

# Tuning Solution for ICP/MS 9 components; 10mg/l each of Ba ; Be ; Ce ; Co ; In ; Mg ; Pb ; Th ; Tl in HNO<sub>3</sub> 2% Equivalent to Agilent Ref: 190024400

## Safety Data Sheet

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

Reference number: EQ0013

Issue date: 07.09.2016 Revision date: 21.08.2023 Supersedes version of: 26.12.2017 Version: 1.2

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

### 1.1. Product identifier

Product form : Mixture  
Product name : Tuning Solution for ICP/MS 9 components; 10mg/l each of Ba ; Be ; Ce ; Co ; In ; Mg ; Pb ; Th ; Tl in HNO<sub>3</sub> 2% Equivalent to Agilent Ref: 190024400  
Product code : EQ0013

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

#### 1.2.1. Relevant identified uses

Main use category : Industrial use, Professional use  
Use of the substance/mixture : Certified reference material for laboratory use  
Function or use category : Laboratory chemicals

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

#### Spectracer UK Ltd.

Third Floor,  
55 Blandford Street,  
London,  
W1U 7HW,  
United Kingdom.

Tel: +44 (0) 207 193 9114

Fax: +44 (0) 203 432 4686

Email: [contact@spectracer.co.uk](mailto:contact@spectracer.co.uk)

Web: [www.spectracer.com](http://www.spectracer.com)

### 1.4. Emergency telephone number

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

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Skin corrosion/irritation, Category 2

H315

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Serious eye damage/eye irritation, Category 2 H319  
Full text of H- and EUH-statements: see section 16

### Adverse physicochemical, human health and environmental effects

Causes skin irritation. Causes serious eye irritation.

## 2.2. Label elements

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

Hazard pictograms (CLP) :



GHS07

Signal word (CLP) : Warning  
Contains : nitric acid; barium nitrate; beryllium nitrate; cerium(III) nitrate, hexahydrate; cobalt dinitrate; indium(III) nitrate, pentahydrate; magnesium nitrate; lead nitrate; thorium tetranitrate, hydrate; thallium nitrate  
Hazard statements (CLP) : H315 - Causes skin irritation.  
H319 - Causes serious eye irritation.  
Precautionary statements (CLP) : P264 - Wash hands, forearms and face thoroughly after handling.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P337+P313 - If eye irritation persists: Get medical advice/attention.

## 2.3. Other hazards

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

Component	
nitric acid (7697-37-2)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
barium nitrate (10022-31-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
beryllium nitrate (13597-99-4)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
cobalt dinitrate (10141-05-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
indium(III) nitrate, pentahydrate (13465-14-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
lead nitrate (10099-74-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
thallium nitrate (10102-45-1)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

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

Component	
cobalt dinitrate(10141-05-6)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

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Component	
lead nitrate(10099-74-8)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Not applicable

#### 3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
nitric acid substance with national workplace exposure limit(s) (AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GI, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, AL, IS, NO, MK, RS, CH, TR); substance with a Community workplace exposure limit	CAS-No.: 7697-37-2 EC-No.: 231-714-2 EC Index-No.: 007-004-00-1 REACH-no: 01-2119487297-23-XXXX	1 – 5	Ox. Liq. 2, H272 Met. Corr. 1, H290 Acute Tox. 1 (Inhalation), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318
beryllium nitrate substance with national workplace exposure limit(s) (AT, BE, BG, CZ, DE, DK, EE, ES, FI, FR, GB, HR, HU, IE, LV, PL, PT, RO, SE, SI, SK, IS, MK, CH); substance with a Community workplace exposure limit	CAS-No.: 13597-99-4 EC-No.: 237-062-5 EC Index-No.: 004-002-00-2	< 0,05	Ox. Sol. 2, H272 Acute Tox. 3 (Oral), H301 Acute Tox. 2 (Inhalation), H330 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Carc. 1B, H350i STOT SE 3, H335 STOT RE 1, H372 Aquatic Chronic 2, H411
cobalt dinitrate substance listed as REACH Candidate (Cobalt(II) dinitrate) substance with national workplace exposure limit(s) (AT, BE, BG, CZ, DE, DK, EE, ES, FI, GB, GR, HR, HU, IE, LV, NL, PL, PT, RO, SE, SK, IS, CH)	CAS-No.: 10141-05-6 EC-No.: 233-402-1 EC Index-No.: 027-009-00-2	< 0,05	Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1B, H350i Repr. 1B, H360FD STOT RE Not classified Aquatic Acute 1, H400 Aquatic Chronic 1, H410
indium(III) nitrate, pentahydrate substance with national workplace exposure limit(s) (AT, BE, DE, DK, ES, FI, GB, GR, HR, IE, LT, PT, SE, SI, IS, NO, MK, CH)	CAS-No.: 13465-14-0	< 0,05	Ox. Sol. 2, H272 Skin Irrit. 2, H315 Eye Irrit. 2, H319
barium nitrate substance with national workplace exposure limit(s) (AT, BE, BG, CZ, DE, DK, ES, FI, FR, GB, GI, HR, IE, IT, LT, LU, MT, NL, PL, PT, RO, SE, SI, SK, AL, IS, NO, MK, CH, TR); substance with a Community workplace exposure limit	CAS-No.: 10022-31-8 EC-No.: 233-020-5 EC Index-No.: 056-002-00-7	< 0,05	Ox. Sol. 2, H272 Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
lead nitrate substance listed as REACH Candidate (Lead dinitrate) substance with national workplace exposure limit(s) (AT, BE, BG, CZ, DE, DK, EE, ES, FI, FR, GB, GI, GR, HR, HU, IE, LV, NL, PL, PT, RO, SE, SI, SK, IS, MK, CH); substance with a Community workplace exposure limit	CAS-No.: 10099-74-8 EC-No.: 233-245-9 EC Index-No.: 082-001-00-6	< 0,05	Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Eye Dam. 1, H318 Skin Sens. 1B, H317 Carc. 2, H351 Repr. 1A, H360Df STOT RE 2, H373 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410
thallium nitrate substance with national workplace exposure limit(s) (AT, BE, BG, CZ, DK, ES, FI, FR, GB, IE, PL, PT, RO, SK, IS, NO, CH)	CAS-No.: 10102-45-1 EC-No.: 233-273-1 EC Index-No.: 081-002-00-9	< 0,05	Ox. Sol. 2, H272 Acute Tox. 2 (Oral), H300 Acute Tox. 2 (Inhalation), H330 STOT RE 2, H373 Aquatic Chronic 2, H411

### Specific concentration limits:

Name	Product identifier	Specific concentration limits (%)
nitric acid	CAS-No.: 7697-37-2 EC-No.: 231-714-2 EC Index-No.: 007-004-00-1 REACH-no: 01-2119487297-23-XXXX	(5 ≤ C < 20) Skin Corr. 1B, H314 (20 ≤ C < 100) Skin Corr. 1A, H314 (65 ≤ C < 99) Ox. Liq. 3, H272 (99 ≤ C < 100) Ox. Liq. 2, H272
cobalt dinitrate	CAS-No.: 10141-05-6 EC-No.: 233-402-1 EC Index-No.: 027-009-00-2	(0,01 ≤ C ≤ 100) Carc. 1B, H350i
lead nitrate	CAS-No.: 10099-74-8 EC-No.: 233-245-9 EC Index-No.: 082-001-00-6	(0,5 ≤ C ≤ 100) STOT RE 2, H373 (2,5 ≤ C ≤ 100) Repr. 2, H361f

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

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after skin contact	: Irritation.
Symptoms/effects after eye contact	: Eye irritation.

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

Treat symptomatically.

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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

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

Hazardous decomposition products in case of fire : Toxic fumes may be released.

#### 5.3. Advice for firefighters

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

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes.

##### 6.1.2. For emergency responders

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

#### 6.2. Environmental precautions

Avoid release to the environment.

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

Methods for cleaning up : Take up liquid spill into absorbent material.  
Other information : Dispose of materials or solid residues at an authorized site.

#### 6.4. Reference to other sections

For further information refer to section 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment.  
Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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

Storage conditions : Store in a well-ventilated place. Keep cool.

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

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

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

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<b>nitric acid (7697-37-2)</b>	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Nitric acid
IOEL STEL	2,6 mg/m <sup>3</sup> 2,6 mg/m <sup>3</sup>
IOEL STEL [ppm]	1 ppm 1 ppm
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC COMMISSION DIRECTIVE 2006/15/EC
<b>Albania - Occupational Exposure Limits</b>	
Local name	Acid nitrik
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDËTIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKË NË PUNË"
<b>Austria - Occupational Exposure Limits</b>	
Local name	Salpetersäure
MAK (OEL STEL)	2,6 mg/m <sup>3</sup> (Mow)
MAK (OEL STEL) [ppm]	1 ppm (Mow)
OEL C	2,6 mg/m <sup>3</sup>
OEL C [ppm]	1 ppm
Regulatory reference	BGBI. II Nr. 156/2021 BGBI. II Nr. 156/2021
<b>Belgium - Occupational Exposure Limits</b>	
Local name	Acide nitrique # Salpeterzuur
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
<b>Bulgaria - Occupational Exposure Limits</b>	
Local name	Азотна киселина
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Remark	• (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. 47 от 2021 г., в сила от 04.06.2021 г.)
<b>Croatia - Occupational Exposure Limits</b>	
Local name	Dušična kiselina
KGVI (OEL STEL)	2,6 mg/m <sup>3</sup>

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<b>nitric acid (7697-37-2)</b>	
KGVI (OEL STEL) [ppm]	1 ppm
Remark	Direktiva: 2006/15/EZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
<b>Cyprus - Occupational Exposure Limits</b>	
Local name	Νιτρικό οξύ
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
<b>Czech Republic - Occupational Exposure Limits</b>	
Local name	Kyselina dusičná
PEL (OEL TWA)	1 mg/m <sup>3</sup>
PEL (OEL TWA) [ppm]	0,4 ppm
NPK-P (OEL C)	2,5 mg/m <sup>3</sup>
NPK-P (OEL C) [ppm]	1 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty), respektive kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
<b>Denmark - Occupational Exposure Limits</b>	
Local name	Salpetersyre
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi); S (betyder, at grænseværdien ikke bør overskrides. Værdien gælder for en eksponeringsperiode på 15 minutter)
Regulatory reference	BEK nr 2203 af 29. november 2021
<b>Estonia - Occupational Exposure Limits</b>	
Local name	Lämmastikhape
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
<b>Finland - Occupational Exposure Limits</b>	
Local name	Typpihappo
HTP (OEL TWA) [1]	1,3 mg/m <sup>3</sup>
HTP (OEL TWA) [2]	0,5 ppm
HTP (OEL STEL)	2,6 mg/m <sup>3</sup>
HTP (OEL STEL) [ppm]	1 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)

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nitric acid (7697-37-2)	
<b>France - Occupational Exposure Limits</b>	
Local name	Acide nitrique
VLE (OEL C/STEL)	2,6 mg/m <sup>3</sup>
VLE (OEL C/STEL) [ppm]	1 ppm
Remark	Valeurs règlementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 984, 2016)
<b>Germany - Occupational Exposure Limits (TRGS 900)</b>	
Local name	Salpetersäure
AGW (OEL TWA) [1]	2,6 mg/m <sup>3</sup>
AGW (OEL TWA) [2]	1 ppm
Remark	EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); 13 - Eine Begründung für die Ableitung eines gesundheitsbasierten AGW liegt nicht vor; 16 - Der Arbeitsplatzgrenzwert ist nur als Kurzzeitwert festgelegt. Die betriebliche Überwachung soll durch messtechnische Mittelwertbildung über 15 Minuten erfolgen, z.B. durch eine 15-minütige Probenahme
Regulatory reference	TRGS900
<b>Gibraltar - Occupational Exposure Limits</b>	
Local name	Nitric acid
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
<b>Greece - Occupational Exposure Limits</b>	
Local name	Νιτρικό οξύ
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
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	SALÉTRÓMSAV
CK (OEL STEL)	2,6 mg/m <sup>3</sup>
Remark	i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát), m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindhármát); EU2 (2006/15/EK irányelvben közölt érték)
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	Nitric acid
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values)



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<b>nitric acid (7697-37-2)</b>	
Regulatory reference	Chemical Agents Code of Practice 2021
<b>Italy - Occupational Exposure Limits</b>	
Local name	Acido nitrico
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
<b>Latvia - Occupational Exposure Limits</b>	
Local name	Slāpekšķābe
OEL TWA	2 mg/m <sup>3</sup>
OEL TWA [ppm]	0,78 ppm
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325
<b>Lithuania - Occupational Exposure Limits</b>	
Local name	Nitrato rūgštis (azoto rūgštis)
TPRV (OEL STEL)	2,6 mg/m <sup>3</sup>
TPRV (OEL STEL) [ppm]	1 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
<b>Luxembourg - Occupational Exposure Limits</b>	
Local name	Acide nitrique
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
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	Nitric acid
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
<b>Netherlands - Occupational Exposure Limits</b>	
Local name	Salpeterzuur
TGG-15min (OEL STEL)	1,3 mg/m <sup>3</sup>
TGG-15min (OEL STEL) [ppm]	0,5 ppm (Salpeterzuur; Netherlands; Short time value; Public occupational exposure limit value)
Regulatory reference	Arbeidsomstandighedenregeling 2022
<b>Poland - Occupational Exposure Limits</b>	
Local name	Kwas azotowy (V)

