

methanol (67-56-1)	
Regulatory reference	Pravidlnik o zaštitu radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 91/2018)
Cyprus - Occupational Exposure Limits	
Local name	Μεθανόλη
OEL TWA	260 mg/m <sup>3</sup>
	200 ppm
OEL chemical category	Skin-potential for cutaneous absorption
Remark	δέρμα
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
Czech Republic - Occupational Exposure Limits	
Local name	Methanol (Methylalkohol)
PEL (OEL TWA)	250 mg/m <sup>3</sup>
	188 ppm
NPK-P (OEL C)	1000 mg/m <sup>3</sup>
	751 ppm
Remark	D - při expozici se významně uplatňuje pronikání faktoru kůží, B - u látky je zaveden biologický expoziční test (BET) v moči nebo krvi.
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Czech Republic - Biological limit values	
Local name	Methanol (Methylalkohol)
BLV	Parameter: Methanol - Medium: urine - Sampling time: end of shift 15 mg/l Parameter: Methanol - Medium: urine - Sampling time: end of shift
Regulatory reference	Vyhláška č. 107/2013 Sb. (kterou se mění vyhláška č. 432/2003 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Methanol (Methylalkohol)
8-timers grænseværdi (OEL TWA)	260 mg/m <sup>3</sup>
	200 ppm
Korttidsgrænseværdi (OEL STEL)	520 mg/m <sup>3</sup>
	400 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi); H (betyder, at stoffet kan optages gennem huden)
OEL chemical category	Potential for cutaneous absorption

methanol (67-56-1)	
Regulatory reference	BEK nr 291 af 19/03/2024
Estonia - Occupational Exposure Limits	
Local name	Metanool (metüülalkohol)
OEL TWA	250 mg/m <sup>3</sup>
	200 ppm
OEL STEL	350 mg/m <sup>3</sup>
	250 ppm
Remark	A (Naha kaudu kergesti imenduv aine)
OEL chemical category	Skin notation
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
Finland - Occupational Exposure Limits	
Local name	Metanoli
HTP (OEL TWA)	270 mg/m <sup>3</sup>
	200 ppm
HTP (OEL STEL)	330 mg/m <sup>3</sup>
	250 ppm
Remark	Iho
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Méthanol (alcool méthylique)
VLEP 8h (OEL TWA)	260 mg/m <sup>3</sup> (restrictive limit)
	200 ppm (restrictive limit)
VLEP CT (OEL STEL)	1300 mg/m <sup>3</sup> (restrictive limit: this value is not set by regulation and comes from a circular published by the Ministry of Labor.)
	1000 ppm (restrictive limit: this value is not set by regulation and comes from a circular published by the Ministry of Labor.)
Remark	Valeurs réglementaires contraignantes. Risque de pénétration percutanée. La VLEP CT n'est pas réglementaire et provient d'une circulaire du ministère chargé du travail
OEL chemical category	Risk of cutaneous absorption
Regulatory reference	Article R4412-149 du Code du travail et circulaire du Ministère du travail (réf.: INRS ED 6443, 2022; Outil65; Décret n° 2019-1487; Décret n° 2020-1546; Décret n° 2021-434; Décret n° 2021-1849)

<b>methanol (67-56-1)</b>	
<b>France - Biological limit values</b>	
BLV	Parameter: Methanol - Medium: urine - Sampling time: end of shift (per the Authority, the values for this substance must be decided and/or determined on a case by case basis. Guidance for the calculation of and interpretation of values is provided in the source)
<b>Germany - Occupational Exposure Limits (TRGS 900)</b>	
Local name	Methanol
Occupational exposure limit value (mg/m <sup>3</sup> ) (TRGS900)	130 mg/m <sup>3</sup> (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Occupational exposure limit value (ppm) (TRGS900)	100 ppm (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Peak exposure limitation factor	2(II)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); H - hautresorptiv; Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden
Chemical category	Skin notation
Regulatory reference	TRGS900
<b>Germany - Biological limit values (TRGS 903)</b>	
Local name	Methanol
Biological limit value	15 mg/l Parameter: Methanol - Medium: urine - Sampling time: at the end of the shift, in case of long-term exposure after several previous shifts
Regulatory reference	TRGS 903
<b>Gibraltar - Occupational Exposure Limits</b>	
Local name	Methanol
OEL TWA	260 mg/m <sup>3</sup> 200 ppm
Remark	Skin
OEL chemical category	Skin notation
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
<b>Greece - Occupational Exposure Limits</b>	
Local name	Μεθανόλη
OEL TWA	260 mg/m <sup>3</sup>

<b>methanol (67-56-1)</b>	
	200 ppm
OEL STEL	325 mg/m <sup>3</sup>
	250 ppm
OEL chemical category	skin - potential for cutaneous absorption
Remark	Η ένδειξη «δέρμα» στις οριακές τιμές επαγγελματικής έκθεσης επισημαίνει το ενδεχόμενο σημαντικής διείσδυσης μέσω του δέρματος.
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
<b>Hungary - Occupational Exposure Limits</b>	
Local name	METANOL
AK (OEL TWA)	260 mg/m <sup>3</sup>
Remark	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármat); EU2 (2006/15/EK irányelvben közölt érték); R+T (Azok az anyagok, amelyek RÖVID és TARTÓS expozíciója is egészségkárosodást okoz)
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
<b>Hungary - Biological Exposure Indices</b>	
Local name	Metanol
BEI	30 mg/l Biológiai expozíciós (hatás) mutató: metanol - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 940 µmol/l Biológiai expozíciós (hatás) mutató: metanol - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
<b>Ireland - Occupational Exposure Limits</b>	
Local name	Methanol [Methyl alcohol]
OEL TWA	260 mg/m <sup>3</sup>
	200 ppm
OEL STEL	780 mg/m <sup>3</sup> (calculated)
	600 ppm (calculated)
Remark	IOELV (Indicative Occupational Exposure Limit Values), Skin (Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible)
OEL chemical category	Potential for cutaneous absorption

