

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO₃ 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

Reference number: EQ0029

Issue date: 07.09.2016 Revision date: 21.08.2023 Supersedes version of: 31.07.2019 Version: 1.2

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

1.1. Product identifier

Product form : Mixture
Product name : Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO₃ 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942
Product code : EQ0029

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

Web: www.spectracer.com

1.4. Emergency telephone number

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

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

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

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; hydrofluoric Acid; boric acid; germanium dioxide; molybdenum pentafluoride; niobium pentafluoride; perhenic acid; ammonium sulphate; ammonium hexafluorosilicate; tantalum pentafluoride; ammonium hexafluorotitanate; tungsten hexafluoride; zirconium dinitrate oxide, hydrate; ammonium dihydrogen phosphate
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
hydrofluoric Acid (7664-39-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
boric acid (10043-35-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
germanium dioxide (13110-53-8)	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
niobium pentafluoride (7783-68-8)	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
ammonium sulphate (7783-20-2)	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
ammonium hexafluorosilicate (16919-19-0)	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
tantalum pentafluoride (7783-71-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
tungsten hexafluoride (7783-82-6)	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
zirconium dinitrate oxide, hydrate (14985-18-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

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	
boric acid(10043-35-3)	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
hydrofluoric 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.: 7664-39-3 EC-No.: 231-634-8 EC Index-No.: 009-002-00-6 REACH-no: 01-2119458860-33-XXXX	0,1 – 0,25	Met. Corr. 1, H290 Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation), H330 Skin Corr. 1A, H314
ammonium hexafluorosilicate substance with national workplace exposure limit(s) (BE, DK, EE, FR, GB, GR, HR, IE, NL, SK, IS, NO, CH); substance with a Community workplace exposure limit	CAS-No.: 16919-19-0 EC-No.: 240-968-3 EC Index-No.: 009-012-00-0	< 0,05	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331
boric acid substance listed as REACH Candidate substance with national workplace exposure limit(s) (BE, DE, ES, IE, LT, LV, PT, SI, CH)	CAS-No.: 10043-35-3 EC-No.: 233-139-2 EC Index-No.: 005-007-00-2 REACH-no: 01-2119486683-25-XXXX	< 0,05	Repr. 1B, H360FD
ammonium sulphate substance with national workplace exposure limit(s) (BG, LV)	CAS-No.: 7783-20-2 EC-No.: 231-984-1	< 0,05	Not classified
zirconium dinitrate oxide, hydrate substance with national workplace exposure limit(s) (AT, BE, DK, ES, FI, GB, IE, LT, PL, PT, RO, SI, IS, MK, CH)	CAS-No.: 14985-18-3	< 0,05	Ox. Sol. 2, H272 Skin Corr. 1B, H314 Resp. Sens. 1, H334 Skin Sens. 1, H317

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
molybdenum pentafluoride substance with national workplace exposure limit(s) (AT, BE, BG, CZ, DE, DK, EE, ES, FI, FR, GB, GI, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, AL, NO, CH); substance with a Community workplace exposure limit	CAS-No.: 13819-84-6	< 0,05	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 3 (Inhalation), H331 Skin Corr. 1A, H314 Eye Dam. 1, H318
niobium pentafluoride substance with national workplace exposure limit(s) (AT, BE, 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, CH); substance with a Community workplace exposure limit	CAS-No.: 7783-68-8 EC-No.: 232-020-2	< 0,05	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1B, H314 Eye Dam. 1, H318
tungsten hexafluoride substance with national workplace exposure limit(s) (AT, BE, BG, DK, EE, ES, FI, FR, GB, IE, NL, PL, PT, RO, SE, SI, SK, IS, MK, CH)	CAS-No.: 7783-82-6 EC-No.: 232-029-1	< 0,05	Press. Gas (Comp.), H280 Acute Tox. 1 (Inhalation:gas), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318
tantalum pentafluoride substance with national workplace exposure limit(s) (AT, BE, BG, 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, CH); substance with a Community workplace exposure limit	CAS-No.: 7783-71-3 EC-No.: 232-022-3	< 0,05	Skin Corr. 1B, H314 Eye Dam. 1, H318
germanium dioxide substance with national workplace exposure limit(s) (BG, DE, LT, LV, RO)	CAS-No.: 1310-53-8 EC-No.: 215-180-8 REACH-no: 01-2120759331-57-XXXX	< 0,05	Repr. 2, H361 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 3, H412

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
hydrofluoric Acid	CAS-No.: 7664-39-3 EC-No.: 231-634-8 EC Index-No.: 009-002-00-6 REACH-no: 01-2119458860-33-XXXX	(0,1 ≤ C < 1) Eye Irrit. 2, H319 (1 ≤ C < 7) Skin Corr. 1B, H314 (7 ≤ C < 100) Skin Corr. 1A, H314

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.

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

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.

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.

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

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

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

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

nitric acid (7697-37-2)	
OEL STEL	2,6 mg/m ³
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.)
Croatia - Occupational Exposure Limits	
Local name	Dušična kiselina
KGVI (OEL STEL)	2,6 mg/m ³
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)
Cyprus - Occupational Exposure Limits	
Local name	Νιτρικό οξύ
OEL STEL	2,6 mg/m ³
OEL STEL [ppm]	1 ppm
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
Czech Republic - Occupational Exposure Limits	
Local name	Kyselina dusičná
PEL (OEL TWA)	1 mg/m ³
PEL (OEL TWA) [ppm]	0,4 ppm
NPK-P (OEL C)	2,5 mg/m ³
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.)
Denmark - Occupational Exposure Limits	
Local name	Salpetersyre
OEL STEL	2,6 mg/m ³
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
Estonia - Occupational Exposure Limits	
Local name	Lämmastikhape
OEL STEL	2,6 mg/m ³
OEL STEL [ppm]	1 ppm

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

nitric acid (7697-37-2)	
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Typpihappo
HTP (OEL TWA) [1]	1,3 mg/m ³
HTP (OEL TWA) [2]	0,5 ppm
HTP (OEL STEL)	2,6 mg/m ³
HTP (OEL STEL) [ppm]	1 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
France - Occupational Exposure Limits	
Local name	Acide nitrique
VLE (OEL C/STEL)	2,6 mg/m ³
VLE (OEL C/STEL) [ppm]	1 ppm
Remark	Valeurs réglementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 984, 2016)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Salpetersäure
AGW (OEL TWA) [1]	2,6 mg/m ³
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
Gibraltar - Occupational Exposure Limits	
Local name	Nitric acid
OEL STEL	2,6 mg/m ³
OEL STEL [ppm]	1 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Νιτρικό οξύ
OEL STEL	2,6 mg/m ³
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
Hungary - Occupational Exposure Limits	
Local name	SALÉTRÓMSAV
CK (OEL STEL)	2,6 mg/m ³