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<b>nitric acid (7697-37-2)</b>	
NDS (OEL TWA)	1,4 mg/m <sup>3</sup>
NDSCh (OEL STEL)	2,6 mg/m <sup>3</sup>
Regulatory reference	Dz. U. 2018 poz. 1286
<b>Portugal - Occupational Exposure Limits</b>	
Local name	Ácido nítrico
OEL TWA [ppm]	2 ppm
OEL STEL [ppm]	4 ppm
Regulatory reference	Norma Portuguesa NP 1796:2014
<b>Romania - Occupational Exposure Limits</b>	
Local name	Acid nitric/Acid azotic
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
<b>Serbia - Occupational Exposure Limits</b>	
Local name	азотна киселина
OEL STEL	3 mg/m <sup>3</sup>
OEL STEL [ppm]	1 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)
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	Kyselina dusičná
NPHV (OEL STEL)	2,6 mg/m <sup>3</sup>
NPHV (OEL STEL) [ppm]	1 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
<b>Slovenia - Occupational Exposure Limits</b>	
Local name	dušikova kislina
OEL TWA	2,6 mg/m <sup>3</sup>
OEL TWA [ppm]	1 ppm
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
Remark	EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
<b>Spain - Occupational Exposure Limits</b>	
Local name	Ácido nítrico
VLA-EC (OEL STEL)	2,6 mg/m <sup>3</sup>

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<b>nitric acid (7697-37-2)</b>	
VLA-EC (OEL STEL) [ppm]	1 ppm
Remark	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
<b>Sweden - Occupational Exposure Limits</b>	
Local name	Salpetersyra
NGV (OEL TWA)	1,3 mg/m <sup>3</sup>
NGV (OEL TWA) [ppm]	0,5 ppm
KTV (OEL STEL)	2,6 mg/m <sup>3</sup>
KTV (OEL STEL) [ppm]	1 ppm
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Nitric acid
WEL STEL (OEL STEL)	2,6 mg/m <sup>3</sup>
WEL STEL (OEL STEL) [ppm]	1 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Iceland - Occupational Exposure Limits</b>	
Local name	Saltpétursýra
OEL STEL	2,6 mg/m <sup>3</sup>
OEL STEL [ppm]	1 ppm
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	Salpetersyre
Grenseverdi (OEL TWA) [1]	5 mg/m <sup>3</sup>
Grenseverdi (OEL TWA) [2]	2 ppm
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2021-06-28-2248
<b>North Macedonia - Occupational Exposure Limits</b>	
Local name	азотна киселина
OEL TWA	2,6 mg/m <sup>3</sup>
OEL TWA [ppm]	1 ppm
KTV	1
Short time value [mg/m <sup>3</sup> ]	2,6 mg/m <sup>3</sup>
Short time value [ppm]	1 ppm

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<b>nitric acid (7697-37-2)</b>	
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покосо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m <sup>3</sup> или во ml/m <sup>3</sup> (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (EU) European Union – гранична вредност, определена на ниво на Европската унија; (*) дополнување на граничната вредност заради донесената Директива на Комисијата 2006/15ES од 7 февруари 2006 за создавање на втора листа на индикативни гранични вредности за професионална изложеност според директивата 98/24/EC и за измените на директивата 91/322/EEC и директивата 2000/39/ EC (Сл. весник бр. 38 од ден 9.2.2006, стр. 36)
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	Acide nitrique / Salpetersäure
MAK (OEL TWA) [1]	5 mg/m <sup>3</sup>
MAK (OEL TWA) [2]	2 ppm
KZGW (OEL STEL)	5 mg/m <sup>3</sup>
KZGW (OEL STEL) [ppm]	2 ppm
Critical toxicity	VRS, Yeux, Dent / OAW, Auge, Zahn
Remark	NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	Nitric acid
ACGIH OEL TWA [ppm]	2 ppm
ACGIH OEL STEL [ppm]	4 ppm
Remark (ACGIH)	TLV® Basis: URT & eye irr; dental erosion
Regulatory reference	ACGIH 2022
<b>barium nitrate (10022-31-8)</b>	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Barium (soluble compounds as Ba)
IOEL TWA	0,5 mg/m <sup>3</sup> 0,5 mg/m <sup>3</sup>
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC COMMISSION DIRECTIVE 2006/15/EC
<b>Albania - Occupational Exposure Limits</b>	
Local name	Barium
OEL TWA	0,5 mg/m <sup>3</sup> (përbërje të tretshme, si Ba)

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<b>barium nitrate (10022-31-8)</b>	
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	Bariumverbindungen, lösliche (ausgenommen Bariumchromat)
MAK (OEL TWA)	0,5 mg/m <sup>3</sup> (als Ba berechnet, E) 0,5 mg/m <sup>3</sup> (als Ba berechnet, E)
MAK (OEL STEL)	2 mg/m <sup>3</sup> (als Ba berechnet, E, 4x 15(Miw) min) 2 mg/m <sup>3</sup> (als Ba berechnet, E, 4x 15(Miw) min)
Regulatory reference	BGBl. II Nr. 156/2021 BGBl. II Nr. 156/2021
<b>Belgium - Occupational Exposure Limits</b>	
Local name	Baryum (composés solubles) (en Ba) # Barium (oplosbare verbindingen) (als Ba)
OEL TWA	0,5 mg/m <sup>3</sup>
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
<b>Bulgaria - Occupational Exposure Limits</b>	
Local name	Барий
OEL TWA	0,5 mg/m <sup>3</sup> разтворими съединения (като барий)
Remark	• (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. 47 от 2021 г., в сила от 04.06.2021 г.)
<b>Croatia - Occupational Exposure Limits</b>	
Local name	Barij (topljivi spojevi kao Ba)
GVI (OEL TWA) [1]	0,5 mg/m <sup>3</sup>
Remark	Direktiva: 2006/15/EZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
<b>Czech Republic - Occupational Exposure Limits</b>	
Local name	Barya sloučeniny rozpustné, jako Ba
PEL (OEL TWA)	0,5 mg/m <sup>3</sup>
NPK-P (OEL C)	2,5 mg/m <sup>3</sup>
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
<b>Denmark - Occupational Exposure Limits</b>	
Local name	Bariumforbindelser, opløselige
OEL TWA [1]	0,5 mg/m <sup>3</sup> beregnet som Ba
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 2203 af 29. november 2021

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<b>barium nitrate (10022-31-8)</b>	
<b>Finland - Occupational Exposure Limits</b>	
Local name	Barium, liukoiset yhdisteet
HTP (OEL TWA) [1]	0,5 mg/m <sup>3</sup> Ba
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
<b>France - Occupational Exposure Limits</b>	
VME (OEL TWA)	0,5 mg/m <sup>3</sup> (Baryum (composés solubles), en Ba; France; Time-weighted average exposure limit 8 h; VRI: Valeur réglementaire indicative)
<b>Germany - Occupational Exposure Limits (TRGS 900)</b>	
Local name	Bariumverbindungen, löslich (außer Bariumoxid und Bariumhydroxid)
AGW (OEL TWA) [1]	0,5 mg/m <sup>3</sup> (E)
Peak exposure limitation factor	1(I)
Remark	EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); 13 - Eine Begründung für die Ableitung eines gesundheitsbasierten AGW liegt nicht vor; 10 - Der Arbeitsplatzgrenzwert bezieht sich auf den Elementgehalt des entsprechenden Metalls; 15 - Für die analytische Bestimmung wird folgende Vorgehensweise empfohlen: "Analytische Methoden zur Prüfung gesundheitsschädlicher Arbeitsstoffe", Band 1 "Luftanalysen", 14. Lieferung 2005, und "Spezielle Vorbemerkungen", Kap. 4.7.1, S. 29-30, Wiley-VCH Verlag GmbH & Co.KGaA, Weinheim oder "Messung von Gefahrstoffen", BGI-Arbeitsmappe, Erich Schmidt Verlag, Bielefeld
Regulatory reference	TRGS900
<b>Gibraltar - Occupational Exposure Limits</b>	
Local name	Barium (soluble compounds as Ba)
OEL TWA	0,5 mg/m <sup>3</sup>
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
<b>Ireland - Occupational Exposure Limits</b>	
Local name	Barium compounds, (soluble compounds as Ba)
OEL TWA [1]	0,5 mg/m <sup>3</sup>
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
<b>Italy - Occupational Exposure Limits</b>	
Local name	Bario (composti solubili come Ba)
OEL TWA	0,5 mg/m <sup>3</sup>
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
<b>Lithuania - Occupational Exposure Limits</b>	
Local name	Baris (tirpieji junginiai, kaip Ba)
IPRV (OEL TWA)	0,5 mg/m <sup>3</sup>
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
<b>Luxembourg - Occupational Exposure Limits</b>	
Local name	Baryum (composés solubles en Ba)

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<b>barium nitrate (10022-31-8)</b>	
OEL TWA	0,5 mg/m <sup>3</sup>
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	Barium (soluble compounds as Ba) # Barium (kompost li jinħallu bħala Ba)
OEL TWA	0,5 mg/m <sup>3</sup>
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
<b>Netherlands - Occupational Exposure Limits</b>	
Local name	Barium
TGG-8u (OEL TWA)	0,5 mg/m <sup>3</sup> oplosbare verbindingen (als Ba)
Regulatory reference	Arbeidsomstandighedenregeling 2022
<b>Poland - Occupational Exposure Limits</b>	
Local name	Bar i jego związki nieorganiczne w przeliczeniu na Ba
NDS (OEL TWA)	0,5 mg/m <sup>3</sup>
Regulatory reference	Dz. U. 2018 poz. 1286
<b>Portugal - Occupational Exposure Limits</b>	
Local name	Bário e compostos solúveis, expressos em Ba
OEL TWA	0,5 mg/m <sup>3</sup>
Remark	A4 (Agente não classificável como carcinogénico no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014
<b>Romania - Occupational Exposure Limits</b>	
Local name	Bariu (compuși solubili exprimați ca Ba)
OEL TWA	0,5 mg/m <sup>3</sup>
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
<b>Slovakia - Occupational Exposure Limits</b>	
Local name	Bárium zlúčeniny rozpustné ako Ba
NPHV (OEL TWA) [1]	0,5 mg/m <sup>3</sup>
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
<b>Slovenia - Occupational Exposure Limits</b>	
Local name	barij (topne spojine, računano kot Ba)
OEL TWA	0,5 mg/m <sup>3</sup>
OEL STEL	0,5 mg/m <sup>3</sup>
Remark	EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
<b>Spain - Occupational Exposure Limits</b>	
Local name	Bario

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<b>barium nitrate (10022-31-8)</b>	
VLA-ED (OEL TWA) [1]	0,5 mg/m <sup>3</sup> elemental 0,5 mg/m <sup>3</sup> Compuestos de bario solubles, como Ba
Remark	c (Los términos "soluble" e "insoluble" se entienden con referencia al agua), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
<b>Sweden - Occupational Exposure Limits</b>	
Local name	Barium, lösliga föreningar (som Ba)
NGV (OEL TWA)	0,5 mg/m <sup>3</sup> totaldamm
Remark	3 (Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagnings av totaldamm och respirabelt damm, Metod nr 1010, Arbetarskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provtas inte den totala mängden luftburna partiklar med denna metod)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Barium
WEL TWA (OEL TWA) [1]	0,5 mg/m <sup>3</sup> compounds, soluble (as Ba)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Iceland - Occupational Exposure Limits</b>	
Local name	Baríumsambönd, uppleysanleg (sem Ba)
OEL TWA	0,5 mg/m <sup>3</sup>
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	Barium og bariumforb. (unntatt bariumsulfat) (beregnet som Ba)
Grenseverdi (OEL TWA) [1]	0,5 mg/m <sup>3</sup>
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2021-06-28-2248
<b>North Macedonia - Occupational Exposure Limits</b>	
Local name	Барииум (растворливи соединенија, пресметани како Ва)
OEL TWA	0,5 mg/m <sup>3</sup>
Remark	(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	Baryum, composés solubles / Bariumverbindungen, löslich



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<b>barium nitrate (10022-31-8)</b>	
MAK (OEL TWA) [1]	0,5 mg/m <sup>3</sup> (i) / (e)
KZGW (OEL STEL)	4 mg/m <sup>3</sup> (i) / (e)
Remark	NIOSH
Regulatory reference	www.suva.ch, 28.03.2022
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	Barium and soluble compounds
ACGIH OEL TWA	0,5 mg/m <sup>3</sup>
Remark (ACGIH)	TLV® Basis: Eye, skin, & GI irr; muscular stimulation. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2022
<b>beryllium nitrate (13597-99-4)</b>	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Beryllium nitrate
IOEL TWA	0,0002 mg/m <sup>3</sup> (BOEL. Inhalable fraction) 0,0006 mg/m <sup>3</sup> (Limit value until 11 July 2026)
IOEL TWA [ppm]	0,02 µg/m <sup>3</sup> (inhalable fraction)
IOEL STEL [ppm]	0,2 µg/m <sup>3</sup> (inhalable fraction)
Remark	Sensitisation (dermal and respiratory). (Year of adoption 2017)
Regulatory reference	SCOEL Recommendations
<b>EU - Binding Occupational Exposure Limit (BOEL)</b>	
Local name	Beryllium
BOEL TWA	0,0002 mg/m <sup>3</sup> (Inhalable fraction) 0,0006 mg/m <sup>3</sup> (Limit value until 11 July 2026)
Notes	Dermal and respiratory sensitisation (The substance can cause sensitisation of the skin and of the respiratory tract)
Regulatory reference	DIRECTIVE (EU) 2019/983 (amending Directive 2004/37/EC)
<b>EU - Biological Limit Value (BLV)</b>	
Local name	Beryllium
Regulatory reference	SCOEL List of recommended health-based BLVs and BGVs
<b>Austria - Occupational Exposure Limits</b>	
Local name	Beryllium und seine Verbindungen
MAK (OEL TWA)	0,00002 mg/m <sup>3</sup> (als Be berechnet, E)
MAK (OEL STEL)	0,0002 mg/m <sup>3</sup> (als Be berechnet, E, 4x 15(Miw) min)
TRK (OEL TWA)	0,0006 mg/m <sup>3</sup> (als Be berechnet, E)
TRK (OEL STEL)	0,0024 mg/m <sup>3</sup> (als Be berechnet, E, 4x 15(Miw) min)
Remark	Sah. Krebs erzeugend: III A2
Regulatory reference	BGBI. II Nr. 156/2021