<b>methanol (67-56-1)</b>	
Regulatory reference	Chemical Agents Code of Practice 2024
<b>Ireland - Biological limit values</b>	
Local name	Methanol
BMGV	15 mg/l Parameter: methanol - Medium: urine - Sampling time: End of shift - Notations: B (Background), Ns (Non-specific)
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
<b>Italy - Occupational Exposure Limits</b>	
Local name	Metanolo
OEL TWA	260 mg/m <sup>3</sup> 200 ppm
Remark	Cute
OEL chemical category	skin - potential for cutaneous absorption
Regulatory reference	Allegato XXXVIII del Decreto Legislativo 4 settembre 2024, n. 135
<b>Latvia - Occupational Exposure Limits</b>	
Local name	Metanols (metilspirts, karbinols)
OEL TWA	260 mg/m <sup>3</sup> 200 ppm
Remark	Āda
OEL chemical category	skin - potential for cutaneous exposure
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).
<b>Lithuania - Occupational Exposure Limits</b>	
Local name	Metanolis (metilo alkoholis)
IPRV (OEL TWA)	260 mg/m <sup>3</sup> 200 ppm
Remark	O (medžiaga į organizmą gali prasiskverbti pro nepažeistą odą)
OEL chemical category	Skin notation
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
<b>Luxembourg - Occupational Exposure Limits</b>	
Local name	Méthanol
OEL TWA	260 mg/m <sup>3</sup> 200 ppm
OEL chemical category	Possibility of significant uptake through the skin

<b>methanol (67-56-1)</b>	
Remark	Peau
Regulatory reference	Mémorial A N° 226 de 2021 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
<b>Malta - Occupational Exposure Limits</b>	
Local name	Methanol
OEL TWA	260 mg/m <sup>3</sup> 200 ppm
Remark	Skin # Ġilda
OEL chemical category	Possibility of significant uptake through the skin
Regulatory reference	S.L. 424.24 - Chemical Agents at Work Regulations (L.N. 356 of 2021) # L.S. 424.24 - Regolamenti dwar Aġenti Kimiċi fuq il-Post tax-Xoġhol (A.L. 356 tal-2021)
<b>Netherlands - Occupational Exposure Limits</b>	
Local name	Methanol
TGG-8u (OEL TWA)	133 mg/m <sup>3</sup> 100 ppm
Remark	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.
MAC chemical category	Skin notation
Regulatory reference	Arbeidsomstandighedenregeling 2024
<b>Poland - Occupational Exposure Limits</b>	
Local name	Metanol
NDS (OEL TWA)	100 mg/m <sup>3</sup>
NDSch (OEL STEL)	300 mg/m <sup>3</sup>
Remark	Skóra (Oznakowanie substancji notacją „skóra” oznacza, że wchłanianie substancji przez skórę może być tak samo istotne jak przy narażeniu drogą oddechową).
Regulatory reference	Dz. U. 2024 poz. 1017 wraz z późn. zm.
<b>Portugal - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Metanol
IOEL TWA	260 mg/m <sup>3</sup>

methanol (67-56-1)	
	200 ppm
Remark	Cutânea.
Regulatory reference	Decreto-Lei n.º 1/2021 de 6 de janeiro
Portugal - Occupational Exposure Limits	
Local name	Metanol (Álcool metílico)
OEL TWA	260 mg/m <sup>3</sup> (indicative limit value)
	200 ppm (indicative limit value)
OEL STEL	250 ppm
OEL chemical category	skin - potential for cutaneous exposure indicative limit value
Remark	P (Toxicidade percutânea); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014
Portugal - Biological Exposure Indices	
Local name	Metanol
BEI	15 mg/l Parâmetro: Metanol - Meio: urina - Momento da amostragem: Fim do turno - Notação: Vb (Valor basal), Ne (Não específico)
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Metanol/Alcool metilic
OEL TWA	260 mg/m <sup>3</sup>
	200 ppm
OEL chemical category	Skin notation
Remark	P - posibilitatea unei penetrări cutanate importante
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
Romania - Biological limit values	
Local name	Alcool metilic
BLV	6 mg/l Parameter: Methanol - Medium: urine - Sampling time: end of shift
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
Serbia - Occupational Exposure Limits	
Local name	метанол
OEL TWA	260 mg/m <sup>3</sup>
	200 ppm

<b>methanol (67-56-1)</b>	
Remark	EУ** – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2006/15/ЕЗ (друга листа); К – напомена да хемијска материја може штетно деловати на кожу
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
<b>Slovakia - Occupational Exposure Limits</b>	
Local name	Metylalkohol (metanol)
NPHV (OEL TWA)	260 mg/m <sup>3</sup>
	200 ppm
Remark	К – znamená, že faktor môže byť ľahko absorbovaný kožou
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
<b>Slovakia - Biological limit values</b>	
Local name	Metanol
BLV	30 mg/l Parameter: Methanol - Medium: urine - Sampling time: end of exposure or work shift
	30 mg/l Parameter: Methanol - Medium: urine - Sampling time: after all work shifts (for long-term exposure)
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
<b>Slovenia - Occupational Exposure Limits</b>	
Local name	metanol (metilalkohol)
OEL TWA	260 mg/m <sup>3</sup>
	200 ppm
OEL STEL	1040 mg/m <sup>3</sup>
	800 ppm
Remark	К (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
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Uradni list RS, št. 29/2024 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
<b>Slovenia - Biological limit values</b>	
Local name	metanol

methanol (67-56-1)	
BLV	15 mg/l Parameter: metanol - Biološki vzorec: urin - Čas vzorčenja: ob koncu delovne izmene, pri dolgotrajni izpostavljenosti: ob koncu delovne izmene po več zaporednih delavnikih
Regulatory reference	Uradni list RS, št. 29/24 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
Spain - Occupational Exposure Limits	
Local name	Metanol (Alcohol metílico)
VLA-ED (OEL TWA)	266 mg/m <sup>3</sup> (indicative limit value) 200 ppm (indicative limit value)
Remark	Vía dérmica (Indica que, en las exposiciones a esta sustancia, la aportación por la vía cutánea puede resultar significativa para el contenido corporal total si no se adoptan medidas para prevenir la absorción. En estas situaciones, es aconsejable la utilización del control biológico para poder cuantificar la cantidad global absorbida del contaminante), 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).
OEL chemical category	skin - potential for cutaneous absorption
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Spain - Biological limit values	
Local name	Metanol (Alcohol metílico)
BLV	15 mg/l Parameter: Methanol - Medium: urine - Sampling time: end of shift
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Metanol
NGV (OEL TWA)	250 mg/m <sup>3</sup> 200 ppm
KGV (OEL STEL)	350 mg/m <sup>3</sup> 250 ppm
Remark	H (Ämnet kan lätt upptas genom huden. Det föreskrivna gränsvärdet bedöms ge tillräckligt skydd endast under förutsättning att huden är skyddad mot exponering för ämnet ifråga); V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas)
OEL chemical category	Skin notation
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)