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

nitric acid (7697-37-2)	
Remark	i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármat), m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindhármat); 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
Ireland - Occupational Exposure Limits	
Local name	Nitric acid
OEL STEL	2,6 mg/m ³
OEL STEL [ppm]	1 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
Italy - Occupational Exposure Limits	
Local name	Acido nitrico
OEL STEL	2,6 mg/m ³
OEL STEL [ppm]	1 ppm
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	Slāpekļskābe
OEL TWA	2 mg/m ³
OEL TWA [ppm]	0,78 ppm
OEL STEL	2,6 mg/m ³
OEL STEL [ppm]	1 ppm
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325
Lithuania - Occupational Exposure Limits	
Local name	Nitrato rūgštis (azoto rūgštis)
TPRV (OEL STEL)	2,6 mg/m ³
TPRV (OEL STEL) [ppm]	1 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Acide nitrique
OEL STEL	2,6 mg/m ³
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
Malta - Occupational Exposure Limits	
Local name	Nitric acid
OEL STEL	2,6 mg/m ³
OEL STEL [ppm]	1 ppm

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

nitric acid (7697-37-2)	
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Salpeterzuur
TGG-15min (OEL STEL)	1,3 mg/m ³
TGG-15min (OEL STEL) [ppm]	0,5 ppm (Salpeterzuur; Netherlands; Short time value; Public occupational exposure limit value)
Regulatory reference	Arbeidsomstandighedenregeling 2022
Poland - Occupational Exposure Limits	
Local name	Kwas azotowy (V)
NDS (OEL TWA)	1,4 mg/m ³
NDSch (OEL STEL)	2,6 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Ácido nítrico
OEL TWA [ppm]	2 ppm
OEL STEL [ppm]	4 ppm
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Acid nitric/Acid azotic
OEL STEL	2,6 mg/m ³
OEL STEL [ppm]	1 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Serbia - Occupational Exposure Limits	
Local name	азотна киселина
OEL STEL	3 mg/m ³
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)
Slovakia - Occupational Exposure Limits	
Local name	Kyselina dusičná
NPHV (OEL STEL)	2,6 mg/m ³
NPHV (OEL STEL) [ppm]	1 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	dušikova kislina
OEL TWA	2,6 mg/m ³

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

nitric acid (7697-37-2)	
OEL TWA [ppm]	1 ppm
OEL STEL	2,6 mg/m ³
OEL STEL [ppm]	1 ppm
Remark	EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Ácido nítrico
VLA-EC (OEL STEL)	2,6 mg/m ³
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
Sweden - Occupational Exposure Limits	
Local name	Salpetersyra
NGV (OEL TWA)	1,3 mg/m ³
NGV (OEL TWA) [ppm]	0,5 ppm
KTV (OEL STEL)	2,6 mg/m ³
KTV (OEL STEL) [ppm]	1 ppm
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Nitric acid
WEL STEL (OEL STEL)	2,6 mg/m ³
WEL STEL (OEL STEL) [ppm]	1 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Saltpéturssýra
OEL STEL	2,6 mg/m ³
OEL STEL [ppm]	1 ppm
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Salpetersyre
Grenseverdi (OEL TWA) [1]	5 mg/m ³
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
North Macedonia - Occupational Exposure Limits	
Local name	азотна киселина

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

nitric acid (7697-37-2)	
OEL TWA	2,6 mg/m ³
OEL TWA [ppm]	1 ppm
KTV	1
Short time value [mg/m ³]	2,6 mg/m ³
Short time value [ppm]	1 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на 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 ³ или во ml/m ³ (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/ЕС и за измените на директивата 91/322/ЕЕС и директивата 2000/39/ ЕС (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)
Switzerland - Occupational Exposure Limits	
Local name	Acide nitrique / Salpetersäure
MAK (OEL TWA) [1]	5 mg/m ³
MAK (OEL TWA) [2]	2 ppm
KZGW (OEL STEL)	5 mg/m ³
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
USA - ACGIH - Occupational Exposure Limits	
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
hydrofluoric Acid (7664-39-3)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Hydrogen fluoride
IOEL TWA	1,5 mg/m ³
IOEL TWA [ppm]	1,8 ppm

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
IOEL STEL	2,5 mg/m ³
IOEL STEL [ppm]	3 ppm
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
EU - Biological Limit Value (BLV)	
Local name	Hydrogen fluoride
BLV	8 mg/l Parameter: F - Medium: urine - Sampling time: end of shift
Regulatory reference	SCOEL List of recommended health-based BLVs and BGVs
Albania - Occupational Exposure Limits	
Local name	Fluorur hidrogjeni
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 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"
Austria - Occupational Exposure Limits	
Local name	Fluorwasserstoff (Flusssäure; Hydrogenfluorid)
MAK (OEL TWA)	1,5 mg/m ³
MAK (OEL TWA) [ppm]	1,8 ppm
MAK (OEL STEL)	2,5 mg/m ³ (4x 15(Miw) min)
MAK (OEL STEL) [ppm]	3 ppm (4x 15(Miw) min)
Remark	H
Regulatory reference	BGBl. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Hydrogène (fluorure d') # Waterstofffluoride
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 ppm
Remark	M: la mention "M" indique que lors d'une exposition supérieure à la valeur limite, des irritations apparaissent ou un danger d'intoxication aiguë existe. Le procédé de travail doit être conçu de telle façon que l'exposition ne dépasse jamais la valeur limite. Lors des mesurages, la période d'échantillonnage doit être aussi courte que possible afin de pouvoir effectuer des mesurages fiables. Le résultat des mesurages est calculé en fonction de la période d'échantillonnage. # M: de vermelding "M" duidt aan dat bij de blootstelling boven de grenswaarde irritatie optreedt of er gevaar bestaat voor acute vergiftiging. Het werkprocédé moet zo zijn ontworpen dat de blootstelling de grenswaarde nooit overschrijdt. Bij een controle geldt dat de bemonsterde periode zo kort mogelijk moet zijn om een betrouwbare meting te kunnen verrichten. Het meetresultaat wordt dan gerelateerd aan de beschouwde periode.