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<b>beryllium nitrate (13597-99-4)</b>	
<b>Belgium - Occupational Exposure Limits</b>	
Local name	Béryllium et ses composés (en Be) # Beryllium en -verbindingen (als Be)
OEL TWA	0,002 mg/m <sup>3</sup>
OEL STEL	0,01 mg/m <sup>3</sup>
Remark	C: La mention C signifie que l'agent en question relève du champ d'application de l'arrêté royal du 2 décembre 1993 concernant la protection des travailleurs contre les risques liés à l'exposition à des agents cancérigènes et mutagènes au travail. # De vermelding C betekent dat het betrokken agens valt onder het toepassingsgebied van het koninklijk besluit van 2 december 1993 betreffende de bescherming van de werknemers tegen de risico's van blootstelling aan kankerverwekkende en mutagene agentia op het werk
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
<b>Bulgaria - Occupational Exposure Limits</b>	
Local name	Берилий
OEL TWA	0,002 mg/m <sup>3</sup> и съединения (като берилий)
Remark	Кожна и дихателна сенсibiliзация (Веществото може да предизвика сенсibiliзация на кожата и на дихателните пътища)
Regulatory reference	Наредба № 10 от 26.09.2003 г. за защита на работещите от рискове, свързани с експозиция на канцерогени и мутагени при работа (изм. и доп. ДВ. бр.5 от 17 Януари 2020 г.)
<b>Croatia - Occupational Exposure Limits</b>	
Local name	Berilij
GVI (OEL TWA) [1]	0,002 mg/m <sup>3</sup>
Remark	T+ (vrlo otrovno); Karc. kat. 2 (tvori koje su vjerojatno karcinogene za ljude)
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
<b>Czech Republic - Occupational Exposure Limits</b>	
Local name	Beryllium
PEL (OEL TWA)	0,001 mg/m <sup>3</sup>
NPK-P (OEL C)	0,002 mg/m <sup>3</sup>
Remark	I - dráždí sliznice (oči, dýchací cesty), respektive kůže, K, S - látka má senzibilizující účinek (s větou H317, H334), P - u látky nelze vyloučit závažné pozdní účinky (s větou H372, H373), V - vdechovatelná frakce aerosolu.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
<b>Denmark - Occupational Exposure Limits</b>	
Local name	Beryllium, pulver og forbindelser
OEL TWA [1]	0,001 mg/m <sup>3</sup> beregnet som Be
Remark	E (betyder, at stoffet har en EU-grænseværdi); K (betyder, at stoffet anses for at kunne være kræftfremkaldende). Hud- og luftvejssensibiliserende
Regulatory reference	BEK nr 1054 af 28/06/2022
<b>Estonia - Occupational Exposure Limits</b>	
Local name	Berüllium ja berülliumi anorgaanilised ühendid

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<b>beryllium nitrate (13597-99-4)</b>	
OEL TWA	0,0002 mg/m <sup>3</sup> (Kehtiv alates 11.07.2026) 0,0006 mg/m <sup>3</sup> (Kehtiv kuni 10.07.2026)
Remark	C (Kantserogeenne aine), S (Sensibiliseeriv aine), 6 (Metalliline berüllium ei ole sensibiliseeriv), 31 (Sissehingatav fraktsioon)
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
<b>Finland - Occupational Exposure Limits</b>	
Local name	Beryllium, metalli
HTP (OEL TWA) [1]	0,0001 mg/m <sup>3</sup>
HTP (OEL STEL)	0,0004 mg/m <sup>3</sup>
Remark	Iho
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystministeriö)
<b>France - Occupational Exposure Limits</b>	
Local name	Béryllium et composés, en Be
VME (OEL TWA)	0,002 mg/m <sup>3</sup>
Remark	Valeurs recommandées/admises; substance classée cancérogène de catégorie 1b
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016; Décret n° 2021-1849)
<b>Germany - Occupational Exposure Limits (TRGS 900)</b>	
Local name	Beryllium und seine anorganischen Verbindungen
AGW (OEL TWA) [1]	0,00006 mg/m <sup>3</sup> (A) 0,00014 mg/m <sup>3</sup> (E)
Peak exposure limitation factor	1(I)
Remark	AGS - Ausschuss für Gefahrstoffe; X - Krebs erzeugender Stoff der Kat. 1A oder 1B oder krebserzeugende Tätigkeit oder Verfahren nach § 2 Absatz 3 Nr. 4 der Gefahrstoffverordnung – es ist zusätzlich § 10 GefStoffV zu beachten; 10 - Der Arbeitsplatzgrenzwert bezieht sich auf den Elementgehalt des entsprechenden Metalls
Regulatory reference	TRGS900
<b>Hungary - Occupational Exposure Limits</b>	
Local name	BERILLIUM ÉS VEGYÜLETEI (Be-ra számítva)
AK (OEL TWA)	0,0006 mg/m <sup>3</sup>
Remark	k(1B) (rákkeltő); T (Azok az anyagok, amelyek egészségkárosító hatása TARTÓS expozíciót követően jelentkeznek)
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	Beryllium and beryllium compounds (as Be)
OEL TWA [1]	0,0002 mg/m <sup>3</sup>

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<b>beryllium nitrate (13597-99-4)</b>	
Remark	BOELV (Binding Occupational Exposure Limit Values), Sens. (In the workplace respiratory or dermal exposures to sensitising agents may occur. Sensitizers may evoke respiratory or dermal reactions, e.g. asthma, rhinitis and allergic contact dermatitis. The notation does not distinguish between respiratory or dermal sensitisation. Chemical agents that are sensitizers present special problems in the workplace. Should an employee become sensitised, subsequent exposure may cause intense responses, even at low exposure concentrations well below the OELV. Exposure should be eliminated or significantly reduced through control measures such as engineering and process controls and use of personal protective equipment (PPE))
Regulatory reference	Chemical Agents Code of Practice 2021
<b>Latvia - Occupational Exposure Limits</b>	
Local name	Berilijs un neorganiskie berilija savienojumi
OEL TWA	0,0002 mg/m <sup>3</sup> leelpojamā frakcija
Remark	Viela var izraisīt ādas un elpceļu sensibilizāciju. Carc. 1B
Regulatory reference	Ministru kabineta 2008. gada 29. septembra noteikumi Nr. 803 (Grozījumi Ministru kabineta 2021. gada 18. februārī noteikumiem Nr. 109)
<b>Poland - Occupational Exposure Limits</b>	
Local name	Beryl i jego związki nieorganiczne w przeliczeniu na Be
NDS (OEL TWA)	0,0002 mg/m <sup>3</sup>
Remark	Substancja może mieć działanie uczulające na skórę i układ oddechowy. Frakcja wdychalna – frakcja aerozolu wnikająca przez nos i usta, która po zdeponowaniu w drogach oddechowych stwarza zagrożenie dla zdrowia.
Regulatory reference	Dz. U. 2020 poz. 61
<b>Portugal - Occupational Exposure Limits</b>	
Local name	Berílio e compostos, expressos em Be
OEL TWA	0,00005 mg/m <sup>3</sup> I (Fração inalável)
Remark	A1 (Agente carcinogénico confirmado no Homem). Compostos solúveis: P, SC. Compostos solúveis e insolúveis: SR
Regulatory reference	Norma Portuguesa NP 1796:2014
<b>Romania - Occupational Exposure Limits</b>	
Local name	Beriliu și compuși (exprimați în Be)
OEL TWA	0,002 mg/m <sup>3</sup>
<b>Slovakia - Occupational Exposure Limits</b>	
Local name	Berýlium a anorganické zlúčeniny berýlia (ako Be)
NPHV (OEL TWA) [1]	0,0002 mg/m <sup>3</sup> inhalovateľná frakcia (TSH pre berýlium a jeho anorganické zlúčeniny má prechodné obdobie do 11. júla 2026)
Remark	Kategória karcinogénov 1B – Pravdepodobný karcinogén; S – senzibilizujúce účinky majú látky, ktoré spôsobujú oveľa vyšší výskyt precitlivosti alergického typu, ako je bežný. Pri práci s nimi je potrebná osobitná opatrnosť. Dodržiavanie technických smerných hodnôt nezaručuje, že nevzniknú u vnímavých osôb alergické reakcie. (Látka môže spôsobiť senzibilizáciu kože a dýchacích ciest).
Regulatory reference	Nariadenie vlády č. 356/2006 Z. z. (235/2020 Z. z.)

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<b>beryllium nitrate (13597-99-4)</b>	
<b>Slovenia - Occupational Exposure Limits</b>	
Local name	berilij in anorganske berilijeve spojine
OEL TWA	0,0002 mg/m <sup>3</sup> 0,0006 mg/m <sup>3</sup>
Remark	EU, SK (Snov lahko povzroči preobčutljivost kože), SD (Snov lahko povzroči preobčutljivost dihalnih poti)
Regulatory reference	Uradni list RS, št. 79/2019 z dne 24.12.2019
<b>Spain - Occupational Exposure Limits</b>	
Local name	Berilio
VLA-ED (OEL TWA) [1]	0,0002 mg/m <sup>3</sup> elemental 0,0002 mg/m <sup>3</sup> Compuestos de berilio, como Be, excepto los expresamente indicados
Remark	Sen (Sensibilizante. Véase Apartado 6), r (Esta sustancia tiene establecidas restricciones a la fabricación, la comercialización o el uso en los términos especificados en el "Reglamento (CE) n° 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).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
<b>Sweden - Occupational Exposure Limits</b>	
Local name	Beryllium, och föreningar (som Be)
NGV (OEL TWA)	0,002 mg/m <sup>3</sup> totaldamm
Remark	C (Ämnet är cancerframkallande. Risk för cancer finns även vid annan exponering än via inandning. För vissa cancerframkallande ämnen som inte har gränsvärden gäller förbud eller tillståndskrav enligt föreskrifterna om kemiska arbetsmiljörisker); S (Ämnet är sensibiliserande. Sensibiliserande ämnen kan ge allergi eller annan överkänslighet. Överkänslighetsbesvären drabbar främst huden eller andningsorganen. Överkänslighet innebär att man reagerar vid kontakt med ämnen som normalt inte ger besvär. Allergi är en undergrupp av överkänslighet som orsakas av reaktioner i kroppens immunsystem. Särskilt låga gränsvärden har fastställts för ämnen med mer uttalat luftvägssensibiliserande egenskaper. Några ämnen med starkt sensibiliserande egenskaper får endast hanteras efter tillstånd från Arbetsmiljöverket, se föreskrifterna om kemiska arbetsmiljörisker. Dessa ämnen har inga gränsvärden men i vissa fall riktvärden); 3 (Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagning av totaldamm och respirabelt damm, Metod nr 1010, Arbetarskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provtas inte den totala mängden luftburna partiklar med denna metod)
Regulatory reference	Hygieniska gränsvärden (AFS 2020:6)
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Beryllium
WEL TWA (OEL TWA) [1]	0,002 mg/m <sup>3</sup> Beryllium compounds (as Be); United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005)
Remark	Carc (Capable of causing cancer and/or heritable genetic damage. See paragraphs 49–51)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

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<b>beryllium nitrate (13597-99-4)</b>	
<b>Iceland - Occupational Exposure Limits</b>	
Local name	Beryllíum og ólífræn beryllíum efna-sambönd, reiknað sem beryllíum (Be)
OEL TWA	0,0006 mg/m <sup>3</sup> örfínt ryk (gildir til 11. júlí 2026) 0,0002 mg/m <sup>3</sup> örfínt ryk
Remark	H (efnið getur auðveldlega borist inn í líkamann gegnum húð), K (efnið er krabbameinsvaldandi). Ertir öndunarfæri
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 1137/2020)
<b>North Macedonia - Occupational Exposure Limits</b>	
Local name	Берилиум и неговите соединенија освен алуминиум берилиум силикат и оние што се утврдени други места во овој анекс
OEL TWA	0,005 mg/m <sup>3</sup> мелење; (I) инхалабилна фракција – дел на вкупно суспендирани материји, кои работникот ги вдишува 0,002 mg/m <sup>3</sup> друго; (I) инхалабилна фракција – дел на вкупно суспендирани материји, кои работникот ги вдишува
KTV	4
Short time value [mg/m <sup>3</sup> ]	0,02 mg/m <sup>3</sup>
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m <sup>3</sup> или во ml/m <sup>3</sup> (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (TDK) техничко достигнување на концентрацијата – е дадено за канцерогените супстанции и значи концентрација на супстанции во воздухот на работното место, кои можат да се достигнат со достапните техники
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	Beryllium und seine Verbindungen (als Be berechnet)
MAK (OEL TWA) [1]	0,002 mg/m <sup>3</sup>
Critical toxicity	Beryll / Beryll
Notation	S, C1 <sup>#</sup> <sub>A</sub> / S, C1 <sup>#</sup> <sub>A</sub>
Remark	e(mg/m <sup>3</sup> ) - S C1 <sub>A</sub> - Beryll <sup>KT</sup> - BG, HSE, NIOSH
Regulatory reference	www.suva.ch, 01.01.2023
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	Beryllium and compounds, as Be
ACGIH OEL TWA	0,00005 mg/m <sup>3</sup>
Remark (ACGIH)	Beryllium sens; chronic beryllium; Skin; DSEN; RSEN; A1 (Confirmed Human Carcinogen: The agent is carcinogenic to humans based on the weight of evidence from epidemiologic studies)