methanol (67-56-1)	
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Methanol
WEL TWA (OEL TWA)	266 mg/m <sup>3</sup>
	200 ppm
WEL STEL (OEL STEL)	333 mg/m <sup>3</sup>
	250 ppm
Remark	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)
WEL chemical category	Potential for cutaneous absorption
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Iceland - Occupational Exposure Limits</b>	
Local name	Metanól (metýlalkóhól, tréspíritus)
OEL TWA	260 mg/m <sup>3</sup>
	200 ppm
Remark	H (efnið getur auðveldlega borist inn í líkamann gegnum húð)
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
<b>Norway - Occupational Exposure Limits</b>	
Local name	Metanol
Grenseverdi (OEL TWA)	130 mg/m <sup>3</sup>
	100 ppm
Korttidsverdi (OEL STEL)	162,5 mg/m <sup>3</sup> (value calculated)
	150 ppm (value calculated)
Remark	H: Kjemikalier som kan tas opp gjennom huden; E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
OEL chemical category	Skin notation
Regulatory reference	FOR-2024-04-05-581
<b>North Macedonia - Occupational Exposure Limits</b>	
Local name	метанол (метилалкохол)
OEL TWA	260 mg/m <sup>3</sup>
	200 ppm

<b>methanol (67-56-1)</b>	
Remark	(K) својство на полесно пренесување на супстанците во организмот преку кожата; (BAT) биолошка гранична вредност – праг на биолошка гранична вредност, што значи предупредување на опасна хемиска супстанца и нејзини метаболити во ткивата, телесните течности или издишувањето на воздухот, без оглед на тоа, дали опасната хемиска супстанца е внесена во организмот со вдишување, голтање или преку кожата; (EU) European Union – гранична вредност, определена на ниво на Европската унија
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија” бр.46/10)
<b>Switzerland - Occupational Exposure Limits</b>	
Local name	Méthanol / Methanol [Methylalkohol]
MAK (OEL TWA)	260 mg/m <sup>3</sup>
	200 ppm
KZGW (OEL STEL)	520 mg/m <sup>3</sup>
	400 ppm
Notation	R, SS <sub>c</sub> , B / H, SS <sub>c</sub> , B
Remark	INRS, NIOSH
OEL chemical category	Skin notation
Regulatory reference	www.suva.ch, 01.01.2024
<b>Switzerland - BAT</b>	
Local name	Méthanol / Methanol
BAT	30 mg/l Parameter: Methanol - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures) 936 µmol/l Parameter: Methanol - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures)
Regulatory reference	Ordonnance 832.30 (OPA), article 50 al. 3, www.suva.ch/valeurs-limites / Verordnung 832.30 (VUV), Art. 50 Abs. 3, www.suva.ch/grenzwerte
<b>USA - ACGIH® - Threshold Limit Values</b>	
Local name	Methanol
ACGIH® TLV® TWA	200 ppm
ACGIH® TLV® STEL	250 ppm
Remark (ACGIH®)	TLV® Basis: Headache; eye dam; dizziness; nausea. Notations: Skin; BEI
ACGIH® chemical category	Skin - potential significant contribution to overall exposure by the cutaneous route
Regulatory reference	ACGIH 2024

<b>methanol (67-56-1)</b>	
<b>USA - ACGIH® - Biological Exposure Indices</b>	
Local name	Methanol
BEI	15 mg/l Parameter: Methanol - Medium: urine - Sampling time: end of shift (background, nonspecific)
Regulatory reference	ACGIH 2024

<b>2,2'-iminodiethanol; diethanolamine (111-42-2)</b>	
<b>Austria - Occupational Exposure Limits</b>	
Local name	Diethanolamin (2,2'-Iminodiethanol)
MAK (OEL TWA)	2 mg/m <sup>3</sup> (reaction with nitrosating agents can lead to formation of carcinogens N-Nitrosodiethanolamine)
	0,46 ppm (reaction with nitrosating agents can lead to formation of carcinogens N-Nitrosodiethanolamine)
MAK (OEL STEL)	4 mg/m <sup>3</sup> (reaction with Nitrosating agents can result in carcinogenic N-Nitrosodiethanolamine formation)
	0,92 ppm (reaction with Nitrosating agents can result in carcinogenic N-Nitrosodiethanolamine formation)
Remark	H, Sh. Reaktion mit nitrosierenden Agentien kann zur Bildung des kanzerogenen N-Nitrosodiethanolamins führen.
OEL chemical category	Skin notation, Skin sensitizer
Regulatory reference	BGBl. II Nr. 156/2021

<b>Belgium - Occupational Exposure Limits</b>	
Local name	Diéthanolamine (vapeur et aérosol) # Di-ethanolamine (damp en aérosol)
OEL TWA	1 mg/m <sup>3</sup> (aerosol and vapor)
	0,2 ppm (aerosol and vapor)
Remark	D: la mention "D" signifie que la résorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette résorption peut se faire tant par contact direct que par présence de l'agent dans l'air. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.
OEL chemical category	Skin
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023

<b>Bulgaria - Occupational Exposure Limits</b>	
Local name	Диетаноламин
OEL TWA	10 mg/m <sup>3</sup>

<b>2,2'-iminodiethanol; diethanolamine (111-42-2)</b>	
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 28 от 2024 г., в сила от 05.04.2024 г.)
<b>Croatia - Occupational Exposure Limits</b>	
Local name	2,2'-iminodietanol; dietanolamin
GVI (OEL TWA)	15 mg/m <sup>3</sup> 3 ppm
Remark	Koža (razvrstana kao tvar koja nadražuje kožu (H315))
OEL chemical category	Skin notation
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
<b>Czech Republic - Occupational Exposure Limits</b>	
Local name	Diethanolamin (2,2-lminobis(ethanol))
PEL (OEL TWA)	5 mg/m <sup>3</sup>
NPK-P (OEL C)	10 mg/m <sup>3</sup>
Remark	I - dráždí sliznice (oči, dýchací cesty) resp. kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
<b>Denmark - Occupational Exposure Limits</b>	
Local name	Diethanolamin (Bis(2-hydroxyethyl)amin; Iminodiethanol)
8-timers grænseværdi (OEL TWA)	2 mg/m <sup>3</sup> 0,46 ppm
Korttidsgrænseværdi (OEL STEL)	4 mg/m <sup>3</sup> 0,92 ppm
Remark	H (betyder, at stoffet kan optages gennem huden)
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	BEK nr 291 af 19/03/2024
<b>Estonia - Occupational Exposure Limits</b>	
Local name	Dietanoolamiin
OEL TWA	15 mg/m <sup>3</sup> 3 ppm
OEL STEL	30 mg/m <sup>3</sup> 6 ppm