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Флуороводород
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 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.)
Croatia - Occupational Exposure Limits	
Local name	Vodikov fluorid
GVI (OEL TWA) [1]	1,5 mg/m ³
GVI (OEL TWA) [2]	1,8 ppm
KGVI (OEL STEL)	2,5 mg/m ³
KGVI (OEL STEL) [ppm]	3 ppm
Remark	Direktiva: 2000/39/EZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граничним vrijednostima izloženosti i biološkim граничним vrijednostima (NN 1/2021)
Croatia - Biological limit values	
Local name	Fluorovodična kiselina (vodikov fluorid) i anorganski fluorovi spojevi
BLV	8 mg/g creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene 4 mg/g creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: prije početka radne smjene u sredini tjedna 40 mmol/mol Creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene 24 mmol/mol Creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: prije početka radne smjene u sredini tjedna
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граничним vrijednostima izloženosti i biološkim граничним vrijednostima (NN 91/2018)
Cyprus - Occupational Exposure Limits	
Local name	Υδροφθόριο
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 ppm
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
Czech Republic - Occupational Exposure Limits	
Local name	Fluorovodík
PEL (OEL TWA)	1,5 mg/m ³
PEL (OEL TWA) [ppm]	1,8 ppm
NPK-P (OEL C)	2,5 mg/m ³
NPK-P (OEL C) [ppm]	3 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty), respektive kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Hydrogenfluorid (Fluorbrinte)
OEL TWA [1]	1,5 mg/m ³
OEL TWA [2]	1,8 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Vesinikfluoriid
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Fluorivety
HTP (OEL TWA) [1]	1,5 mg/m ³
HTP (OEL TWA) [2]	1,8 ppm
HTP (OEL STEL)	2,5 mg/m ³
HTP (OEL STEL) [ppm]	3 ppm
Remark	Iho
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Fluorure d'hydrogène (Acide fluorhydrique)
VME (OEL TWA)	1,5 mg/m ³
VME (OEL TWA) [ppm]	1,8 ppm
VLE (OEL C/STEL)	2,5 mg/m ³
VLE (OEL C/STEL) [ppm]	3 ppm
Remark	Valeurs réglementaires contraignantes

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
Regulatory reference	Article R4412-149 du Code du travail (réf.: INRS ED 984, 2016; Décret n° 2019-1487; Décret n° 2020-1546; Décret n° 2021-434; Décret n° 2021-1849)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Fluorwasserstoff
AGW (OEL TWA) [1]	0,83 mg/m ³
AGW (OEL TWA) [2]	1 ppm
Peak exposure limitation factor	2(l)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden; H - hautresorptiv
Regulatory reference	TRGS900
Germany - Biological limit values (TRGS 903)	
Local name	Hydrogenfluorid (Fluorwasserstoff) und anorganische Fluorverbindungen (Fluoride)
Biological limit value	4 mg/l Parameter: Fluorid - Untersuchungsmaterial: U = Urin - Probenahmezeitpunkt: b) Expositionsende, bzw. Schichtende - Festlegung/Begründung: 11/2020 DFG
Regulatory reference	TRGS 903
Gibraltar - Occupational Exposure Limits	
Local name	Hydrogen fluoride
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Υδροφθόριο
OEL TWA	2,5 mg/m ³
OEL TWA [ppm]	3 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 ppm
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	HIDROGÉN-FLUORID
AK (OEL TWA)	1,5 mg/m ³
CK (OEL STEL)	2,5 mg/m ³

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
Remark	b (Bőrön át is felszívódik), m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindhármát), BEM (biológiai expozíciós mutató); EU1 (2000/39/EK irányelvben közölt érték); N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Hydrogen fluoride (as F)
OEL TWA [1]	1,5 mg/m ³
OEL TWA [2]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 ppm
Remark	Sk (Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body), IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
Italy - Occupational Exposure Limits	
Local name	Acido fluoridrico
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 ppm
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	Fluorūdeņradis
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 ppm
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325
Lithuania - Occupational Exposure Limits	
Local name	Vandenilio fluoridas
IPRV (OEL TWA)	1,5 mg/m ³
IPRV (OEL TWA) [ppm]	1,8 ppm
TPRV (OEL STEL)	2,5 mg/m ³
TPRV (OEL STEL) [ppm]	3 ppm
Remark	Ū (ūmus poveikis)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
Luxembourg - Occupational Exposure Limits	
Local name	Fluorure d'hydrogène
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 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
Malta - Occupational Exposure Limits	
Local name	Hydrogen fluoride
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 ppm
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Fluorwaterstof
TGG-15min (OEL STEL)	1 mg/m ³ (als F)
TGG-15min (OEL STEL) [ppm]	1,2 ppm (Fluorwaterstof (als F); Netherlands; Short time value; Public occupational exposure limit value; als F)
Regulatory reference	Arbeidsomstandighedenregeling 2022
Poland - Occupational Exposure Limits	
Local name	Fluorowodór
NDS (OEL TWA)	0,5 mg/m ³
NDSCh (OEL STEL)	2 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Ácido fluorídrico, expresso em F
OEL TWA [ppm]	0,5 ppm
OEL C	2 mg/m ³
OEL C [ppm]	2 ppm
Remark	P (Toxicidade percutânea); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Acid fluorhidric/Fluorură de hidrogen
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
OEL STEL	2,5 mg/m ³
OEL STEL [ppm]	3 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Serbia - Occupational Exposure Limits	
Local name	водоник флуорид, флуороводоник
OEL TWA	2 mg/m ³
OEL TWA [ppm]	2 ppm
OEL STEL	3 mg/m ³
OEL STEL [ppm]	3 ppm
Remark	EУ* – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2000/39/ЕЗ (прва листа)
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
Slovakia - Occupational Exposure Limits	
Local name	Fluórovodík, kyselina fluorovodíková (ako F)
NPHV (OEL TWA) [1]	1,5 mg/m ³
NPHV (OEL TWA) [2]	1,8 ppm
NPHV (OEL STEL)	2,5 mg/m ³
NPHV (OEL STEL) [ppm]	3 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovakia - Biological limit values	
Local name	Fluorovodík a anorganické zlúčeniny fluóru (fluoridy)
BLV	7 mg/g creatinine Zisťovaný faktor: Fluoridy - Vyšetovaný materiál: moč - Čas odberu vzorky: b) koniec expozície alebo pracovnej zmeny 4 mg/g creatinine Zisťovaný faktor: Fluoridy - Vyšetovaný materiál: moč - Čas odberu vzorky: d) pred nasledujúcou pracovnou zmenou
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (Zmena: 471/2011 Z.z.)
Slovenia - Occupational Exposure Limits	
Local name	vodikov fluorid
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
OEL STEL	2,25 mg/m ³
OEL STEL [ppm]	2,7 ppm
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), BAT (Biolóška mejna vrednost), EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Slovenia - Biological limit values	
Local name	vodikov fluorid in anorganske fluorove spojine (fluoridi)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
BLV	4 mg/g creatinine Parameter: fluorid - Biološki vzorec: urin - Čas vzorčenja: pred naslednjim delovnim dnevom 7 mg/g creatinine Parameter: fluorid - Biološki vzorec: urin - Čas vzorčenja: ob koncu delovne izmene
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Fluoruro de hidrógeno
VLA-ED (OEL TWA) [1]	1,5 mg/m ³
VLA-ED (OEL TWA) [2]	1,8 ppm
VLA-EC (OEL STEL)	2,5 mg/m ³
VLA-EC (OEL STEL) [ppm]	3 ppm
Remark	VLB® (Agente químico que tiene Valor Límite Biológico), VLI (Agente químico para el que la U.E. estableció en su día un valor Límite indicativo).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Spain - Biological limit values	
Local name	Fluoruro de hidrógeno
BLV	2 mg/l Parámetro: Fluoruros - Medio: Orina - Momento de muestreo: Antes de la jornada 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), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos) 3 mg/l Parámetro: Fluoruros - Medio: Orina - Momento de muestreo: Final de la jornada 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), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Sweden - Occupational Exposure Limits	
Local name	Vätefluorid (Fluorväte)
NGV (OEL TWA)	1,5 mg/m ³
NGV (OEL TWA) [ppm]	1,8 ppm
KTV (OEL STEL)	1,7 mg/m ³
KTV (OEL STEL) [ppm]	2 ppm
Remark	31 (Vid exponering för blandningar av fluorider och vätefluorid ska nivågränsvärdet för fluorider tillämpas)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Hydrogen fluoride
WEL TWA (OEL TWA) [1]	1,5 mg/m ³ (as F)
WEL TWA (OEL TWA) [2]	1,8 ppm (as F)
WEL STEL (OEL STEL)	2,5 mg/m ³ (as F)
WEL STEL (OEL STEL) [ppm]	3 ppm (as F)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Vetnisflúoríð (flúorvetni)
OEL TWA	0,6 mg/m ³
OEL TWA [ppm]	0,7 ppm
OEL STEL	2,5 mg/m ³ Þakgildið er miðað við fimm mínútna tímabil
OEL STEL [ppm]	3 ppm Þakgildið er miðað við fimm mínútna tímabil
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Hydrogenfluorid (Fluss-syre)
Grenseverdi (OEL TWA) [1]	0,5 mg/m ³
Korttidsverdi (OEL STEL)	1,5 mg/m ³
Korttidsverdi (OEL STEL) [ppm]	1,8 ppm
Remark	H: Kjemikalier som kan tas opp gjennom huden; E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2021-06-28-2248
North Macedonia - Occupational Exposure Limits	
Local name	Флуороводород
OEL TWA	1,5 mg/m ³
OEL TWA [ppm]	1,8 ppm
KTV	1,5
Short time value [mg/m ³]	2,25 mg/m ³
Short time value [ppm]	2,7 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m ³ или во ml/m ³ (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (BAT) биолошка гранична вредност – праг на биолошка гранична вредност, што значи предупредување на опасна хемиска супстанца и нејзини метаболити во ткивата, телесните течности или издишувањето на воздухот, без оглед на тоа, дали опасната хемиска супстанца е внесена во организмот со вдишување, голтање или преку кожата; (EU) European Union – гранична вредност, определена на ниво на Европската унија
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија“ бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	Acide fluorhydrique / Fluorwasserstoff