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<b>beryllium nitrate (13597-99-4)</b>	
Regulatory reference	ACGIH 2023
<b>cobalt dinitrate (10141-05-6)</b>	
<b>Austria - Occupational Exposure Limits</b>	
Local name	Cobalt und seine Verbindungen (Cobalt als Cobaltmetall, Cobaltoxid, Cobaltsulfid und Cobaltsulfat, Staub von Cobaltlegierungen)
TRK (OEL TWA)	0,5 mg/m <sup>3</sup> (Herstellung von Cobaltpulver und Katalysatoren, Hartmetallund) (als Co berechnet, E) 0,1 mg/m <sup>3</sup> (im übrigen) (als Co berechnet, E)
TRK (OEL STEL)	2 mg/m <sup>3</sup> (Herstellung von Cobaltpulver und Katalysatoren, Hartmetallund) (als Co berechnet, E, 4x 15(Miw) min) 0,4 mg/m <sup>3</sup> (im übrigen) (als Co berechnet, E, 4x 15(Miw) min)
Remark	H, Sah. Krebs erzeugend: III A2
Regulatory reference	BGBl. II Nr. 156/2021
<b>Austria - Biological limit values</b>	
Local name	Cobalt und seine Verbindungen
BLV	10 µg/l Parameter: Cobalt - Untersuchungsmaterial: Harn
Remark	Eignung mit vorzeitiger Folgeuntersuchung: Überschreiten des Grenzwertes für Cobalt im Harn. Bei Vorliegen einer wesentlichen Beeinträchtigung der Lungenfunktion. Diese liegt vor, wenn nach mehrmaliger Messung der beste gemessene Wert den für den/die Untersuchte/n maßgebenden Sollwert um 20% unterschreitet, bzw. den MEF50-Sollwert um 50% unterschreitet. Eine vorzeitige Folgeuntersuchung ist jedoch nicht erforderlich, wenn im Vergleich zu Vorbefunden der altersabhängige physiologische Abfall der 1 Sekundenkapazität (FEV1) von 40 ml/Jahr nicht überschritten wird oder aus der Beurteilung des Kurvenverlaufes der Forcierten Vitalkapazität (FVC) eine eingeschränkte Mitarbeit des Untersuchten/der Untersuchten ersichtlich ist. Der Zeitabstand zwischen den Untersuchungen beträgt bei Eignung: ein Jahr, bei Eignung mit vorzeitiger Folgeuntersuchung: sechs Monate.
Regulatory reference	Verordnung über die Gesundheitsüberwachung am Arbeitsplatz 2017 (VGÜ 2017)
<b>Belgium - Occupational Exposure Limits</b>	
Local name	Cobalt métal (fumées et poussières) (en Co) # Kobaltmetaal (stof en rook) als Co
OEL TWA	0,02 mg/m <sup>3</sup>
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
<b>Bulgaria - Occupational Exposure Limits</b>	
Local name	Кобалт
OEL TWA	0,1 mg/m <sup>3</sup> (и неорганични съединения (като кобалт))
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
<b>Croatia - Occupational Exposure Limits</b>	
Local name	Kobalt i spojevi (kao Co)
GVI (OEL TWA) [1]	0,1 mg/m <sup>3</sup>
Remark	Алерген (кожа (tvar koja može izazvati alergijsku reakciju na koži (H317)) i udisanje (tvar koja udisanjem može izazvati simptome alergije ili astme ili poteškoće s disanjem (H334)))

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<b>cobalt dinitrate (10141-05-6)</b>	
Regulatory reference	Pravidník o zaštitě radníka od izložnosti opasnim kemikalijama na radu, graničnim vrijednostima izložnosti i biološkim graničnim vrijednostima (NN 1/2021)
<b>Czech Republic - Occupational Exposure Limits</b>	
Local name	Kobalt a jeho sloučeniny, jako Co
PEL (OEL TWA)	0,05 mg/m <sup>3</sup>
NPK-P (OEL C)	0,1 mg/m <sup>3</sup>
Remark	S - látka má senzibilizující účinek (s větou H317, H334), V - vdechovatelná frakce aerosolu, K - karcinogen kategorie 1A a 1B (s větou H350, H350i), T - toxický pro reprodukci kategorie 1A a 1B (s větou H360 včetně příslušných kódů).
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
<b>Denmark - Occupational Exposure Limits</b>	
Local name	Cobalt, pulver, støv, røg og uorganiske forbindelser
OEL TWA [1]	0,01 mg/m <sup>3</sup> beregnet som Co
Remark	K (betyder, at stoffet anses for at kunne være kræftfremkaldende)
Regulatory reference	BEK nr 2203 af 29. november 2021
<b>Estonia - Occupational Exposure Limits</b>	
Local name	Koobalt ja anorgaanilised ühendid (arvutatud koobaltile)
OEL TWA	0,05 mg/m <sup>3</sup>
Remark	S (Sensibiliseeriv aine)
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
<b>Finland - Occupational Exposure Limits</b>	
Local name	Koboltti ja sen epäorgaaniset yhdisteet
HTP (OEL TWA) [1]	0,02 mg/m <sup>3</sup> Co
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
<b>Finland - Biological limit values</b>	
Local name	Koboltti ja sen epäorgaaniset yhdisteet
BLV	130 nmol/l Parametri: Virtsan koboltti - Näytteenottoajankohta: Työväiheen tai työvuoron päätyttyä työviikon tai altistumisjakson loputtua
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
<b>Germany - Occupational Exposure Limits (TRGS 910)</b>	
Local name	Cobalt und Cobaltverbindungen, als Carc.1A, Carc.1B eingestuft
Acceptable concentration (Weight conc.)	0,16 µg/m <sup>3</sup> (A)
Notes	b) Akzeptanzkonzentration assoziiert mit Risiko 4:10000
Tolerance concentration (Weight conc.)	5 µg/m <sup>3</sup> (A)
Remark	(4) Die Konzentrationen beziehen sich auf den Elementgehalt des entsprechenden Metalls.; Siehe TRGS 561
Regulatory reference	TRGS 910



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<b>cobalt dinitrate (10141-05-6)</b>	
<b>Greece - Occupational Exposure Limits</b>	
Local name	Κοβάλτιο μεταλλικό (σκόνη και καπνοί)
OEL TWA	0,1 mg/m <sup>3</sup>
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	KOBALT ÉS SZERVETLEN VEGYÜLETEI (Co-ra számítva)
AK (OEL TWA)	0,02 mg/m <sup>3</sup>
Remark	i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát), sz (Túlérzékenységet okozó (szenzibilizáló) tulajdonságú anyag. Az anyagra érzékeny egyéneken „túlérzékenységen” alapuló bőr-, légzőrendszeri, esetleg más szervet/szervrendszert károsító megbetegedést okozhat), BEM (biológiai expozíciós mutató); T (Azok az anyagok, amelyek egészségkárosító hatása TARTÓS expozíciót követően jelentkeznek)
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	Kobalt
BEI	0,01 mg/g creatinine Biológiai expozíciós (hatás) mutató: kobalt - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 0,019 μmol/mmol Creatinine Biológiai expozíciós (hatás) mutató: kobalt - 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	Cobalt & cobalt compounds (as Co)
OEL TWA [1]	0,02 mg/m <sup>3</sup>
Remark	Sens. (In the workplace respiratory or dermal exposures to sensitising agents may occur. Sensitizers may evoke respiratory or dermal reactions, e.g. asthma, rhinitis and allergic contact dermatitis. The notation does not distinguish between respiratory or dermal sensitisation. Chemical agents that are sensitizers present special problems in the workplace. Should an employee become sensitised, subsequent exposure may cause intense responses, even at low exposure concentrations well below the OELV. Exposure should be eliminated or significantly reduced through control measures such as engineering and process controls and use of personal protective equipment (PPE))
Regulatory reference	Chemical Agents Code of Practice 2021
<b>Ireland - Biological limit values</b>	
Local name	Cobalt
BMGV	15 μg/l Parameter: cobalt - Medium: urine - Sampling time: End of shift at end of workweek - Notations: B (Background) 1 μg/l Parameter: cobalt - Medium: blood - Sampling time: End of shift at end of workweek - Notations: Sq (Semi-quantitative)
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)

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<b>cobalt dinitrate (10141-05-6)</b>	
<b>Latvia - Occupational Exposure Limits</b>	
Local name	Kobalts
OEL TWA	0,5 mg/m <sup>3</sup>
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325
<b>Netherlands - Occupational Exposure Limits</b>	
Local name	Kobalt
TGG-8u (OEL TWA)	0,02 mg/m <sup>3</sup> (stof en rook) (als Co)
Regulatory reference	Arbeidsomstandighedenregeling 2022
<b>Poland - Occupational Exposure Limits</b>	
Local name	Kobalt metaliczny i jego związki nieorganiczne
NDS (OEL TWA)	0,02 mg/m <sup>3</sup> w przeliczeniu na Co
Regulatory reference	Dz. U. 2018 poz. 1286
<b>Portugal - Occupational Exposure Limits</b>	
Local name	Cobalto e compostos inorgânicos, expressos em Co
OEL TWA	0,02 mg/m <sup>3</sup>
Remark	A3 (Agente carcinogénico confirmado nos animais de laboratorio con relevância desconhecida no Homem); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014
<b>Portugal - Biological Exposure Indices</b>	
Local name	Cobalto
BEI	15 µg/l Parâmetro: Cobalto - Meio: urina - Momento da amostragem: Fim do turno no fim da semana de trabalho - Notação: Vb (Valor basal) 1 µg/l Parâmetro: Cobalto - Meio: sangue - Momento da amostragem: Fim do turno no fim da semana de trabalho - Notação: Vb (Valor basal), Sq (Semi quantitativo)
Regulatory reference	Norma Portuguesa NP 1796:2014
<b>Romania - Occupational Exposure Limits</b>	
Local name	Cobalt
OEL TWA	0,05 mg/m <sup>3</sup>
OEL STEL	0,1 mg/m <sup>3</sup>
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
<b>Romania - Biological limit values</b>	
Local name	Cobalt
BLV	15 µg/l Indicador biologic: Cobalt - Material biologic: urină - Momentul recoltării: sfârșit de săptămână 1 µg/l Indicador biologic: Cobalt - Material biologic: sânge - Momentul recoltării: sfârșit de săptămână
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 584/2018)
<b>Slovakia - Occupational Exposure Limits</b>	
Local name	Kobalt a jeho zlúčeniny (ako Co)

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<b>cobalt dinitrate (10141-05-6)</b>	
NPHV (OEL TWA) [1]	0,05 mg/m <sup>3</sup>
Remark	S - znamená, že faktor môže spôsobiť senzibilizáciu
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
<b>Spain - Occupational Exposure Limits</b>	
Local name	Cobalto elemental
VLA-ED (OEL TWA) [1]	0,02 mg/m <sup>3</sup>
Remark	VLB® (Agente químico que tiene Valor Límite Biológico), Sen (Sensibilizante).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
<b>Spain - Biological limit values</b>	
Local name	Cobalto y compuestos inorgánicos excepto óxidos
BLV	15 µg/l Parámetro: Cobalto - Medio: Orina - Momento de muestreo: Final de la semana laboral - Notas: F (Fondo. El indicador está generalmente presente en cantidades detectables en personas no expuestas laboralmente. Estos niveles de fondo están considerados en el valor VLB) 1 µg/l Parámetro: Cobalto - Medio: Sangre - Momento de muestreo: Final de la semana laboral - Notas: F (Fondo. El indicador está generalmente presente en cantidades detectables en personas no expuestas laboralmente. Estos niveles de fondo están considerados en el valor VLB), S (Significa que el indicador biológico es un indicador de exposición al agente químico en cuestión, pero la interpretación cuantitativa de su medida es ambigua (semicuantitativa). Estos indicadores biológicos deben utilizarse como una prueba de selección (screening) cuando no se pueda realizar una prueba cuantitativa o usarse como prueba de confirmación, si la prueba cuantitativa no es específica y el origen del determinante es dudoso)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
<b>Sweden - Occupational Exposure Limits</b>	
Local name	Kobolt, och oorg. föreningar (som Co)
NGV (OEL TWA)	0,02 mg/m <sup>3</sup> inhalerbar fraktion
Remark	C (Ämnet är cancerframkallande. Risk för cancer finns även vid annan exponering än via inandning. För vissa cancerframkallande ämnen som inte har gränsvärden gäller förbud eller tillståndskrav enligt föreskrifterna om kemiska arbetsmiljörisker); 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); S (Ämnet är sensibiliserande. Sensibiliserande ämnen kan ge allergi eller annan överkänslighet. Överkänslighetsbesvären drabbar främst huden eller andningsorganen. Överkänslighet innebär att man reagerar vid kontakt med ämnen som normalt inte ger besvär. Allergi är en undergrupp av överkänslighet som orsakas av reaktioner i kroppens immunsystem. Särskilt låga gränsvärden har fastställts för ämnen med mer uttalat luftvägssensibiliserande egenskaper. Några ämnen med starkt sensibiliserande egenskaper får endast hanteras efter tillstånd från Arbetsmiljöverket, se föreskrifterna om kemiska arbetsmiljörisker. Dessa ämnen har inga gränsvärden men i vissa fall riktvärden); 3 (Med inhalerbar fraktion menas den mängd partiklar, av totalmängden partiklar i luften, som man inandas genom näsa och mun)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Cobalt
WEL TWA (OEL TWA) [1]	0,1 mg/m <sup>3</sup> and Cobalt compounds (as Co)