<b>2,2'-iminodiethanol; diethanolamine (111-42-2)</b>	
Remark	A (Naha kaudu kergesti imenduv aine)
OEL chemical category	Skin notation
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 21.12.2022, 3)
<b>Finland - Occupational Exposure Limits</b>	
Local name	Dietanoliamiini
HTP (OEL TWA)	2 mg/m <sup>3</sup>
	0,46 ppm
Remark	Iho
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystministeriö)
<b>France - Occupational Exposure Limits</b>	
Local name	Diéthanolamine
VLEP 8h (OEL TWA)	15 mg/m <sup>3</sup>
	3 ppm
Remark	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 6443, 2022; Outil65)
<b>Germany - Occupational Exposure Limits (TRGS 900)</b>	
Local name	2,2'-Iminodiethanol (Diethanolamin)
Occupational exposure limit value (mg/m <sup>3</sup> ) (TRGS900)	0,5 mg/m <sup>3</sup> (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Occupational exposure limit value (ppm) (TRGS900)	0,11 ppm (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Peak exposure limitation factor	1(l)
Remark	AGS - Ausschuss für Gefahrstoffe; H - hautresorptiv; Sh - Hautsensibilisierender Stoff; Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden; 11 - Summe aus Dampf und Aerosolen; 6 - Die Reaktion mit nitrosierenden Agentien kann zur Bildung der entsprechenden kanzerogenen N-Nitrosoamine führen
Chemical category	Skin notation, Skin sensitization
Regulatory reference	TRGS900
<b>Greece - Occupational Exposure Limits</b>	
Local name	Διαιθανολαμίνη
OEL TWA	15 mg/m <sup>3</sup>

<b>2,2'-iminodiethanol; diethanolamine (111-42-2)</b>	
	3 ppm
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
<b>Ireland - Occupational Exposure Limits</b>	
Local name	Diethanolamine [2,2'-Iminodiethanol]
OEL TWA	1 mg/m <sup>3</sup> (inhalable fraction and vapour)
	0,2 ppm
OEL STEL	3 mg/m <sup>3</sup> (calculated-inhalable fraction and vapor)
	0,6 ppm (calculated)
Remark	Advisory OELV (Advisory Occupational Exposure Limit Values)
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Chemical Agents Code of Practice 2024
<b>Lithuania - Occupational Exposure Limits</b>	
Local name	Dietanolaminas
IPRV (OEL TWA)	15 mg/m <sup>3</sup>
	3 ppm
TPRV (OEL STEL)	30 mg/m <sup>3</sup>
	6 ppm
Remark	O (medžiaga į organizmą gali prasiskverbti pro nepažeistą odą)
OEL chemical category	Skin notation
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
<b>Poland - Occupational Exposure Limits</b>	
Local name	2,2'-Iminodietanol
NDS (OEL TWA)	9 mg/m <sup>3</sup>
Remark	Skóra (Oznakowanie substancji notacją „skóra” oznacza, że wchłanianie substancji przez skórę może być tak samo istotne jak przy narażeniu drogą oddechową).
Regulatory reference	Dz. U. 2018 poz. 1286 wraz z późn. zm.
<b>Portugal - Occupational Exposure Limits</b>	
Local name	Dietanolamina
OEL TWA	1 mg/m <sup>3</sup> (inhalable fraction; vapor)
OEL chemical category	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans, skin - potential for cutaneous exposure

<b>2,2'-iminodiethanol; diethanolamine (111-42-2)</b>	
Remark	P (Toxicidade percutânea); A3 (Agente carcinogénico confirmado nos animais de laboratorio con relevância desconhecida no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014
<b>Slovenia - Occupational Exposure Limits</b>	
Local name	dietanolamin
OEL TWA	0,5 mg/m <sup>3</sup>
	0,11 ppm
OEL STEL	0,5 mg/m <sup>3</sup>
	0,11 ppm
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti)
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
<b>Spain - Occupational Exposure Limits</b>	
Local name	Dietanolamina
VLA-ED (OEL TWA)	1 mg/m <sup>3</sup> (reaction with nitrosating agents can lead to formation of carcinogenic N-Nitrosamines-inhalable fraction and vapor)
	0,2 ppm (reaction with nitrosating agents can lead to formation of carcinogenic N-Nitrosamines-inhalable fraction and vapor)

<b>2,2'-iminodiethanol; diethanolamine (111-42-2)</b>	
Remark	Vía dérmica (Indica que, en las exposiciones a esta sustancia, la aportación por la vía cutánea puede resultar significativa para el contenido corporal total si no se adoptan medidas para prevenir la absorción. En estas situaciones, es aconsejable la utilización del control biológico para poder cuantificar la cantidad global absorbida del contaminante), f (Reacciona con agentes nitrosantes que pueden dar lugar a la formación de N-Nitrosaminas carcinógenas), FIV (Fracción inhalable y vapor. La notación FIV señala a aquellos agentes químicos que se pueden presentar en el ambiente de trabajo, tanto en forma de materia particulada como vapor, por lo que las dos fases pueden coexistir, contribuyendo ambas a la exposición. Esta situación se puede dar, principalmente, en los siguientes casos: • Cuando el agente en cuestión tiene un valor "intermedio" de presión de vapor (en estos casos se tiene en cuenta la relación entre su concentración en el aire saturado de vapor y el valor del VLA-ED® y la nota se asigna, generalmente, cuando el cociente entre ambas cantidades se encuentra entre 0.1 y 10). • Por razón de la forma de uso del agente químico (por ejemplo, pulverización). • En los procesos que conlleven cambios importantes de temperatura que puedan afectar al estado físico del agente químico. • En los procesos en los que una fracción significativa del vapor puede disolverse o adsorberse en las partículas de otra sustancia, a semejanza de lo que ocurre con los agentes solubles en agua en ambientes con humedad elevada).
OEL chemical category	skin - potential for cutaneous absorption
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
<b>Sweden - Occupational Exposure Limits</b>	
Local name	Dietanolamin
NGV (OEL TWA)	15 mg/m <sup>3</sup>
	3 ppm
KGV (OEL STEL)	30 mg/m <sup>3</sup>
	6 ppm
Remark	H (Ämnet kan lätt upptas genom huden. Det föreskrivna gränsvärdet bedöms ge tillräckligt skydd endast under förutsättning att huden är skyddad mot exponering för ämnet ifråga); V (Vägledande kortidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas)
OEL chemical category	Skin notation
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
<b>Iceland - Occupational Exposure Limits</b>	
Local name	Dietanólamin (bis(2-hýdroxýetyl)amin, iminódietanol)
OEL TWA	2 mg/m <sup>3</sup>