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
MAK (OEL TWA) [1]	0,83 mg/m ³
MAK (OEL TWA) [2]	1 ppm
KZGW (OEL STEL)	1,66 mg/m ³
KZGW (OEL STEL) [ppm]	2 ppm
Critical toxicity	VR, Os, Peau, Yeux / AW, Knochen, Haut, Auge
Notation	SS _c , B / SS _c , B
Remark	HSE, NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022
Switzerland - BAT	
Local name	Fluorures / Fluorwasserstoff
BAT	4 mg/l (211 µmol/l; Paramètre biologique: Fluorures; Substrat d'examen: Urine; Moment du prélèvement: Fin de l'exposition, de la période de travail.) / (211 µmol/l; Biologischer Parameter: Fluorid; Untersuchungsmaterial: Urin; Probennahmezeitpunkt: Expositionsende, bzw. Schichtende.)
Remark	Influence de l'environnement. / Umwelteinflüsse.
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
USA - ACGIH - Occupational Exposure Limits	
Local name	Hydrogen fluoride, as F
ACGIH OEL TWA [ppm]	0,5 ppm
ACGIH OEL C [ppm]	2 ppm
Remark (ACGIH)	TLV® Basis: URT, LRT, skin, & eye irr; fluorosis. Notations: Skin; BEI
Regulatory reference	ACGIH 2022
boric acid (10043-35-3)	
Austria - Occupational Exposure Limits	
Local name	Borsäure (Orthoborsäure)
Remark	Fortpflanzungsgefährdend: F, D
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Borate, composés inorganiques de # Boraat, anorganische verbindingen van
OEL TWA	2 mg/m ³
OEL STEL	6 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Borsäure und Natriumborate
AGW (OEL TWA) [1]	0,5 mg/m ³ (E)
Peak exposure limitation factor	2(I)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

boric acid (10043-35-3)	
Remark	AGS - Ausschuss für Gefahrstoffe; Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden; 10 - Der Arbeitsplatzgrenzwert bezieht sich auf den Elementgehalt des entsprechenden Metalls
Regulatory reference	TRGS900
Ireland - Occupational Exposure Limits	
Local name	Borate compounds inorganic: Boric acid
OEL TWA [1]	2 mg/m ³
Remark	Repr.1B (Substances which are presumed human reproductive toxicants)
Regulatory reference	Chemical Agents Code of Practice 2021
Latvia - Occupational Exposure Limits	
Local name	Borskābe
OEL TWA	10 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325
Lithuania - Occupational Exposure Limits	
Local name	Boro rūgštis
IPRV (OEL TWA)	10 mg/m ³
Remark	R (reprodukcijai toksiškas poveikis)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Portugal - Occupational Exposure Limits	
Local name	Boratos, compostos inorgânicos
OEL TWA	2 mg/m ³ I (Fração inalável)
OEL STEL	6 mg/m ³ I (Fração inalável)
Remark	A4 (Agente não classificável como carcinogénico no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014
Slovenia - Occupational Exposure Limits	
Local name	borova kislina in natrijev borat
OEL TWA	0,5 mg/m ³
OEL STEL	1 mg/m ³
Remark	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti)
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Ácido bórico
VLA-ED (OEL TWA) [1]	2 mg/m ³
VLA-EC (OEL STEL)	6 mg/m ³