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<b>cobalt dinitrate (10141-05-6)</b>	
Remark	Carc (cobalt dichloride and sulphate)(Capable of causing cancer and/or heritable genetic damage), Sen (Capable of causing occupational asthma)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Iceland - Occupational Exposure Limits</b>	
Local name	Kóbalt, ryk, reykur og ólífræn sambönd sem Co
OEL TWA	0,02 mg/m <sup>3</sup>
Remark	O (efnið er ofnæmisvaldandi)
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
<b>Switzerland - Occupational Exposure Limits</b>	
Local name	Cobalt et ses composés / Cobalt und seine Verbindungen [Kobalt]
MAK (OEL TWA) [1]	0,05 mg/m <sup>3</sup> (i) / (e)
Critical toxicity	Poumons, Asthme, Cœur / Lunge, Asthma, Herz
Notation	R, S, C1 <sub>B</sub> , M2, R1 <sub>BF</sub> , B / H, S, C1 <sub>B</sub> , M2, R1 <sub>BF</sub> , B
Remark	HSE, NIOSH, BG
Regulatory reference	www.suva.ch, 28.03.2022
<b>Switzerland - BAT</b>	
Local name	Cobalt et ses composés / Cobalt und seine Verbindungen
BAT	30 µg/l (509 nmol/l; Paramètre biologique: Cobalt; Substrat d'examen: Urine; Moment du prélèvement: Fin de l'exposition, de la période de travail.) / (509 nmol/l; Biologischer Parameter: Cobalt; Untersuchungsmaterial: Urin; Probenahmezeitpunkt: Expositionsende, bzw. Schichtende.)
Regulatory reference	Ordonnance 832.30 (OPA), article 50 al. 3, www.suva.ch/valeurs-limites / Verordnung 832.30 (VUV), Art. 50 Abs. 3, www.suva.ch/grenzwerte
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	Cobalt and inorganic compounds, as Co
ACGIH OEL TWA	0,02 mg/m <sup>3</sup> (I - Inhalable particulate matter)
Remark (ACGIH)	TLV® Basis: Pulm func changes. Notations: DSEN; RSEN; A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans); BEI
Regulatory reference	ACGIH 2022
<b>USA - ACGIH - Biological Exposure Indices</b>	
Local name	COBALT AND INORGANIC COMPOUNDS
BEI	15 µg/l Parameter: Cobalt - Medium: urine - Sampling time: End of shift at end of workweek - Notations: Ns
Regulatory reference	ACGIH 2019
<b>indium(III) nitrate, pentahydrate (13465-14-0)</b>	
<b>Austria - Occupational Exposure Limits</b>	
Local name	Indium und seine Verbindungen
MAK (OEL TWA)	0,1 mg/m <sup>3</sup>

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<b>indium(III) nitrate, pentahydrate (13465-14-0)</b>	
MAK (OEL STEL)	0,2 mg/m <sup>3</sup>
Regulatory reference	BGBI. II Nr. 156/2021 BGBI. II Nr. 156/2021
<b>Belgium - Occupational Exposure Limits</b>	
Local name	Indium et composés (en In) # Indium en -verbindingen (als In)
OEL TWA	0,1 mg/m <sup>3</sup>
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
<b>Croatia - Occupational Exposure Limits</b>	
Local name	Indij i spojevi (kao In)
GVI (OEL TWA) [1]	0,1 mg/m <sup>3</sup>
KGVI (OEL STEL)	0,3 mg/m <sup>3</sup>
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
<b>Denmark - Occupational Exposure Limits</b>	
Local name	Indium, pulver, støv og forbindelser
OEL TWA [1]	0,1 mg/m <sup>3</sup> beregnet som In
Regulatory reference	BEK nr 2203 af 29. november 2021
<b>Finland - Occupational Exposure Limits</b>	
Local name	Indium, metalli
HTP (OEL TWA) [1]	0,1 mg/m <sup>3</sup>
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
<b>Germany - Occupational Exposure Limits (TRGS 900)</b>	
Local name	Indium
AGW (OEL TWA) [1]	0,0001 mg/m <sup>3</sup> (A)
Peak exposure limitation factor	8(II)
Remark	AGS - Ausschuss für Gefahrstoffe; 10 - Der Arbeitsplatzgrenzwert bezieht sich auf den Elementgehalt des entsprechenden Metalls
Regulatory reference	TRGS900
<b>Greece - Occupational Exposure Limits</b>	
Local name	Ινδίο και ενώσεις του (ως In)
OEL TWA	1 mg/m <sup>3</sup>
OEL STEL	1 mg/m <sup>3</sup>
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	Indium & Compounds (as In)
OEL TWA [1]	0,1 mg/m <sup>3</sup>
OEL STEL	0,3 mg/m <sup>3</sup>

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<b>indium(III) nitrate, pentahydrate (13465-14-0)</b>	
Regulatory reference	Chemical Agents Code of Practice 2021
<b>Lithuania - Occupational Exposure Limits</b>	
Local name	Indis
IPRV (OEL TWA)	0,1 mg/m <sup>3</sup> (ir neorganiniai jo junginiai); (kaip In)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
<b>Portugal - Occupational Exposure Limits</b>	
Local name	Índio e compostos, expressos em In
OEL TWA	0,1 mg/m <sup>3</sup>
Regulatory reference	Norma Portuguesa NP 1796:2014
<b>Slovenia - Occupational Exposure Limits</b>	
Local name	indij in njegove spojine
OEL TWA	0,1 mg/m <sup>3</sup>
OEL STEL	0,0008 mg/m <sup>3</sup>
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
<b>Spain - Occupational Exposure Limits</b>	
Local name	Compuestos de indio
VLA-ED (OEL TWA) [1]	0,1 mg/m <sup>3</sup> como In
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
<b>Sweden - Occupational Exposure Limits</b>	
Local name	Indium och oorg föreningar (som In)
NGV (OEL TWA)	0,1 mg/m <sup>3</sup> totaldamm
Remark	3 (Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagnings av totaldamm och respirabelt damm, Metod nr 1010, Arbetarskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provtas inte den totala mängden luftburna partiklar med denna metod)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Indium
WEL TWA (OEL TWA) [1]	0,1 mg/m <sup>3</sup> and compounds (as In)
WEL STEL (OEL STEL)	0,3 mg/m <sup>3</sup> and compounds (as In)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Iceland - Occupational Exposure Limits</b>	
Local name	Índíum, duft, ryk og bindiefni, sem In
OEL TWA	0,1 mg/m <sup>3</sup>
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)

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<b>indium(III) nitrate, pentahydrate (13465-14-0)</b>	
<b>Norway - Occupational Exposure Limits</b>	
Local name	Indium og Indiumforb. (beregnet som In)
Grenseverdi (OEL TWA) [1]	0,1 mg/m <sup>3</sup>
Regulatory reference	FOR-2021-06-28-2248
<b>North Macedonia - Occupational Exposure Limits</b>	
Local name	индиум и негови соединенија
OEL TWA	0,1 mg/m <sup>3</sup> (l) инхалабилна фракција – дел на вкупно суспендирани материји, кои работникот ги вдишува
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	Indium und seine Verbindungen (als In berechnet)
MAK (OEL TWA) [1]	0,1 mg/m <sup>3</sup>
Critical toxicity	Poumons, Dent / Lunge, Zahn
Remark	e(mg/m <sup>3</sup> ) - Lunge, Zahn - NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	Indium and compounds, as In
ACGIH OEL TWA	0,1 mg/m <sup>3</sup>
Remark (ACGIH)	Pulm edema; pneumonitis
Regulatory reference	ACGIH 2022
<b>lead nitrate (10099-74-8)</b>	
<b>EU - Binding Occupational Exposure Limit (BOEL)</b>	
Local name	Inorganic lead and its compounds
BOEL TWA	0,15 mg/m <sup>3</sup>
Regulatory reference	DIRECTIVE (EU) 2022/431 (amending Directive 2004/37/EC)
<b>EU - Biological Limit Value (BLV)</b>	
Local name	Lead and its inorganic compounds
BLV	30 µg/100ml Parameter: Pb
Regulatory reference	SCOEL List of recommended health-based BLVs and BGVs
<b>Austria - Occupational Exposure Limits</b>	
Local name	Blei und seine Verbindungen außer Bleiarsenat, Bleichromat, Bleichromatoxid und Alkylbleiverbindungen
MAK (OEL TWA)	0,1 mg/m <sup>3</sup>
MAK (OEL STEL)	0,4 mg/m <sup>3</sup>
Remark	Fortpflanzungsgefährdend: F, D, L
Regulatory reference	BGBI. II Nr. 156/2021

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<b>lead nitrate (10099-74-8)</b>	
<b>Austria - Biological limit values</b>	
Local name	Blei
BLV	10 g/dl Parameter: Hämoglobin - Untersuchungsmaterial: Blut - Mitarbeiter/innen: Frauen 12 g/dl Parameter: Hämoglobin - Untersuchungsmaterial: Blut - Mitarbeiter/innen: Männer 30 % Parameter: Hämatokrit - Untersuchungsmaterial: Blut - Mitarbeiter/innen: Frauen 35 % Parameter: Hämatokrit - Untersuchungsmaterial: Blut - Mitarbeiter/innen: Männer 120 µg/100ml Parameter: RCB (EPP) - Untersuchungsmaterial: Blut 30 µg/100ml Parameter: Blei - Untersuchungsmaterial: Blut 10 mg/l Parameter: ALA-U - Untersuchungsmaterial: Harn - Mitarbeiter/innen: Davis; Männer, Frauen > 50 a 6 mg/l Parameter: ALA-U - Untersuchungsmaterial: Harn - Mitarbeiter/innen: Davis; Frauen ≤ 50 a
Remark	Eignung: Blut: Erythrozyten: 3,2 Millionen/µl für Frauen, 3,8 Millionen/µl für Männer Eignung mit vorzeitiger Folgeuntersuchung: Bei Überschreiten bzw. Unterschreiten der Grenzwerte im Blut oder im Harn. Der Zeitabstand zwischen den Untersuchungen beträgt bei Eignung: ein Jahr; für Glas- und Akkumulatorenarbeiten drei Monate; für Rostschutzarbeiten (einschließlich Trennen und Schneiden von rostschutzbeschichteten Teilen) vier Wochen, bei Eignung mit vorzeitiger Folgeuntersuchung: drei Monate; für Glas- und Akkumulatorenarbeiten sechs Wochen; für Rostschutzarbeiten zwei Wochen
Regulatory reference	Verordnung über die Gesundheitsüberwachung am Arbeitsplatz 2017 (VGÜ 2017)
<b>Belgium - Occupational Exposure Limits</b>	
Local name	Plomb inorg. (poussières et fumées) (en Pb) # Lood, anorganisch, stof en rook, als Pb
OEL TWA	0,15 mg/m <sup>3</sup> (Plomb inorg. (poussières et fumées) (en Pb)); Belgium; Time-weighted average exposure limit 8 h)
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
<b>Bulgaria - Occupational Exposure Limits</b>	
Local name	Олово
OEL TWA	0,05 mg/m <sup>3</sup> и неорганични съединения
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
<b>Bulgaria - Biological limit values</b>	
Local name	Олово
BLV	400 µg/l Биомаркер за експозиция/биомаркер за ефект: олово - Биологична среда: кръв - Време на пробовземане - Не се фиксира - Специфични ефекти: Няма 300 µg/l Биомаркер за експозиция/биомаркер за ефект: олово - Биологична среда: кръв - Време на пробовземане - Не се фиксира - Специфични ефекти: Няма - Тази стойност е определена за жени на възраст под 45 години (1/10)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
<b>Croatia - Occupational Exposure Limits</b>	
Local name	Olovo i njegovi anorganski spojevi (kao Pb)*
GVI (OEL TWA) [1]	0,15 mg/m <sup>3</sup>