<b>2,2'-iminodiethanol; diethanolamine (111-42-2)</b>	
	0,46 ppm
Remark	H (efnið getur auðveldlega borist inn í líkamann gegnum húð)
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
<b>Norway - Occupational Exposure Limits</b>	
Local name	2,2'-iminodietanol (3-azapentan-1,5-diol; Dietanolamin)
Grenseverdi (OEL TWA)	15 mg/m <sup>3</sup>
	3 ppm
Korttidsverdi (OEL STEL)	22,5 mg/m <sup>3</sup> (value calculated)
	6 ppm (value calculated)
Regulatory reference	FOR-2023-12-18-2278
<b>North Macedonia - Occupational Exposure Limits</b>	
Local name	диетаноламин
OEL TWA	15 mg/m <sup>3</sup> (I) инхалабилна фракција – дел на вкупно суспендирани материји, кои работникот ги вдишува
Remark	(K) својство на полесно пренесување на супстанците во организмот преку кожата
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија” бр.46/10)
<b>Switzerland - Occupational Exposure Limits</b>	
Local name	Diéthanolamine / Diethanolamin
MAK (OEL TWA)	1 mg/m <sup>3</sup> (the reaction with Nitrosating agent can lead to carcinogenic N-Nitrosodiethanolamines-aerosol, inhalable dust, vapour)
KZGW (OEL STEL)	1 mg/m <sup>3</sup> (the reaction with Nitrosating agent can lead to carcinogenic N-Nitrosodiethanolamine-aerosol, inhalable dust, vapour)
Notation	R, S, SS <sub>c</sub> / H, S, SS <sub>c</sub>
Remark	En présence d'agents nitrosants, il peut se former de la N-Nitrosodiéthanolamine cancérigène. La substance peut être présente sous forme de vapeur et d'aérosol en même temps. / Reaktion mit nitrosierenden Agentien kann zur Bildung des kanzerogenen N-Nitrosodiethanolamins führen. Der Stoff kann gleichzeitig als Aerosol und Dampf vorliegen.
OEL chemical category	Sensitizer, Skin notation
Regulatory reference	www.suva.ch, 01.01.2024

**2,2'-iminodiethanol; diethanolamine (111-42-2)****USA - ACGIH® - Threshold Limit Values**

Local name	Diethanolamine
ACGIH® TLV® TWA	1 mg/m <sup>3</sup> (inhalable fraction and vapor)
Remark (ACGIH®)	TLV® Basis: Liver & kidney dam. Notations: Skin; A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
ACGIH® chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans, Skin - potential significant contribution to overall exposure by the cutaneous route
Regulatory reference	ACGIH 2024

**8.1.2. Recommended monitoring procedures****Monitoring methods**

Monitoring methods	Personal air monitoring. Room air monitoring.
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**8.1.3. Air contaminants formed**

No additional information available

**8.1.4. DNEL and PNEC**

Additional information : Recommended monitoring procedures : Personal air monitoring. Room air monitoring

**8.1.5. Control banding**

No additional information available

**8.2. Exposure controls**

Engineering measure(s) : Provide adequate ventilation. Organisational measures to prevent/limit releases, dispersion and exposure. See Section 7 for information on safe handling.

Personal protective equipment : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hand protection	: Wear chemically resistant gloves (tested to EN374). Suitable material: Not determined. Thickness : Not determined. Breakthrough time : Not determined. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.
Eye protection	: Use suitable eye protection (EN166): Safety glasses
Body protection	: Wear suitable protective clothing
Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment. Half-face mask (DIN EN 140). full face mask (DIN EN 136). Filter type: (ABEK) (EN 14387). The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used. (EN 137)
Thermal hazard protection	: Not required for normal conditions of use. Use dedicated equipment.
Environmental exposure controls	: Avoid release to the environment. Comply with applicable Community environmental protection legislation.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Yellow.
Appearance	: Liquid.
Odour	: mild.
Odour threshold	: No data available
Melting / freezing point	: < -50 °C
Freezing point	: Not available
Initial boiling point and boiling range	: 275 °C
Flammability	: Not flammable
Explosive properties	: Not applicable. The study does not need to be conducted because there are no chemical groups associated with explosive properties present in the molecule.
Oxidising properties	: Not applicable. The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with oxidising properties.
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
pH value	: 7,5 – 9
Kinematic viscosity	: 12,7 mm <sup>2</sup> /s (20 °C)
Dynamic viscosity	: No data available

Solubility	: No data available.
Partition coefficient n-octanol/water (Log Kow)	: Not available
Partition coefficient n-octanol/water	: No data available
Vapour pressure	: No data available
Vapour pressure at 50°C	: Not available
Density	: 1,07 g/cm <sup>3</sup>
Relative density	: No data available
Vapour density	: No data available
Particle characteristics	: 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**

None under normal conditions. Reference to other sections: 10.4 & 10.5.

**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**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. See Section 7 for information on safe handling.

**10.5. Incompatible materials**

Strong oxidizing agents. Strong acids. Strong bases. See Section 7 for information on safe handling.

**10.6. Hazardous decomposition products**

Reference to other sections 5.2.