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

boric acid (10043-35-3)	
Remark	TR1B (Cuando las pruebas utilizadas para la clasificación procedan principalmente de datos en animales), s (Esta sustancia tiene prohibida total o parcialmente su comercialización y uso como fitosanitario y/o como biocida. Para una información detallada acerca de las prohibiciones consúltese: Base de datos de productos biocidas: http://www.msssi.gob.es/ciudadanos/productos.do?tipo=plaguicidas Base de datos de productos fitosanitarios http://www.magrama.gob.es/agricultura/pags/fitos/registro/fichas/pdf/Lista_sa.pdf), r (Esta sustancia tiene establecidas restricciones a la fabricación, la comercialización o el uso en los términos especificados en el "Reglamento (CE) nº 1907/2006 sobre Registro, Evaluación, Autorización y Restricción de sustancias y preparados químicos" (REACH) de 18 de diciembre de 2006 (DOUE L 369 de 30 de diciembre de 2006). Las restricciones de una sustancia pueden aplicarse a todos los usos o sólo a usos concretos. El anexo XVII del Reglamento REACH contiene la lista de todas las sustancias restringidas y especifica los usos que se han restringido).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Switzerland - Occupational Exposure Limits	
Local name	Acide borique / Borsäure
MAK (OEL TWA) [1]	1,8 mg/m ³ (i) / (e)
KZGW (OEL STEL)	1,8 mg/m ³ (i) / (e)
Critical toxicity	VRS / OAW
Notation	R _{1BD} , R _{1BF} , SS _B / R _{1BD} , R _{1BF} , SS _B
Remark	NIOSH
Regulatory reference	www.suva.ch , 28.03.2022
USA - ACGIH - Occupational Exposure Limits	
Local name	Boric acid
ACGIH OEL TWA	2 mg/m ³ (Borate compounds, inorganic; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value; Inhalable fraction)
ACGIH OEL STEL	6 mg/m ³ (Borate compounds, inorganic; USA; Short time value; TLV - Adopted Value; Inhalable fraction)
Remark (ACGIH)	TLV® Basis: URT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2022
germanium dioxide (1310-53-8)	
Bulgaria - Occupational Exposure Limits	
Local name	Германий - оксид
OEL TWA	2 mg/m ³
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	0,85 mg/m ³ (E)
Peak exposure limitation factor	2(II)
Remark	AGS - Ausschuss für Gefahrstoffe; 10 - Der Arbeitsplatzgrenzwert bezieht sich auf den Elementgehalt des entsprechenden Metalls

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

germanium dioxide (1310-53-8)	
Regulatory reference	TRGS900
Latvia - Occupational Exposure Limits	
Local name	Germānija dioksīds (germānija (IV) oksīds)
OEL TWA	2 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2011. gada 1. februārī noteikumiem Nr. 92)
Lithuania - Occupational Exposure Limits	
Local name	Germanio oksidas
IPRV (OEL TWA)	2 mg/m ³
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Romania - Occupational Exposure Limits	
Local name	Germaniu
OEL TWA	2 mg/m ³
OEL STEL	5 mg/m ³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
molybdenum pentafluoride (13819-84-6)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Fluorides, inorganic
IOEL TWA	2,5 mg/m ³
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Albania - Occupational Exposure Limits	
Local name	Fluorure, inorganike
OEL TWA	2,5 mg/m ³
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"
Austria - Occupational Exposure Limits	
Local name	Molybdän und Molybdänverbindungen, unlösliche
MAK (OEL TWA)	10 mg/m ³
MAK (OEL STEL)	20 mg/m ³
Regulatory reference	BGBl. II Nr. 156/2021
Austria - Biological limit values	
Local name	Fluor, seine anorganischen Verbindungen
BLV	7 mg/g creatinine Parameter: Fluorid - Untersuchungsmaterial: Harn - Probenahmezeitpunkt: Wenn die Harnprobe unmittelbar nach Expositions- bzw. Schichtende abgenommen wurde 4 mg/g creatinine Parameter: Fluorid - Untersuchungsmaterial: Harn - Probenahmezeitpunkt: Wenn die Harnprobe vor nachfolgender Schicht abgenommen wurde

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

molybdenum pentafluoride (13819-84-6)	
Remark	Eignung mit vorzeitiger Folgeuntersuchung: Bei Überschreiten der zulässigen Grenzwerte für Fluorid im Harn. 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)
Belgium - Occupational Exposure Limits	
Local name	Molybdène (composés solubles) (en Mo) # Molybdeenverbindungen (onoplosbaar) (als Mo)
OEL TWA	10 mg/m ³ 0,5 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Молибден
OEL TWA	5 mg/m ³ разтворими съединения (като молибден) 10 mg/m ³ и негови съединения (като молибден)
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.)
Croatia - Occupational Exposure Limits	
Local name	Fluoridi, anorganski
GVI (OEL TWA) [1]	2,5 mg/m ³
Remark	Direktiva: 2000/39/EZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граниčnim vrijednostima izloženosti i biološkim граниčnim vrijednostima (NN 1/2021)
Croatia - Biological limit values	
Local name	Fluor
BLV	24 mmol/mol Creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: prije radne smjene 4 mg/g creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: prije radne smjene 40 mmol/mol Creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene 8 mg/g creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граниčnim vrijednostima izloženosti i biološkim граниčnim vrijednostima (NN 91/2018)
Czech Republic - Occupational Exposure Limits	
Local name	Molybden
PEL (OEL TWA)	5 mg/m ³
NPK-P (OEL C)	25 mg/m ³
Remark	I - dráždí sliznice (oči, dýchací cesty), respektive kůži, B - u látky je zaveden biologický expoziční test (BET) v moči nebo krvi.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

molybdenum pentafluoride (13819-84-6)	
Czech Republic - Biological limit values	
Local name	Fluoridy
BLV	10 mg/g creatinine Ukazatel: Fluorid - Biologicky vzorek: moči - Doba odběru: konec směny 60 µmol/mmol Creatinine Ukazatel: Fluorid - Biologicky vzorek: moči - Doba odběru: konec směny
Regulatory reference	Vyhláška č. 107/2013 Sb. (kterou se mění vyhláška č. 432/2003 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Fluorider, undtagen de andetsteds i listen nævnte
OEL TWA [1]	2,5 mg/m ³ beregnet som F
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Fluoriidid, k.a vesinikfluoriid
OEL TWA	2,5 mg/m ³
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Fluoridit, epäorgaaniset
HTP (OEL TWA) [1]	2,5 mg/m ³ F
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Fluorures inorganiques
VME (OEL TWA)	2,5 mg/m ³
Remark	Valeurs réglementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 984, 2016)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Fluor
AGW (OEL TWA) [1]	1,6 mg/m ³
AGW (OEL TWA) [2]	1 ppm
Peak exposure limitation factor	2(l)
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
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Fluorides, inorganic
OEL TWA	2,5 mg/m ³
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