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lead nitrate (10099-74-8)	
Remark	EU0 (naznaka da se radi o tvarima za koje su utvrđene obvezujuće granične vrijednosti izloženosti prema Direktivi 2003/18/ EC, Direktivi 99/38/EC i Direktivi 98/24/EC); T (otrovno); N (opasno za okoliš); Repr. kat. 1 (tvari za koje se zna da smanjuju plodnost kod ljudi i/ili – tvari za koje se zna da iskazuju razvojnu toksičnost kod ljudi); Repr. kat. 3 (tvari za koje se pretpostavlja da bi mogle smanjiti plodnost kod ljudi i/ili – tvari za koje se pretpostavlja da bi mogle iskazati razvojnu otrovnost kod ljudi)
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
Croatia - Biological limit values	
Local name	Olovo (elementarno i anorganski spojevi)
BLV	400 µg/l Karakteristični pokazatelj: olovo - Biološki uzorak: krv - Vrijeme uzorkovanja: nije kritično - Napomena: muškarci 300 µg/l Karakteristični pokazatelj: olovo - Biološki uzorak: krv - Vrijeme uzorkovanja: nije kritično - Napomena: žene <45 god 15 U/LE Karakteristični pokazatelj: dehidrataza δ – aminolevulinske kiseline - Biološki uzorak: krv - Vrijeme uzorkovanja: nije kritično 2,67 µmol/LE Karakteristični pokazatelj: protoporin u eritrocitima - Biološki uzorak: krv - Vrijeme uzorkovanja: nakon izloženosti tijekom 2-3 mjeseca (uzorak zaštititi od svjetla) - Napomena: interferencija manjka željeza (sideropenična anemija) 1,5 mg/LE Karakteristični pokazatelj: protoporin u eritrocitima - Biološki uzorak: krv - Vrijeme uzorkovanja: nakon izloženosti tijekom 2-3 mjeseca (uzorak zaštititi od svjetla) - Napomena: interferencija manjka željeza (sideropenična anemija)
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 91/2018)
Czech Republic - Occupational Exposure Limits	
Local name	Olovo
PEL (OEL TWA)	0,05 mg/m <sup>3</sup>
NPK-P (OEL C)	0,2 mg/m <sup>3</sup>
Remark	B - u látky je zaveden biologický expoziční test (BET) v moči nebo krvi, T - toxický pro reprodukci kategorie 1A a 1B (s větou H360 včetně příslušných kódů). (4) Pro hodnocení expozice u olova je rozhodující výsledek vyšetření plumbémie.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
Czech Republic - Biological limit values	
Local name	Olovo
BLV	15 mg/g creatinine Ukazatel: 5-Aminolevulová kyselina - Biologický vzorek: moči - Doba odběru: nerozhoduje 13 µmol/mmol Creatinine Ukazatel: 5-Aminolevulová kyselina - Biologický vzorek: moči - Doba odběru: nerozhoduje 0,2 mg/g creatinine Ukazatel: Koproporfyryn - Biologický vzorek: moči - Doba odběru: nerozhoduje 0,035 µmol/mmol Creatinine Ukazatel: Koproporfyryn - Biologický vzorek: moči - Doba odběru: nerozhoduje 0,4 mg/l Ukazatel: Olovo - Biologický vzorek: krvi - Doba odběru: nerozhoduje
Remark	Vhodné pro krátkodobé kontinuální expozice osob nepřekračující 30 kalendářních dnů.
Regulatory reference	Vyhláška č. 107/2013 Sb. (kterou se mění vyhláška č. 432/2003 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Bly, pulver, støv, røg og uorganiske forbindelser

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<b>lead nitrate (10099-74-8)</b>	
OEL TWA [1]	0,05 mg/m <sup>3</sup> beregnet som Pb
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 2203 af 29. november 2021
<b>Denmark - Biological limit values</b>	
Local name	Bly, pulver, støv, røg og uorganiske forbindelser
BLV	20 µg Pb/100 ml blood Den enkeltes blodniveau må ikke overskride værdien på bly
Regulatory reference	BEK nr 698 af 28/05/2020
<b>Estonia - Occupational Exposure Limits</b>	
Local name	Plii j aanorgaanilised ühendid, (arvutatudpliile) kogutolm
OEL TWA	0,1 mg/m <sup>3</sup>
Remark	R (Reproduktiivtoksiline aine), 7 (Pliile on kehtestatud ka bioloogiline piirnorm), 1 (Peentolm koosneb alla 2,5-mikromeetrise läbimõõduga osakestest, mis võivad jõuda koos sissehingatava õhuga kopsu alveoolidesse (respireeritav fraktsioon))
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
<b>Finland - Occupational Exposure Limits</b>	
Local name	Lyijy, metalli
HTP (OEL TWA) [1]	0,1 mg/m <sup>3</sup>
Remark	Melu
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden tutkimuskeskus)
<b>Finland - Biological limit values</b>	
Local name	Lyijy, metalli
BLV	1,4 µmol/l Parametri: Veren lyijy - Näytteenottoajankohta: Vuorokaudenajalla ei merkitystä
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden tutkimuskeskus)
<b>France - Occupational Exposure Limits</b>	
VME (OEL TWA)	0,1 mg/m <sup>3</sup> (Plomb métallique et composés, en Pb; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante)
<b>Germany - Biological limit values (TRGS 903)</b>	
Local name	Blei
Biological limit value	150 µg/l Parameter: Blei - Untersuchungsmaterial: B = Vollblut - Probenahmezeitpunkt: a) keine Beschränkung - Festlegung/Begründung: 05/2017 AGS
Regulatory reference	TRGS 903
<b>Gibraltar - Occupational Exposure Limits</b>	
Local name	Inorganic lead and its compounds
OEL TWA	0,15 mg/m <sup>3</sup>
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
<b>Greece - Occupational Exposure Limits</b>	
Local name	Ανόργανος μόλυβδος και ενώσεις του
OEL TWA	0,15 mg/m <sup>3</sup>

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<b>lead nitrate (10099-74-8)</b>	
Regulatory reference	Π.Δ. 339/2001 - 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	ÓLOM és SZERVETLEN VEGYÜLETEI (Pb-ra számítva)
AK (OEL TWA)	0,15 mg/m <sup>3</sup>
Remark	i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát), BEM (biológiai expozíciós mutató), BHM (biológiai hatásmutató); T (Azok az anyagok, amelyek egészségkárosító hatása TARTÓS expozíciót követően jelentkezik)
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	Ólom (szervetlen)
BEI	300 µg/l Biológiai expozíciós mutató: Ólom - Biológiai minta: vérben - Mintavétel ideje: n.k. (nem kritikus) - Érintettek köre: férfiak és 45 évnél idősebb nők 1,5 µmol/l Biológiai expozíciós mutató: Ólom - Biológiai minta: vérben - Mintavétel ideje: n.k. (nem kritikus) - Érintettek köre: férfiak és 45 évnél idősebb nők 200 µg/l Biológiai expozíciós mutató: Ólom - Biológiai minta: vérben - Mintavétel ideje: n.k. (nem kritikus) - Érintettek köre: 45 évnél fiatalabb nők 1 µmol/l Biológiai expozíciós mutató: Ólom - Biológiai minta: vérben - Mintavétel ideje: n.k. (nem kritikus) - Érintettek köre: 45 évnél fiatalabb nők 100 Biológiai hatás mutató: Cink-protoporfirin előszűrésre - Biológiai minta: vérben - Mintavétel ideje: három hónapnál hosszabb expozíció esetén alkalmazható - Érintettek köre: férfiak és 45 évnél idősebb nők - Megjegyzés: határérték túllépése esetén a vérólom koncentráció meghatározása kötelező 80 Biológiai hatás mutató: Cink-protoporfirin előszűrésre - Biológiai minta: vérben - Mintavétel ideje: három hónapnál hosszabb expozíció esetén alkalmazható - Érintettek köre: 45 évnél fiatalabb nők - Megjegyzés: határérték túllépése esetén a vérólom koncentráció meghatározása kötelező
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	Lead and its compounds (except tetraethyl lead)
OEL TWA [1]	0,15 mg/m <sup>3</sup>
Remark	Repr.1A (Substances which are known human reproductive toxicants), BOELV (Binding Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
<b>Ireland - Biological limit values</b>	
Local name	Lead and its ionic compounds
BLV	70 µg/100ml Parameter: lead - Medium: blood - Notations: Absorption spectrometry or a method giving equivalent results
Remark	Health surveillance is carried out if: a. exposure to a concentration of lead in air is greater than 0.075mg/m <sup>3</sup> , calculated as a time-weighted average over 40 hours per week, or b. a blood-lead level greater than 40µg Pb/100 ml blood is measured in individual employees.
Regulatory reference	S.I. No. 619/2001 - Safety, Health and Welfare At Work (Chemical Agents) Regulations, 2001

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<b>lead nitrate (10099-74-8)</b>	
<b>Latvia - Occupational Exposure Limits</b>	
Local name	Svinsuntāneorganiskie savienojumi,(pēcsvina)
OEL TWA	0,005 mg/m <sup>3</sup>
OEL STEL	0,01 mg/m <sup>3</sup>
Remark	letekme uz dzirdi
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2018. gada 10. jūlijā noteikumiem Nr. 407)
<b>Latvia - Biological Exposure Indices</b>	
Local name	Svinam
BEI	30 µg/100ml Svinam asinīs (references lielums – svina koncentrācijai asinīs aroda neekspozētai populācijai ≤ 10 µg/100 mL). Atkārtota asins analīze tiek veikta pēc diviem mēnešiem, ja svina līmenis ir 30–60 µg/100 mL. Ja svina līmenis ir > 60 µg/100 mL, nepieciešama pārceļšana darbā, kur nav saskares ar svinu, veselības aprūpe un atkārtota Pb līmeņa kontrole 100 µg/g creatinine Koproporfirīns urīnā (references lielums 22-57 µg/g kreatinīna) 5 mg/g creatinine Aminolevulīnskābe urīnā (references lielums 0,5-2,5 mg/g kreatinīna)
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2021. gada 18. februārī noteikumiem Nr. 110)
<b>Netherlands - Occupational Exposure Limits</b>	
Local name	Lood
TGG-8u (OEL TWA)	0,15 mg/m <sup>3</sup> (en anorganische loodverbindingen)
Remark	(zie tevens artikel 4.19a Arbeidsomstandighedenregeling)
Regulatory reference	Arbeidsomstandighedenregeling 2022
<b>Netherlands - Biological limit values</b>	
Local name	Lood en anorganische loodverbindingen
BLV	70 µg/100ml Het loodgehalte in het bloed
Regulatory reference	Arbeidsomstandighedenregeling 2020
<b>Poland - Occupational Exposure Limits</b>	
Local name	Ołów i jego związki nieorganiczne w przeliczeniu na Pb
NDS (OEL TWA)	0,05 mg/m <sup>3</sup>
Remark	Frakcja wdychalna – frakcja aerozolu wnikająca przez nos i usta, która po zdeponowaniu w drogach oddechowych stwarza zagrożenie dla zdrowia.
Regulatory reference	Dz. U. 2018 poz. 1286
<b>Portugal - Occupational Exposure Limits</b>	
Local name	Chumbo elementar e compostos inorgânicos , expressos em Pb
OEL TWA	0,05 mg/m <sup>3</sup>
Remark	A3 (Agente carcinogénico confirmado nos animais de laboratório con relevância desconhecida no Homem); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014

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lead nitrate (10099-74-8)	
<b>Portugal - Biological Exposure Indices</b>	
Local name	Chumbo
BEI	30 µg/100ml Parâmetro: Chumbo - Meio: sangue - Momento da amostragem: Não crítico
Remark	Mulheres em idade de gestação, cujo teor de chumbo no sangue exceda 10 µg/dl, estão em risco de gerar uma criança com um teor de chumbo no sangue superior ao valor de referência de 10 µg/dl do CDC ("Centre for Disease Control"). Se o teor de chumbo no sangue dessas crianças permanecer elevado, podem estar sujeitas a um risco agravado de contrair défices cognitivos. O teor de chumbo no sangue dessas crianças deve ser monitorizado e devem ser tomadas medidas para que a exposição ao chumbo seja reduzida
Regulatory reference	Norma Portuguesa NP 1796:2014
<b>Romania - Occupational Exposure Limits</b>	
Local name	Plumb și compuși (în afară de PbS)
OEL TWA	0,05 mg/m <sup>3</sup>
OEL STEL	0,1 mg/m <sup>3</sup>
<b>Slovakia - Occupational Exposure Limits</b>	
Local name	Olovo a jeho anorganické zlúčeniny (ako Pb)
NPHV (OEL TWA) [1]	0,15 mg/m <sup>3</sup> respirabilná frakcia 0,5 mg/m <sup>3</sup> inhalovateľná frakcia
Remark	Olovo je látka s kumulatívnymi a systémovými účinkami. Preto sa musí monitorovanie ovzdušia doplniť zdravotným dohľadom vrátane biologického monitorovania podľa § 12 a prílohy č. 2.
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
<b>Slovakia - Biological limit values</b>	
Local name	Olovo a jeho zlúčeniny (okrem chrómanu olovnatého, chrómanu arzenitého a alkylovaných zlúčenín)
BLV	400 µg/l Zisťovaný faktor: Olovo - Vyšetovaný materiál: krv - Čas odberu vzorky: a) žiadne obmedzenie 100 µg/l Zisťovaný faktor: Olovo - Vyšetovaný materiál: krv - Čas odberu vzorky: a) žiadne obmedzenie - Poznámka: ženy < 45 r. 15 mg/l Zisťovaný faktor: delta-Aminolevulová kyselina - Vyšetovaný materiál: moč - Čas odberu vzorky: a) žiadne obmedzenie 10,03 mg/g creatinine Zisťovaný faktor: delta-Aminolevulová kyselina - Vyšetovaný materiál: moč - Čas odberu vzorky: a) žiadne obmedzenie 6 mg/l Zisťovaný faktor: delta-Aminolevulová kyselina - Poznámka: ženy < 45 r. 4,03 mg/g creatinine Zisťovaný faktor: delta-Aminolevulová kyselina - Poznámka: ženy < 45 r. 0,3 mg/l Zisťovaný faktor: Koproporfyrín - Vyšetovaný materiál: moč - Čas odberu vzorky: a) žiadne obmedzenie 0,2 mg/g creatinine Zisťovaný faktor: Koproporfyrín - Vyšetovaný materiál: moč - Čas odberu vzorky: a) žiadne obmedzenie
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (Zmena: 471/2011 Z.z.)
<b>Slovenia - Occupational Exposure Limits</b>	
Local name	svinec in njegove spojine (računano kot Pb) razen svinčevega arzenata, svinčevega kromata in alkilsvinčevih spojin
OEL TWA	0,1 mg/m <sup>3</sup>