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**SECTION 11: Toxicological information**

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

- Acute toxicity (oral) : Not classified (Based on available data, the classification criteria are not met)
- Acute toxicity (dermal) : Not classified (Based on available data, the classification criteria are not met)
- Acute toxicity (inhalation) : Not classified (Based on available data, the classification criteria are not met)

<b>tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate (30989-05-0)</b>	
LD50/oral/rat	> 2000 mg/kg [Source: NICNAS]
LD50/dermal/rat	> 2000 mg/kg [Source: NICNAS]

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
LD50/oral/rat	4 ml/kg [Source: NLM_CIP]
LD50/dermal/rabbit	9404 mg/kg [Source: ECHA_API]
LC50/inhalation/4h/rat (ppm)	LC0 (6 hours) = 1,2 mg/l (OECD 403)

<b>dihydro-3-(tetrapropenyl)furan-2,5-dione (26544-38-7)</b>	
LD50/oral/rat	2550 mg/kg [Source: NLM_CIP]
LD50/dermal/rat	> 2000 mg/kg
LD50/dermal/rabbit	6200 – 7500 mg/kg
LC50/inhalation/4h/rat	5,3 mg/l

- Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met)  
pH value: 7,5 – 9
- Serious eye damage/irritation : Not classified (Based on available data, the classification criteria are not met)  
pH value: 7,5 – 9
- Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)
- Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
- Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)
- Reproductive toxicity : Suspected of damaging fertility. Suspected of damaging the unborn child.
- STOT-single exposure : Not classified (Based on available data, the classification criteria are not met)
- STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)

Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)

<b>DOT 5.1 LV</b>	
Kinematic viscosity	12,7 mm <sup>2</sup> /s (20 °C)

<b>dihydro-3-(tetrapropenyl)furan-2,5-dione (26544-38-7)</b>	
Kinematic viscosity	429 mm <sup>2</sup> /s (20C°)

### 11.2. Information on other hazards

#### 11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties : The mixture contains substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

#### 11.2.2. Other information

Other information : Symptoms related to the physical, chemical and toxicological characteristics, For further information see section 4

## **SECTION 12: Ecological information**

### 12.1. Toxicity

Environmental properties : According to the criteria of the European classification and labelling system, the substance/the product has not to be labelled as "dangerous for the environment".

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

<b>tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate (30989-05-0)</b>	
LC50 - Fish [1]	> 222,2 mg/l <i>Oncorhynchus mykiss</i> (Rainbow trout)
LC50 - Other aquatic organisms [1]	> 224,4 mg/l <i>Pseudokirchneriella subcapitata</i>
EC50 - Crustacea [1]	> 211,2 mg/l
EC50 96h - Algae [1]	430 mg/l (Species: <i>Pseudokirchneriella subcapitata</i> )

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
LC50 - Fish [1]	7500 mg/l (Exposure time: 96 hours - Species: <i>Lepomis macrochirus</i> (Bluegill) ; static) [Source: EPA]

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
LC50 - Fish [2]	7500 mg/l (Exposure time: 96 hours - Species: Lepomis macrochirus (Bluegill) [Source: IUCLID])
EC50 - Crustacea [1]	> 500 mg/l (Exposure time: 48 hours - Species: Daphnia magna (Water flea))
EC50 72h - Algae [1]	> 500 mg/l (Species: Desmodesmus subspicatus)

<b>dihydro-3-(tetrapropenyl)furan-2,5-dione (26544-38-7)</b>	
LC50 - Fish [1]	> 100 mg/l (Exposure time: 96 hours - Species: Oncorhynchus mykiss (Rainbow trout) ; static) [Source: ECHA]
LC50 - Fish [2]	Oncorhynchus mykiss (Rainbow trout)
EC50 - Crustacea [1]	> 100 mg/l
EC50 - Other aquatic organisms [1]	800 mg/l (3 hours)
EC50 72h - Algae [1]	110 mg/l (Selenastrum capricornutum)

### **12.2. Persistence and degradability**

<b>DOT 5.1 LV</b>	
Persistence and degradability	No additional information available.

<b>tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate (30989-05-0)</b>	
Persistence and degradability	Readily biodegradable.

<b>2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)</b>	
Persistence and degradability	Readily biodegradable.

<b>dihydro-3-(tetrapropenyl)furan-2,5-dione (26544-38-7)</b>	
Persistence and degradability	Not readily biodegradable.
Biodegradation	9,9 % (28 days) (OECD301D)

### **12.3. Bioaccumulative potential**

<b>DOT 5.1 LV</b>	
Partition coefficient n-octanol/water	No data available
Bioaccumulative potential	No additional information available.

<b>tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate (30989-05-0)</b>	
BCF - Fish [1]	(no bioaccumulation expected)

**tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate (30989-05-0)**

Partition coefficient n-octanol/water	-1,47 (Diethylenglycol; at pH 7)
Bioaccumulative potential	Log Pow -4,37 (QSAR). No bioaccumulation.

**2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether (111-77-3)**

Partition coefficient n-octanol/water	-0,47 (at 20 °C (at pH 6.7)
Bioaccumulative potential	Bioaccumulation unlikely.

**dihydro-3-(tetrapropenyl)furan-2,5-dione (26544-38-7)**

Partition coefficient n-octanol/water (Log Kow)	≥ 4,39
Bioaccumulative potential	Low potential.

**12.4. Mobility in soil****DOT 5.1 LV**

Mobility in soil	No data available
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**dihydro-3-(tetrapropenyl)furan-2,5-dione (26544-38-7)**

Organic Carbon Normalized Adsorption Coefficient (Log Koc)	2,92
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**12.5. Results of PBT and vPvB assessment****DOT 5.1 LV**

Results of PBT assessment	Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII
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**12.6. Endocrine disrupting properties**

Adverse effects on the environment caused by endocrine disrupting properties

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

**12.7. Other adverse effects**

Other adverse effects

: No data available.

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

Product/Packaging disposal recommendations

: Avoid release to the environment. Dispose of empty containers and wastes safely. See Section 7 for information on safe handling. Refer to manufacturer/supplier for information on recovery/recycling. Recycling is preferred to disposal or incineration. If recycling is not possible, eliminate in accordance with local valid waste disposal regulations. Handle contaminated packages in the same way as the substance itself. Dispose of contaminated materials in accordance with current regulations.

European waste catalogue (2001/573/EC, 75/442/EEC, 91/689/EEC)

: This material and its container must be disposed of as hazardous waste. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities

**SECTION 14: Transport information**

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

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number or ID number</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.2. UN proper shipping name</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.3. Transport hazard class(es)</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.4. Packing group</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.5. Environmental hazards</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
No supplementary information available				

**14.6. Special precautions for user**

Special precautions for user : No data available

**- Overland transport**

Not applicable

**- Transport by sea**

Not applicable

**- Air transport**

Not applicable

**- Inland waterway transport**

Not applicable

**- Rail transport**

Not applicable

**14.7. Maritime transport in bulk according to IMO instruments**

Code: IBC : No data available.