molybdenum pentafluoride (13819-84-6)	
Hungary - Occupational Exposure Limits	
Local name	FLUORIDOK (F-ra számítva)
AK (OEL TWA)	2,5 mg/m ³
Remark	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát), BEM (biológiai expozíciós mutató); EU1 (2000/39/EK irányelvben közölt érték); 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
Hungary - Biological Exposure Indices	
Local name	Fluorid vegyületek
BEI	7 mg/g creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 42 µmol/mmol Creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 4 mg/g creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: köv.m.e. (következő műszak előtt) 24 µmol/mmol Creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: köv.m.e. (következő műszak előtt)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Molybdenum compounds (as Mo)
OEL TWA [1]	0,5 mg/m ³ R (Respirable)
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
Ireland - Biological limit values	
Local name	Fluorine, Hydrogen Fluoride and Inorganic Fluorides (not uranium hexafluoride)
BMGV	2 mg/l Parameter: Fluoride - Medium: urine - Sampling time: Prior to shift - Notations: B (Background), Ns (Non-specific) 3 mg/l Parameter: Fluoride - Medium: urine - Sampling time: End of shift - Notations: B (Background), Ns (Non-specific)
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
Italy - Occupational Exposure Limits	
Local name	Fluoruri inorganici (espressi come F)
OEL TWA	2,5 mg/m ³
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	Fluorīdi, neorganiskie
OEL TWA	2,5 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2011. gada 1. februārī noteikumiem Nr. 92)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

molybdenum pentafluoride (13819-84-6)	
Lithuania - Occupational Exposure Limits	
Local name	Fluoridai, išskyrus vandenilio fluoridą
IPRV (OEL TWA)	2,5 mg/m ³ (kaip F)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Fluorures inorganiques
OEL TWA	2,5 mg/m ³
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
Malta - Occupational Exposure Limits	
Local name	Fluorides, inorganic # Fluorides,inorganiċi
OEL TWA	2,5 mg/m ³
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Fluoriden, anorganisch en oplosbaar
TGG-15min (OEL STEL)	2 mg/m ³ (als F)
Regulatory reference	Arbeidsomstandighedenregeling 2022
Poland - Occupational Exposure Limits	
Local name	Molibden i jego związki w przeliczeniu na Mo
NDS (OEL TWA)	4 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Molibdénio, expresso em Mo Compostos solúveis
OEL TWA	0,5 mg/m ³ R (Fração respirável) 10 mg/m ³ I (Fração inalável) 3 mg/m ³ R (Fração respirável)
Remark	A4 (Agente não classificável como carcinogénico no Homem); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014
Portugal - Biological Exposure Indices	
Local name	Fluoretos
BEI	2 mg/l Parâmetro: Fluoretos - Meio: urina - Momento da amostragem: Início do turno - Notação: Vb (Valor basal), Ne (Não específico) 3 mg/l Parâmetro: Fluoretos - Meio: urina - Momento da amostragem: Fim do turno - Notação: Vb (Valor basal), Ne (Não específico)
Romania - Occupational Exposure Limits	
Local name	Fluoruri anorganice
OEL TWA	2,5 mg/m ³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

molybdenum pentafluoride (13819-84-6)	
Romania - Biological limit values	
Local name	Fluor și compuși
BLV	5 mg/g creatinine Indicator biologic: Fluor - Material biologic: urină - Momentul recoltării: sfârșit de schimb
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 584/2018)
Slovakia - Occupational Exposure Limits	
Local name	Molybdén a jeho zlúčeniny rozpustné (ako Mo)
NPHV (OEL TWA) [1]	5 mg/m ³ 10 mg/m ³ inhalovateľná frakcia 5 mg/m ³ respirabilná frakcia
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovakia - Biological limit values	
Local name	Fluorovodík a anorganické zlúčeniny fluóru (fluoridy)
BLV	7 mg/g creatinine Zisťovaný faktor: Fluoridy - Vyšetovaný materiál: moč - Čas odberu vzorky: b) koniec expozície alebo pracovnej zmeny 4 mg/g creatinine Zisťovaný faktor: Fluoridy - Vyšetovaný materiál: moč - Čas odberu vzorky: d) pred nasledujúcou pracovnou zmenou
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (Zmena: 471/2011 Z.z.)
Slovenia - Occupational Exposure Limits	
Local name	fluorid – anorg.(računano kot fluor)
OEL TWA	2,5 mg/m ³
OEL STEL	10 mg/m ³
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), BAT (Biološka mejna vrednost), EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Slovenia - Biological limit values	
Local name	vodikov fluorid in anorganske fluorove spojine (fluoridi)
BLV	7 mg/g creatinine Parameter: fluorid - Biološki vzorec: urin - Čas vzorčenja: ob koncu delovne izmene 4 mg/g creatinine Parameter: fluorid - Biološki vzorec: urin - Čas vzorčenja: pred naslednjim delovnim dnevom
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Molibdeno
VLA-ED (OEL TWA) [1]	10 mg/m ³ elemental. Fracción inhalable 3 mg/m ³ elemental. Fracción respirable 10 mg/m ³ Compuestos insolubles, como Mo. Fracción inhalable 3 mg/m ³ Compuestos insolubles, como Mo. Fracción respirable 0,5 mg/m ³ Compuestos solubles, como Mo. Fracción respirable
Remark	VLB® (Agente químico que tiene Valor Límite Biológico), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

molybdenum pentafluoride (13819-84-6)	
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Spain - Biological limit values	
Local name	Fluoruros inorgánicos
BLV	2 mg/l Parámetro: Fluoruros - Medio: Orina - Momento de muestreo: Antes de la jornada 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), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos) 3 mg/l Parámetro: Fluoruros - Medio: Orina - Momento de muestreo: Final de la jornada 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), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Sweden - Occupational Exposure Limits	
Local name	Molybden, metall och svårlösliga. föreningar (som Mo)
NGV (OEL TWA)	10 mg/m ³ totaldamm 5 mg/m ³ respirabelt damm
Remark	31 (Vid exponering för blandningar av fluorider och vätefluorid ska nivågränsvärdet för fluorider tillämpas)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Molybdenum
WEL TWA (OEL TWA) [1]	10 mg/m ³ insoluble compounds (as Mo) 5 mg/m ³ soluble compounds (as Mo)
WEL STEL (OEL STEL)	10 mg/m ³ soluble compounds (as Mo)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Norway - Occupational Exposure Limits	
Local name	Uorganiske fluorider (beregnet som F)
Grenseverdi (OEL TWA) [1]	0,5 mg/m ³
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2021-06-28-2248
Switzerland - Occupational Exposure Limits	
Local name	Molybdänverbindungen löslich (als Mo berechnet)
MAK (OEL TWA) [1]	5 mg/m ³ 10 mg/m ³
KZGW (OEL STEL)	4 mg/m ³ (i) / (e)
Critical toxicity	Os / Knochen
Notation	R, SS _C , B / H, SS _C , B
Remark	e(mg/m ³) - UAW ^{KT AN} - NIOSH
Regulatory reference	www.suva.ch, 28.03.2022