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<b>lead nitrate (10099-74-8)</b>	
OEL STEL	0,4 mg/m <sup>3</sup>
Remark	BAT (Biološka mejna vrednost), EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
<b>Slovenia - Biological limit values</b>	
Local name	svinec
BLV	400 µg/l Parameter: svinec - Biološki vzorec: kri - Čas vzorčenja: ni pomembno - Opombe: moški 300 µg/l Parameter: svinec - Biološki vzorec: kri - Čas vzorčenja: ni pomembno - Opombe: ženske pod 45 let
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
<b>Spain - Occupational Exposure Limits</b>	
Local name	Plomo
VLA-ED (OEL TWA) [1]	0,15 mg/m <sup>3</sup> elemental 0,15 mg/m <sup>3</sup> Compuestos inorgánicos de plomo, como Pb
Remark	k (Véase el Real Decreto 374/2001, de 6 de abril (BOE nº 104 de 1 de mayo de 2001), sobre la protección de la salud y seguridad de los trabajadores contra los riesgos relacionados con los agentes químicos durante el trabajo), VLB® (Agente químico que tiene Valor Límite Biológico específico en este documento), TR1A (Cuando las pruebas utilizadas para la clasificación procedan principalmente de datos en humanos).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
<b>Spain - Biological limit values</b>	
Local name	Plomo y sus derivados iónicos
BLV	70 µg/dl Parámetro: Plomo - Medio: Sangre - Momento de muestreo: No crítico - Notas: k
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
<b>Sweden - Occupational Exposure Limits</b>	
Local name	Bly, och oorg. föreningar (som Pb)
NGV (OEL TWA)	0,05 mg/m <sup>3</sup> respirabelt damm 0,1 mg/m <sup>3</sup> inhalerbart damm
Remark	B (Ämnet kan orsaka hörselskada. Exponering för ämnet nära det befintliga yrkeshygieniska gränsvärdet och vid samtidig exponering för buller nära insatsvärdet 80 dB kan orsaka hörselskada); M (Medicinska kontroller kan krävas för hantering av ämnet. Se vidare föreskrifterna om medicinska kontroller i arbetslivet. För vissa ämnen ska arbetsgivaren erbjuda läkarundersökning och för andra ämnen gäller krav på periodisk läkarundersökning och tjänstbarhetsbedömning); R (Ämnet är reproduktionsstörande. Med reproduktionsstörande ämnen avses ämnen som kan medföra skadliga effekter på fortplantningsförmågan eller avkommans utveckling); 3 (Med inhalerbar fraktion menas den mängd partiklar, av totalmängden partiklar i luften, som man inandas genom näsa och mun. Den respirabla fraktionen är de inhalerbara partiklar som når längst ner i luftvägarna, till alveolerna i lungorna); 14 (För bly och kadmium finns biologiska gränsvärden. Även kvicksilver kan mätas biologiskt)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
<b>Sweden - Biological limit values</b>	
Local name	Bly

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lead nitrate (10099-74-8)	
BLV	0,5 µmol/l Blyhalten i blod för kvinnor under 50 år 1,5 µmol/l Blyhalten i blod för kvinnor som har fyllt 50 år och män
Regulatory reference	Medicinska kontroller i arbetslivet (AFS 2019:3)
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	15 mg/cm <sup>3</sup> Lead other than lead alkyls; United Kingdom; Time-weighted average exposure limit 8 h; Occupational exposure limit (Control of lead at work)
Iceland - Occupational Exposure Limits	
Local name	Blý, duft, ryk, reykur, ólífræn sambönd, sem Pb
OEL TWA	0,05 mg/m <sup>3</sup>
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
North Macedonia - Occupational Exposure Limits	
Local name	Олово и неговите соединенија (сметано како Pb) освен оловен арсенат, олово хромат и алкилоловни соединенија
OEL TWA	0,1 mg/m <sup>3</sup> (l) инхалабилна фракција – дел на вкупно суспендирани материји, кои работникот ги вдишува
KTV	4
Short time value [mg/m <sup>3</sup> ]	0,4 mg/m <sup>3</sup>
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m <sup>3</sup> или во ml/m <sup>3</sup> (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (ВАТ) 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)
Switzerland - Occupational Exposure Limits	
Local name	Blei und seine Verbindungen, außer Alkylverbindungen (als Pb berechnet)
MAK (OEL TWA) [1]	0,1 mg/m <sup>3</sup>
KZGW (OEL STEL)	0,8 mg/m <sup>3</sup>
Critical toxicity	Sang, SN / Blut, NS
Notation	C2, R1 <sub>AD</sub> , R2 <sub>F</sub> , SS <sub>B</sub> , B / C2, R1 <sub>AD</sub> , R2 <sub>F</sub> , SS <sub>B</sub> , B
Remark	e(mg/m <sup>3</sup> ) - B C2 R2 <sub>F</sub> R1 <sub>AD</sub> SS <sub>B</sub> - NS, Blut - HSE, NIOSH
Regulatory reference	www.suva.ch, 28.03.2022

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<b>lead nitrate (10099-74-8)</b>	
<b>Switzerland - BAT</b>	
Local name	Plomb et ses composés (sauf les alcoylés) / Blei und seine Verbindungen (ausser Alkylverbindungen)
BAT	100 µg/l (0.48 µmol/l; Paramètre biologique: Plomb (femmes < 45 ans); Substrat d'examen: Sang complet; Moment du prélèvement: Indifférent.) / (0.48 µmol/l; Biologischer Parameter: Blei (Frauen < 45 Jahre); Untersuchungsmaterial: Vollblut; Probennahmezeitpunkt: Keine Beschränkung.) 400 µg/l (1.93 µmol/l; Paramètre biologique: Plomb (hommes; femmes > 45 ans); Substrat d'examen: Sang complet; Moment du prélèvement: Indifférent.) / (1.93 µmol/l; Biologischer Parameter: Blei (Männer; Frauen > 45 Jahre); Untersuchungsmaterial: Vollblut; Probennahmezeitpunkt: Keine Beschränkung.)
Remark	Influence de l'environnement. / Umwelteinflüsse.
Regulatory reference	Ordonnance 832.30 (OPA), article 50 al. 3, <a href="http://www.suva.ch/valeurs-limites">www.suva.ch/valeurs-limites</a> / Verordnung 832.30 (VUV), Art. 50 Abs. 3, <a href="http://www.suva.ch/grenzwerte">www.suva.ch/grenzwerte</a>
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	Lead and inorganic compounds, as Pb
ACGIH OEL TWA	0,05 mg/m <sup>3</sup>
Remark (ACGIH)	TLV® Basis: CNS & PNS impair; hematologic eff. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans); BEI
Regulatory reference	ACGIH 2022
<b>thallium nitrate (10102-45-1)</b>	
<b>Austria - Occupational Exposure Limits</b>	
Local name	Thalliumverbindungen lösliche
MAK (OEL TWA)	0,1 mg/m <sup>3</sup> (als TI berechnet, E)
MAK (OEL STEL)	1 mg/m <sup>3</sup> (als TI berechnet, E, 1x 30(Miw) min)
Regulatory reference	BGBl. II Nr. 156/2021
<b>Belgium - Occupational Exposure Limits</b>	
Local name	Thallium (et composés) (en TI) # Thallium (en verbindingen) (als TI)
OEL TWA	0,02 mg/m <sup>3</sup>
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.
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
<b>Bulgaria - Occupational Exposure Limits</b>	
Local name	Талий
OEL TWA	0,05 mg/m <sup>3</sup> и неговите съединения (като талий)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)



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<b>thallium nitrate (10102-45-1)</b>	
<b>Czech Republic - Occupational Exposure Limits</b>	
Local name	Thallium
PEL (OEL TWA)	0,1 mg/m <sup>3</sup>
NPK-P (OEL C)	0,5 mg/m <sup>3</sup>
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
<b>Denmark - Occupational Exposure Limits</b>	
Local name	Thalliumforbindelser, opløselige
OEL TWA [1]	0,1 mg/m <sup>3</sup> beregnet som Tl
Remark	H (betyder, at stoffet kan optages gennem huden)
Regulatory reference	BEK nr 1054 af 28/06/2022
<b>Finland - Occupational Exposure Limits</b>	
Local name	Tallium
HTP (OEL TWA) [1]	0,1 mg/m <sup>3</sup>
Remark	Iho
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
<b>France - Occupational Exposure Limits</b>	
Local name	Thallium
VME (OEL TWA)	0,1 mg/m <sup>3</sup>
Remark	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
<b>Ireland - Occupational Exposure Limits</b>	
Local name	Thallium and compounds (as Tl)
OEL TWA [1]	0,02 mg/m <sup>3</sup>
Remark	Sk (Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body)
Regulatory reference	Chemical Agents Code of Practice 2021
<b>Poland - Occupational Exposure Limits</b>	
Local name	Tal i jego związku w przeliczeniu na Tl
NDS (OEL TWA)	0,1 mg/m <sup>3</sup>
NDSch (OEL STEL)	0,3 mg/m <sup>3</sup>
Regulatory reference	Dz. U. 2018 poz. 1286
<b>Portugal - Occupational Exposure Limits</b>	
Local name	Tálio, e compostos solúveis, expressos em Tl
OEL TWA	0,02 mg/m <sup>3</sup> I (Fração inalável)
Remark	P (Toxicidade percutânea)
Regulatory reference	Norma Portuguesa NP 1796:2014

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<b>thallium nitrate (10102-45-1)</b>	
<b>Romania - Occupational Exposure Limits</b>	
Local name	Thaliu (compuși solubili)
OEL STEL	0,05 mg/m <sup>3</sup>
<b>Slovakia - Occupational Exposure Limits</b>	
Local name	Tálium a jeho rozpustné zlúčeniny (ako Tl)
NPHV (OEL TWA) [1]	0,1 mg/m <sup>3</sup>
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
<b>Spain - Occupational Exposure Limits</b>	
Local name	Talio
VLA-ED (OEL TWA) [1]	0,1 mg/m <sup>3</sup> elemental 0,1 mg/m <sup>3</sup> Compuestos solubles de talio, como Tl
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. Para más información véase el Apartado 5 de este documento), c (Los términos "soluble" e "insoluble" se entienden con referencia al agua).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Thallium
WEL TWA (OEL TWA) [1]	0,1 mg/m <sup>3</sup> soluble compounds (as Tl)
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)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Iceland - Occupational Exposure Limits</b>	
Local name	Þallíumsambönd, uppleysanleg, sem Tl
OEL TWA	0,1 mg/m <sup>3</sup>
Remark	H
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	Thallium og løselige thalliumforb. (beregnet som Tl)
Grenseverdi (OEL TWA) [1]	0,1 mg/m <sup>3</sup>
Remark	H: Kjemikalier som kan tas opp gjennom huden.
Regulatory reference	FOR-2021-06-28-2248
<b>Switzerland - Occupational Exposure Limits</b>	
Local name	Thallium, composés solubles / Thalliumverbindungen, löslich
MAK (OEL TWA) [1]	0,1 mg/m <sup>3</sup> (i) / (e)
Critical toxicity	TGI, SNP / GIT, PNS
Notation	R / H

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thallium nitrate (10102-45-1)	
Remark	NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2023
USA - ACGIH - Occupational Exposure Limits	
Local name	Thallium and compounds, as Tl
ACGIH OEL TWA	0,02 mg/m <sup>3</sup> (I - Inhalable particulate matter)
Remark (ACGIH)	TLV® Basis: GI dam; peripheral neuropathy. Notations: Skin
Regulatory reference	ACGIH 2023

### 8.1.2. Recommended monitoring procedures

No additional information available

### 8.1.3. Air contaminants formed

No additional information available

### 8.1.4. DNEL and PNEC

No additional information available

### 8.1.5. Control banding

No additional information available

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

#### Appropriate engineering controls:

Ensure good ventilation of the work station.

### 8.2.2. Personal protection equipment

#### Personal protective equipment:

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

#### Personal protective equipment symbol(s):



#### 8.2.2.1. Eye and face protection

##### Eye protection:

Safety glasses

#### 8.2.2.2. Skin protection

##### Skin and body protection:

Wear suitable protective clothing

##### Hand protection:

Protective gloves

#### 8.2.2.3. Respiratory protection

##### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

#### 8.2.2.4. Thermal hazards

No additional information available

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### 8.2.3. Environmental exposure controls

#### Environmental exposure controls:

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

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

Physical state	: Liquid
Colour	: Not available
Odour	: Not available
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Non flammable.
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: Not available
Solubility	: Miscible with water.
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: 1,06
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

### 9.2. Other information

#### 9.2.1. Information with regard to physical hazard classes

No additional information available

#### 9.2.2. Other safety characteristics

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 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

None under recommended storage and handling conditions (see section 7).