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****15.1.1. EU-Regulations****REACH Annex XVII (Restriction List)**

EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
3(b)	DOT 5.1 LV ; tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate ; 2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether ; dihydro-3-(tetrapropenyl)furan-2,5-dione	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10
3(c)	dihydro-3-(tetrapropenyl)furan-2,5-dione	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1
54.	2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether	2-(2-methoxyethoxy)ethanol (DEGME)

**REACH Annex XIV (Authorisation List)**

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

**REACH Candidate List (SVHC)**

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

**PIC Regulation (Prior Informed Consent)**

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

**POP Regulation (Persistent Organic Pollutants)**

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

**Ozone Regulation (2024/590)**

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

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

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

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

**Explosives Precursors Regulation (EU 2019/1148)**

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

**Drug Precursors Regulation (EC 273/2004)**

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

**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		
Installations classées			
No ICPE	Désignation de la rubrique	Code Régime	Rayon
na	Not Applicable	na	na

**Germany**

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

Major Accidents Ordinance (12. BImSchV) : Is not subject to the Major Accidents Ordinance (12. BImSchV)

**Netherlands**

Waterbezwaarlijkheid : B (4) - Weinig schadelijk voor in het water levende organismen

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

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

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

Borstvoeding

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

Vruchtbaarheid

SZW-lijst van reprotoxische stoffen – : 2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether is listed  
Ontwikkeling

**Denmark**

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product  
Pregnant/breastfeeding women working with the product must not be in direct contact with it.  
If an employee is pregnant or breastfeeding and the person in question uses or is exposed to this product at work, the employer must always carry out a risk assessment of the work. The assessment must both deal with the dangerousness of the impact and its strength and duration. The employer's decision that a pregnant or lactating woman can perform a specific work task must therefore be made in the context of her specific working conditions. See also WEA-Guideline A.1.8-7 on the working environment of pregnant and breastfeeding workers.

**15.2. Chemical safety assessment**

Not applicable

**SECTION 16: Other information**

Indication of changes:

2.2	Contains	Corrected	
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Abbreviations and acronyms:

	ABM = Algemene beoordelingsmethodiek
	ADN = Accord Européen relatif au Transport International des Marchandises Dangereuses par voie de Navigation du Rhin ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC IATA = International Air Transport Association IMDG = International Maritime Dangerous Goods Code LEL = Lower Explosive Limit/Lower Explosion Limit UEL = Upper Explosion Limit/Upper Explosive Limit REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
	BTT = Breakthrough time (maximum wearing time)
	DMEL = Derived Minimal Effect level
	DNEL = Derived No Effect Level
	EC50 = Median Effective Concentration
	EL50 = Median effective level
	ErC50 = EC50 in terms of reduction of growth rate
	Erl50 = EL50 in terms of reduction of growth rate
	EWC = European waste catalogue
	LC50 = Median lethal concentration
	LD50 = Median lethal dose
	LL50 = Median lethal level
	NA = Not applicable
	NOEC = No observed effect concentration
	NOEL: no-observed-effect level
	NOELR = No observed effect loading rate
	NOAEC = No observed adverse effect concentration

	NOAEL = No observed adverse effect level
	N.O.S. = Not Otherwise Specified
	OEL = Occupational Exposure Limits - Short Term Exposure Limits (STELs)
	PNEC = Predicted No Effect Concentration
	Quantitative structure-activity relationship (QSAR)
	STOT = Specific Target Organ Toxicity
	TWA = time weighted average
	VOC = Volatile organic compounds
	WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)

Sources of key data used to compile the datasheet : ECHA (European Chemicals Agency). LOLI. Supplier information.

Training advice : Training staff on good practice. Manipulations are to be done only by qualified and authorised persons.

Other information : Classification - Assessment method: CLP Calculation method (Article 9).  
 Physicochemical hazard assessment: Information given is based on tests on the mixture itself.

Full text of H- and EUH-statements:

Aquatic Chronic 4	Hazardous to the aquatic environment – Chronic Hazard, Category 4
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Repr. 1B	Reproductive toxicity, Category 1B
Repr. 2	Reproductive toxicity, Category 2
Skin Sens. 1A	Skin sensitisation, category 1A
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H360D	May damage the unborn child.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H413	May cause long lasting harmful effects to aquatic life.
EUH208	Contains dihydro-3-(tetrapropenyl)furan-2,5-dione. May produce an allergic reaction.

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878  
 Classification according to Regulation (EC) No. 1272/2008 [CLP]  
 Labelling according to Regulation (EC) No. 1272/2008 [CLP]

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**Annex to the safety data sheet**

**Annex : Identified uses**

Title	Sector of use	Product category	Process category	Article category	Environmental release	SPERC
Use in functional fluids			PROC2		ERC7	
Use in functional fluids Professional			PROC20		ERC9b	
Consumer use; Hydraulic Fluids, Vehicles, Machine, ATIEL, ATC		PC17			ERC9a, ERC9b	

**1. Exposure scenario**

**Use in functional fluids**

ES Type: Worker

Use descriptors	PROC2 ERC7
Processes, tasks activities covered	Use in functional fluids Use at industrial sites (IS)

**2. Operational conditions and risk management measures**

**2.2 Contributing scenario controlling environmental exposure (ERC7)**

ERC7	Use of functional fluid at industrial site
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**Product characteristics**

Physical form	Liquid
Viscosity, kinematic	13 mm <sup>2</sup> /s

**Operational conditions**

Amount used	Annual site tonnage (tons/year):	Not available
	Daily amount per site	Not available
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100
	River flow rate:	18000 m <sup>3</sup> /d
Other given operational conditions affecting environmental exposure	Release fraction to air from process	5 %
	Release fraction to wastewater from process	5 %
	Release fraction to soil from process	5 %
	Fraction tonnage to region	100 %

Risk management measures

Conditions and measures related to sewage treatment plant	Discharge rate of the Municipal STP	2000 m <sup>3</sup> /d
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**2.1 Contributing scenario controlling worker exposure**

Product characteristics

Physical form	Liquid
Concentration of the Substance in Mixture/Article	65 %
Dustiness	low
Viscosity, kinematic	13 mm <sup>2</sup> /s

Operational conditions

Frequency and duration of use	Duration of the activity	> 4 h
	Frequency of use:	5 days/week
Human factors not influenced by risk management	Exposed skin area	480 cm <sup>2</sup>
Other given operational conditions affecting workers exposure	Location	indoor
	Ventilation	Good ventilation of the workplace required (30 %)
	Industrial use	

Risk management measures

Technical conditions and measures at process level to prevent release	with local exhaust ventilation	inhalation exposure 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection	
	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training	
	Respiratory protection is not necessary if room is well ventilated.	