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

molybdenum pentafluoride (13819-84-6)	
Switzerland - BAT	
Local name	Fluorures / Fluorwasserstoff
BAT	4 mg/l (211 µmol/l; Paramètre biologique: Fluorures; Substrat d'examen: Urine; Moment du prélèvement: Fin de l'exposition, de la période de travail.) / (211 µmol/l; Biologischer Parameter: Fluorid; Untersuchungsmaterial: Urin; Probennahmezeitpunkt: Expositionsende, bzw. Schichtende.)
Remark	Influence de l'environnement. / Umwelteinflüsse.
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
USA - ACGIH - Occupational Exposure Limits	
Local name	Fluorides, as F
ACGIH OEL TWA	2,5 mg/m ³
Remark (ACGIH)	TLV® Basis: Bone dam; fluorosis. Notations: A4 (Not classifiable as a Human Carcinogen); BEI
Regulatory reference	ACGIH 2022
niobium pentafluoride (7783-68-8)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Fluorides, inorganic
IOEL TWA	2,5 mg/m ³
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
EU - Biological Limit Value (BLV)	
Local name	Fluorine and inorganic fluorides
BLV	8 mg/l Parameter: F - Medium: urine - Sampling time: end of shift
Regulatory reference	SCOEL List of recommended health-based BLVs and BGVs
Albania - Occupational Exposure Limits	
Local name	Fluorure, inorganike
OEL TWA	2,5 mg/m ³
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDETIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKË NË PUNË"
Austria - Occupational Exposure Limits	
Local name	Fluoride
MAK (OEL TWA)	2,5 mg/m ³ (als F berechnet, E)
MAK (OEL STEL)	12,5 mg/m ³ (als F berechnet, E, 2x 30(Miw) min)
Regulatory reference	BGBI. II Nr. 156/2021
Austria - Biological limit values	
Local name	Fluor, seine anorganischen Verbindungen

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

niobium pentafluoride (7783-68-8)	
BLV	7 mg/g creatinine Parameter: Fluorid - Untersuchungsmaterial: Harn - Probenahmezeitpunkt: Wenn die Harnprobe unmittelbar nach Expositions- bzw. Schichtende abgenommen wurde 4 mg/g creatinine Parameter: Fluorid - Untersuchungsmaterial: Harn - Probenahmezeitpunkt: Wenn die Harnprobe vor nachfolgender Schicht abgenommen wurde
Remark	Eignung mit vorzeitiger Folgeuntersuchung: Bei Überschreiten der zulässigen Grenzwerte für Fluorid im Harn. 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)
Belgium - Occupational Exposure Limits	
Local name	Fluorures inorganiques (en F) # Fluoriden (anorganische)
OEL TWA	2,5 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Croatia - Occupational Exposure Limits	
Local name	Fluoridi, anorganski
GVI (OEL TWA) [1]	2,5 mg/m ³
Remark	Direktiva: 2000/39/EZ
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	Fluorovodična kiselina (vodikov fluorid) i anorganski fluorovi spojevi
BLV	8 mg/g creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene 40 mmol/mol Creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene 4 mg/g creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: prije početka radne smjene u sredini tjedna 24 mmol/mol Creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: prije početka radne smjene u sredini tjedna
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	Fluoridy anorganické, jako F
PEL (OEL TWA)	2,5 mg/m ³
NPK-P (OEL C)	5 mg/m ³
Remark	I - dráždív sliznice (oči, dýchací cesty), respektive kůži, B - u látky je zaveden biologický expoziční test (BET) v moči nebo krvi.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
Czech Republic - Biological limit values	
Local name	Fluoridy

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

niobium pentafluoride (7783-68-8)	
BLV	10 mg/g creatinine Ukazatel: Fluorid - Biologicky vzorek: moči - Doba odběru: konec směny 60 µmol/mmol Creatinine Ukazatel: Fluorid - Biologicky vzorek: moči - Doba odběru: konec směny
Regulatory reference	Vyhláška č. 107/2013 Sb. (kterou se mění vyhláška č. 432/2003 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Fluorider, undtagen de andetsteds i listen nævnte
OEL TWA [1]	2,5 mg/m ³ beregnet som F
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Fluoriidid, k.a vesinikfluoriid
OEL TWA	2,5 mg/m ³
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Fluoridit, epäorganiset
HTP (OEL TWA) [1]	2,5 mg/m ³ F
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Fluorures inorganiques
VME (OEL TWA)	2,5 mg/m ³
Remark	Valeurs réglementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 984, 2016)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Fluoride (als Fluor berechnet)
AGW (OEL TWA) [1]	1 mg/m ³ (E)
Peak exposure limitation factor	4(II)
Remark	EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden; H - hautresorptiv
Regulatory reference	TRGS900
Germany - Biological limit values (TRGS 903)	
Local name	Hydrogenfluorid (Fluorwasserstoff) und anorganische Fluorverbindungen (Fluoride)
Biological limit value	4 mg/l Parameter: Fluorid - Untersuchungsmaterial: U = Urin - Probenahmezeitpunkt: b) Expositionsende, bzw. Schichtende - Festlegung/Begründung: 11/2020 DFG
Regulatory reference	TRGS 903
Gibraltar - Occupational Exposure Limits	
Local name	Fluorides, inorganic

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

niobium pentafluoride (7783-68-8)	
OEL TWA	2,5 mg/m ³
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Φθοριούχες ενώσεις ως F
OEL TWA	2,5 mg/m ³
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	FLUORIDOK (F-ra számítva)
AK (OEL TWA)	2,5 mg/m ³
Remark	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát), BEM (biológiai expozíciós mutató); EU1 (2000/39/EK irányelvben közölt érték); 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
Hungary - Biological Exposure Indices	
Local name	Fluorid vegyületek
BEI	7 mg/g creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 42 μmol/mmol Creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 4 mg/g creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: köv.m.e. (következő műszak előtt) 24 μmol/mmol Creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: köv.m.e. (következő műszak előtt)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Fluoride (as F)
OEL TWA [1]	2,5 mg/m ³
Regulatory reference	Chemical Agents Code of Practice 2021
Ireland - Biological limit values	
Local name	Fluorine, Hydrogen Fluoride and Inorganic Fluorides (not uranium hexafluoride)
BMGV	2 mg/l Parameter: Fluoride - Medium: urine - Sampling time: Prior to shift - Notations: B (Background), Ns (Non-specific) 3 mg/l Parameter: Fluoride - Medium: urine - Sampling time: End of shift - Notations: B (Background), Ns (Non-specific)
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
Italy - Occupational Exposure Limits	
Local name	Fluoruri inorganici (espressi come F)
OEL TWA	2,5 mg/m ³