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### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

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

## SECTION 11: Toxicological information

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

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

#### nitric acid (7697-37-2)

LC50 Inhalation - Rat	> 2,65 mg/L air
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#### barium nitrate (10022-31-8)

LD50 oral rat	300 (50 – 300) mg/kg
LD50 dermal rat	> 2000 mg/kg bodyweight
LC50 Inhalation - Rat	> 1 mg/l/4h
LC50 Inhalation - Rat (Dust/Mist)	> 1,1 mg/l

#### cobalt dinitrate (10141-05-6)

LD50 oral rat	691 mg/kg
LD50 dermal rat	> 2000 mg/kg bodyweight

#### indium(III) nitrate, pentahydrate (13465-14-0)

LD50 oral rat	> 2000 mg/kg
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#### lead nitrate (10099-74-8)

LD50 oral rat	4665 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 Inhalation - Rat	> 5,05 mg/L air

#### thallium nitrate (10102-45-1)

LD50 oral rat	15 mg/kg
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Skin corrosion/irritation : Causes skin irritation.

#### nitric acid (7697-37-2)

pH	< 1
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#### barium nitrate (10022-31-8)

pH	5 – 8
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#### cobalt dinitrate (10141-05-6)

pH	4
----	---

#### lead nitrate (10099-74-8)

pH	3 – 4 (20 %)
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# Tuning Solution for ICP/MS 9 components; 10mg/l each of Ba ; Be ; Ce ; Co ; In ; Mg ; Pb ; Th ; Tl in HNO3 2% Equivalent to Agilent Ref: 190024400

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Serious eye damage/irritation : Causes serious eye irritation.

<b>nitric acid (7697-37-2)</b>	
pH	< 1
<b>barium nitrate (10022-31-8)</b>	
pH	5 – 8
<b>cobalt dinitrate (10141-05-6)</b>	
pH	4
<b>lead nitrate (10099-74-8)</b>	
pH	3 – 4 (20 %)
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
<b>beryllium nitrate (13597-99-4)</b>	
IARC group	1 - Carcinogenic to humans
<b>cobalt dinitrate (10141-05-6)</b>	
IARC group	2B - Possibly carcinogenic to humans
<b>lead nitrate (10099-74-8)</b>	
IARC group	2A - Probably carcinogenic to humans
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
<b>beryllium nitrate (13597-99-4)</b>	
STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure	: Not classified
<b>nitric acid (7697-37-2)</b>	
NOAEL (oral, rat, 90 days)	1500 mg/kg bodyweight
NOAEC (inhalation, rat, gas, 90 days)	2,15 ppm
<b>beryllium nitrate (13597-99-4)</b>	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
<b>cobalt dinitrate (10141-05-6)</b>	
LOAEC (inhalation, rat,dust/mist/fume, 90 days)	0,31 mg/L air
NOAEL (oral, rat, 90 days)	3 mg/kg bodyweight
<b>lead nitrate (10099-74-8)</b>	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
<b>thallium nitrate (10102-45-1)</b>	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified
<b>nitric acid (7697-37-2)</b>	
Viscosity, kinematic	0,595 mm <sup>2</sup> /s

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### 11.2. Information on other hazards

No additional information available

## SECTION 12: Ecological information

### 12.1. Toxicity

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

#### nitric acid (7697-37-2)

EC50 - Crustacea [1]	180 mg/l Daphnia magna (Water flea)
Threshold limit - Algae [1]	> 19 mg/l

#### barium nitrate (10022-31-8)

LC50 - Fish [1]	> 3,5 mg/l Brachydanio rerio (zebra-fish)
EC50 - Crustacea [1]	16 – 18 mg/l Ceriodaphnia dubia
EC50 72h - Algae [1]	> 1,15 mg/l Pseudokirchneriella subcapitata
NOEC (chronic)	2,9 mg/l Daphnia magna (Water flea)

#### beryllium nitrate (13597-99-4)

LC50 - Fish [1]	8 mg/l
EC50 - Crustacea [1]	18 mg/l (24h)

#### cobalt dinitrate (10141-05-6)

LC50 - Fish [1]	1,5 mg/l (mg Co/L) Oncorhynchus mykiss (Rainbow trout)
EC50 - Crustacea [1]	5,89 mg/l Daphnia magna (Water flea)

#### lead nitrate (10099-74-8)

LC50 - Fish [1]	40,8 – 3597,9 µg/l (µg Pb/L) Pimephales promelas (Fathead minnow)
EC50 - Crustacea [1]	26,4 µg/l (µg Pb/L) Ceriodaphnia dubia

#### thallium nitrate (10102-45-1)

LC50 - Fish [1]	180 mg/l
EC50 - Crustacea [1]	1,6 mg/l

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

#### nitric acid (7697-37-2)

Partition coefficient n-octanol/water (Log Pow)	-2,3
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barium nitrate (10022-31-8)	
Bioaccumulative potential	Not bioaccumulative.
beryllium nitrate (13597-99-4)	
Bioaccumulative potential	Not bioaccumulative.
lead nitrate (10099-74-8)	
Bioaccumulative potential	bioaccumulable.
thallium nitrate (10102-45-1)	
Partition coefficient n-octanol/water (Log Pow)	0,21

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

Component	
nitric acid (7697-37-2)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
barium nitrate (10022-31-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
beryllium nitrate (13597-99-4)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
cobalt dinitrate (10141-05-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
indium(III) nitrate, pentahydrate (13465-14-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
lead nitrate (10099-74-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
thallium nitrate (10102-45-1)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

### 12.6. Endocrine disrupting properties

No additional information available

### 12.7. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.  
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

## SECTION 14: Transport information

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



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

### 14.6. Special precautions for user

#### Overland transport

Not regulated

#### Transport by sea

Not regulated

#### Air transport

Not regulated

#### Inland waterway transport

Not regulated

#### Rail transport

Not regulated

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

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

##### REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
28.	cobalt dinitrate	Substances which are classified as carcinogen category 1A or 1B in Part 3 of Annex VI to Regulation (EC) No 1272/2008 and are listed in Appendix 1 or Appendix 2, respectively.

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EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
3(a)	nitric acid	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F
3(b)	Tuning Solution for ICP/MS 9 components; 10mg/l each of Ba ; Be ; Ce ; Co ; In ; Mg ; Pb ; Th ; Tl in HNO3 2% Equivalent to Agilent Ref: 190024400 ; nitric acid	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
30.	cobalt dinitrate	Substances which are classified as reproductive toxicant category 1A or 1B in Part 3 of Annex VI to Regulation (EC) No 1272/2008 and are listed in Appendix 5 or Appendix 6, respectively.
63.	lead nitrate	Lead and its compounds

### REACH Annex XIV (Authorisation List)

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

### REACH Candidate List (SVHC)

Contains substance(s) listed on the REACH Candidate List in concentrations  $\geq 0.1\%$  or SCL: Cobalt(II) dinitrate (EC 233-402-1, CAS 10141-05-6), Lead dinitrate (EC 233-245-9, CAS 10099-74-8)

### PIC Regulation (Prior Informed Consent)

Contains substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals): lead dinitrate (10099-74-8)

### POP Regulation (Persistent Organic Pollutants)

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

### Ozone Regulation (1005/2009)

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

### Explosives Precursors Regulation (2019/1148)

Contains substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

### ANNEX I RESTRICTED EXPLOSIVES PRECURSORS

List of substances which shall not be made available to, or introduced, possessed or used by, members of the general public, whether on their own or in mixtures or substances that include those substances, unless the concentration is equal to or lower than the limit values set out in column 2, and for which suspicious transactions and significant disappearances and thefts are to be reported to the relevant national contact point within 24 hours.

Name	CAS-No.	Limit value	Upper limit value for licensing under Article 5(3)	Combined Nomenclature (CN) code for a separate chemically defined compound meeting the requirements of Note 1 to Chapter 28 or 29 of the CN, respectively	Combined Nomenclature code for mixture without constituents which would determine classification under another CN code
Nitric acid	7697-37-2	3 % w/w	10% w/w	ex 2808 00 00	ex 3824 99 96

# Tuning Solution for ICP/MS 9 components; 10mg/l each of Ba ; Be ; Ce ; Co ; In ; Mg ; Pb ; Th ; Tl in HNO3 2% Equivalent to Agilent Ref: 190024400

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Please see [https://home-affairs.ec.europa.eu/policies/internal-security/counter-terrorism-and-radicalisation/protection/legislation-chemicals-used-home-made-explosives\\_en](https://home-affairs.ec.europa.eu/policies/internal-security/counter-terrorism-and-radicalisation/protection/legislation-chemicals-used-home-made-explosives_en)

### Drug Precursors Regulation (273/2004)

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

### 15.1.2. National regulations

#### France

Occupational diseases	
Code	Description
RG 1	Conditions caused by lead and its compounds
RG 70	Occupational diseases caused by cobalt and its compounds
RG 70 BIS	Respiratory disorders due to sintered or fused metal carbide dust containing cobalt
RG 70 TER	Primary broncho-pulmonary cancer caused by inhalation of cobalt dust associated with tungsten carbide prior to sintering

#### Germany

Water hazard class (WGK)

Storage class (LGK, TRGS 510)

Joint storage table

: WGK 1, Slightly hazardous to water (Classification according to AwSV, Annex 1).  
: LGK 12 - Non-combustible liquids.

LGK 1	LGK 2A	LGK 2B	LGK 3	LGK 4.1A
LGK 4.1B	LGK 4.2	LGK 4.3	LGK 5.1A	LGK 5.1B
LGK 5.1C	LGK 5.2	LGK 6.1A	LGK 6.1B	LGK 6.1C
LGK 6.1D	LGK 6.2	LGK 7	LGK 8A	LGK 8B
LGK 10	LGK 11	LGK 12	LGK 13	LGK 10-13

Joint storage not permitted for

Joint storage with restrictions permitted for

Joint storage permitted for

: LGK 1, LGK 6.2, LGK 7.  
: LGK 4.1A, LGK 4.3, LGK 5.1C.  
: LGK 2A, LGK 2B, LGK 3, LGK 4.1B, LGK 4.2, LGK 5.1A, LGK 5.1B, LGK 5.2, LGK 6.1A, LGK 6.1B, LGK 6.1C, LGK 6.1D, LGK 8A, LGK 8B, LGK 10, LGK 11, LGK 12, LGK 13, LGK 10-13.

Hazardous Incident Ordinance (12. BImSchV)

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

#### Netherlands

ABM category

SZW-lijst van kankerverwekkende stoffen

SZW-lijst van mutagene stoffen

SZW-lijst van reprotoxische stoffen – Borstvoeding

SZW-lijst van reprotoxische stoffen –

Vruchtbaarheid

SZW-lijst van reprotoxische stoffen – Ontwikkeling

: B(4) - low hazard for aquatic organisms

: cobalt dinitrate is listed

: None of the components are listed

: None of the components are listed

: cobalt dinitrate, lead nitrate are listed

: lead nitrate is listed

#### Denmark

Danish National Regulations

: Pregnant/breastfeeding women working with the product must not be in direct contact with the product

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

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### SECTION 16: Other information

Indication of changes			
Section	Changed item	Change	Comments
	Supersedes version of	Added	
	Revision date	Modified	
	Flammability	Modified	
2.1	Adverse physicochemical, human health and environmental effects	Modified	
2.1	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Added	
2.2	Hazard pictograms (CLP)	Added	
2.2	Precautionary statements (CLP)	Added	
2.2	Hazard statements (CLP)	Added	
2.2	Signal word (CLP)	Added	
7.1	Precautions for safe handling	Modified	
7.1	Hygiene measures	Modified	
8.2	Personal protective equipment	Modified	
15.1	REACH Annex XVII	Modified	
16	Abbreviations and acronyms	Added	

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose

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Abbreviations and acronyms:	
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
Acute Tox. 1 (Inhalation)	Acute toxicity (inhal.), Category 1
Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral), Category 2
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Carc. 1B	Carcinogenicity (inhalation) Category 1B
Carc. 2	Carcinogenicity, Category 2
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H300	Fatal if swallowed.
H301	Toxic if swallowed.

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Full text of H- and EUH-statements:	
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H350i	May cause cancer by inhalation.
H351	Suspected of causing cancer.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H360FD	May damage fertility. May damage the unborn child.
H361f	Suspected of damaging fertility.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
Met. Corr. 1	Corrosive to metals, Category 1
Muta. 2	Germ cell mutagenicity, Category 2
Ox. Liq. 2	Oxidising Liquids, Category 2
Ox. Liq. 3	Oxidising Liquids, Category 3
Ox. Sol. 2	Oxidising Solids, Category 2
Repr. 1A	Reproductive toxicity, Category 1A
Repr. 1B	Reproductive toxicity, Category 1B
Repr. 2	Reproductive toxicity, Category 2
Resp. Sens. 1	Respiratory sensitisation, Category 1
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1B	Skin sensitisation, category 1B
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2

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### Full text of H- and EUH-statements:

STOT RE Not classified	Specific target organ toxicity (repeated exposure) Not classified
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

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

Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.