**3. Exposure estimation and reference to its source**

**3.1. Health**

Information for contributing exposure scenario	
2.1	The quantitative risk characterisation for this worker exposure has been calculated by EasyTRA

**3.2. Environment**

Information for contributing exposure scenario	
2.2	The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA. The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES**

**4.1. Health**

Guidance - Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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**4.2. Environment**

Guidance - Environment	When the recommended risk management measures (RMMs) and operational conditions (OCs) are
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	<p>observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>
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**1. Exposure scenario**

**Use in functional fluids Professional**

ES Type: Worker

Use descriptors	PROC20 ERC9b
Processes, tasks activities covered	Use in functional fluids Widespread use by professional workers (PW)

**2. Operational conditions and risk management measures**

**2.2 Contributing scenario controlling environmental exposure (ERC9b)**

ERC9b	Widespread use of functional fluid (outdoor)
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**Product characteristics**

Physical form	Liquid
Viscosity, kinematic	13 mm <sup>2</sup> /s

**Operational conditions**

Amount used	Annual site tonnage (tons/year):	Not available
	Daily amount per site	Not available
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100
	River flow rate:	18000 m <sup>3</sup> /d
Other given operational conditions affecting environmental exposure	Release fraction to air from process	5 %
	Release fraction to wastewater from process	5 %
	Release fraction to soil from process	5 %
	Fraction tonnage to region	100 %

**Risk management measures**

Conditions and measures related to sewage treatment plant	Discharge rate of the Municipal STP	2000 m <sup>3</sup> /d
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**2.1 Contributing scenario controlling worker exposure (PROC20)**

PROC20	Use of functional fluids in small devices
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**Product characteristics**

Physical form	Liquid
Concentration of the Substance in Mixture/Article	65 %
Dustiness	low
Viscosity, kinematic	13 mm <sup>2</sup> /s

**Operational conditions**

Frequency and duration of use	Duration of the activity	> 4 h
	Frequency of use:	5 days/week
Human factors not influenced by risk management	Exposed skin area	480 cm <sup>2</sup>
Other given operational conditions affecting workers exposure	Location	indoor
	Ventilation	Good ventilation of the workplace required (30 %)
	Professional uses	

Risk management measures

Technical conditions and measures at process level to prevent release	with local exhaust ventilation	inhalation exposure 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection	
	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training	
	Respiratory protection is not necessary if room is well ventilated.	

**3. Exposure estimation and reference to its source**

**3.1. Health**

Information for contributing exposure scenario	
2.1	The quantitative risk characterisation for this worker exposure has been calculated by EasyTRA

**3.2. Environment**

Information for contributing exposure scenario	
2.2	The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.  The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES**

**4.1. Health**

Guidance - Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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**4.2. Environment**

Guidance - Environment	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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**1. Exposure scenario**

**Consumer use; Hydraulic Fluids, Vehicles, Machine, ATIEL, ATC**

ES Type: Consumer

Use descriptors	PC17 ERC9a, ERC9b
Processes, tasks activities covered	Consumer use (C)

**2. Operational conditions and risk management measures**

**2.2.1 Contributing scenario controlling environmental exposure (ERC9a)**

ERC9a	Widespread use of functional fluid (indoor)
Assessment method	ATIEL-ATC SPERC 9.Bc.v1

**Product characteristics**

Physical form	Liquid
Viscosity, kinematic	13 mm <sup>2</sup> /s

**Operational conditions**

No additional information

**Risk management measures**

Conditions and measures related to sewage treatment plant	Municipal Sewage Treatment Plant	
	Effectiveness (of a measure)	87,34 %
Conditions and measures related to external treatment of waste for disposal	Dispose of contaminated materials in accordance with current regulations	

**2.2.2 Contributing scenario controlling environmental exposure (ERC9b)**

ERC9b	Widespread use of functional fluid (outdoor)
Assessment method	ATIEL-ATC SPERC 9.Bp.v1

**Product characteristics**

Physical form	Liquid
Viscosity, kinematic	13 mm <sup>2</sup> /s

**Operational conditions**

No additional information

**Risk management measures**

Conditions and measures related to sewage treatment plant	Municipal Sewage Treatment Plant	
	Effectiveness (of a measure)	87,34 %
Conditions and measures related to external treatment of waste for disposal	Dispose of contaminated materials in accordance with current regulations	

**2.1.1 Contributing scenario consumer end-use**

**Product characteristics**

Physical form	Liquid
Concentration of the Substance in Mixture/Article	≤ 67 %

**Operational conditions**

Amount used	Amounts used	5 g
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Frequency and duration of use	Release duration	15 minutes
	Frequency of use:	1 events per day
Human factors not influenced by risk management	Assumes that potential dermal contact is limited to hands.	
	Covers use by adults (unless otherwise stated).	

Specific operational conditions:

Brake fluids		
Filling of articles/equipment		
Closed systems		

Risk management measures

Conditions and measures related to information and behavioural advice to consumers	no spraying	
	Avoid using without gloves	

**2.1.2 Contributing scenario consumer end-use (PC17)**

PC17	Hydraulic Fluids
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Product characteristics

Physical form	Liquid
Viscosity, kinematic	13 mm <sup>2</sup> /s

Operational conditions

Amount used	Covers use up to	1 g/event
Frequency and duration of use	Exposure duration	0,25 h
	Frequency of use:	1 days/year
Other given operational conditions affecting consumers exposure	Indoor use.	
	Covers use in room size of	34 m <sup>3</sup>
	Ventilation rate per hour	: 1,5

Specific operational conditions:

Indoor use		
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Risk management measures

No additional information

**2.1.3 Contributing scenario consumer end-use (PC17)**

PC17	Hydraulic Fluids
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Product characteristics

Physical form	Liquid
Viscosity, kinematic	13 mm <sup>2</sup> /s

Operational conditions

Amount used	Covers use up to	800 g/event
Frequency and duration of use	Exposure duration	1 h
	Frequency of use:	2 days/year
Other given operational conditions affecting consumers exposure	Outdoor use.	

Specific operational conditions:

Outdoor use.		
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## Risk management measures

No additional information

**3. Exposure estimation and reference to its source****3.1. Health**

Information for contributing exposure scenario	
2.1.2	The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.
2.1.3	The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated.

**3.2. Environment**

Information for contributing exposure scenario	
2.2.1	The EUSES tool has been used to estimate environmental exposures unless otherwise indicated
2.2.2	The EUSES tool has been used to estimate environmental exposures unless otherwise indicated

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES****4.1. Health**

Guidance - Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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**4.2. Environment**

Guidance - Environment	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1, Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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