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

niobium pentafluoride (7783-68-8)	
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	Fluorīdi, neorganiskie
OEL TWA	2,5 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2011. gada 1. februārī noteikumiem Nr. 92)
Lithuania - Occupational Exposure Limits	
Local name	Fluoridai, išskyrus vandenilio fluoridą
IPRV (OEL TWA)	2,5 mg/m ³ (kaip F)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Fluorures inorganiques
OEL TWA	2,5 mg/m ³
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
Malta - Occupational Exposure Limits	
Local name	Fluorides, inorganic # Fluorides,inorganici
OEL TWA	2,5 mg/m ³
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Fluoriden, anorganisch en oplosbaar
TGG-15min (OEL STEL)	2 mg/m ³ (als F)
Regulatory reference	Arbeidsomstandighedenregeling 2022
Poland - Occupational Exposure Limits	
Local name	Fluorki
NDS (OEL TWA)	2 mg/m ³ w przeliczeniu na F-
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Fluoretos, expressos em F
OEL TWA	2,5 mg/m ³
Remark	A4 (Agente não classificável como carcinogénico no Homem); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014
Portugal - Biological Exposure Indices	
Local name	Fluoretos
BEI	2 mg/l Parâmetro: Fluoretos - Meio: urina - Momento da amostragem: Início do turno - Notação: Vb (Valor basal), Ne (Não específico) 3 mg/l Parâmetro: Fluoretos - Meio: urina - Momento da amostragem: Fim do turno - Notação: Vb (Valor basal), Ne (Não específico)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

niobium pentafluoride (7783-68-8)	
Romania - Occupational Exposure Limits	
Local name	Fluoruri anorganice
OEL TWA	2,5 mg/m ³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Romania - Biological limit values	
Local name	Fluor și compuși
BLV	5 mg/g creatinine Indicator biologic: Fluor - Material biologic: urină - Momentul recoltării: sfârșit de schimb
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 584/2018)
Slovakia - Occupational Exposure Limits	
Local name	Fluoridy – anorganické (ako F)
NPHV (OEL TWA) [1]	2,5 mg/m ³
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovakia - Biological limit values	
Local name	Fluorovodík a anorganické zlúčeniny fluóru (fluoridy)
BLV	7 mg/g creatinine Zisťovaný faktor: Fluoridy - Vyšetovaný materiál: moč - Čas odberu vzorky: b) koniec expozície alebo pracovnej zmeny 4 mg/g creatinine Zisťovaný faktor: Fluoridy - Vyšetovaný materiál: moč - Čas odberu vzorky: d) pred nasledujúcou pracovnou zmenou
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (Zmena: 471/2011 Z.z.)
Slovenia - Occupational Exposure Limits	
Local name	fluorid – anorg.(računano kot fluor)
OEL TWA	2,5 mg/m ³
OEL STEL	10 mg/m ³
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), BAT (Biološka mejna vrednost), EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Slovenia - Biological limit values	
Local name	vodikov fluorid in anorganske fluorove spojine (fluoridi)
BLV	7 mg/g creatinine Parameter: fluorid - Biološki vzorec: urin - Čas vzorčenja: ob koncu delovne izmene 4 mg/g creatinine Parameter: fluorid - Biološki vzorec: urin - Čas vzorčenja: pred naslednjim delovnim dnevom
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Fluoruros inorgánicos, excepto el hexafluoruro de uranio y los expresamente indicados
VLA-ED (OEL TWA) [1]	2,5 mg/m ³ como F
Remark	VLB® (Agente químico que tiene Valor Límite Biológico), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

niobium pentafluoride (7783-68-8)	
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Spain - Biological limit values	
Local name	Fluoruros inorgánicos
BLV	2 mg/l Parámetro: Fluoruros - Medio: Orina - Momento de muestreo: Antes de la jornada 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), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos) 3 mg/l Parámetro: Fluoruros - Medio: Orina - Momento de muestreo: Final de la jornada 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), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Sweden - Occupational Exposure Limits	
Local name	Fluorider (som F)
NGV (OEL TWA)	2 mg/m ³
Remark	31 (Vid exponering för blandningar av fluorider och vätefluorid ska nivågränsvärdet för fluorider tillämpas)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Fluoride
WEL TWA (OEL TWA) [1]	2,5 mg/m ³ (inorganic as F)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Níóbíum, duft, ryk og uppleysanleg sambönd, sem Nb
OEL TWA	5 mg/m ³
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Uorganiske fluorider (beregnet som F)
Grenseverdi (OEL TWA) [1]	0,5 mg/m ³
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2021-06-28-2248
North Macedonia - Occupational Exposure Limits	
Local name	Ниобиум
OEL TWA	5 mg/m ³ (I) 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)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

niobium pentafluoride (7783-68-8)	
Switzerland - Occupational Exposure Limits	
Local name	Fluorures / Fluoride
MAK (OEL TWA) [1]	1 mg/m ³ (i) / (e)
KZGW (OEL STEL)	4 mg/m ³ (i) / (e)
Critical toxicity	Os / Knochen
Notation	R, SS _C , B / H, SS _C , B
Remark	HSE, NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022
Switzerland - BAT	
Local name	Acide fluorhydrique / Fluoride
BAT	4 mg/l (211 µmol/l; Paramètre biologique: Fluorures; Substrat d'examen: Urine; Moment du prélèvement: Fin de l'exposition, de la période de travail.) / (211 µmol/l; Biologischer Parameter: Fluorid; Untersuchungsmaterial: Urin; Probennahmezeitpunkt: Expositionsende, bzw. Schichtende.)
Remark	Influence de l'environnement. / Umwelteinflüsse.
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
USA - ACGIH - Occupational Exposure Limits	
Local name	Fluorides, as F
ACGIH OEL TWA	2,5 mg/m ³
Remark (ACGIH)	TLV® Basis: Bone dam; fluorosis. Notations: A4 (Not classifiable as a Human Carcinogen); BEI
Regulatory reference	ACGIH 2022
ammonium sulphate (7783-20-2)	
Bulgaria - Occupational Exposure Limits	
Local name	Амониев сулфат
OEL TWA	10 mg/m ³
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Latvia - Occupational Exposure Limits	
Local name	Hroma-amonija sulfāts, pēc Cr (hroma-amonija alauns)
OEL TWA	0,02 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2011. gada 1. februārī noteikumiem Nr. 92)
ammonium hexafluorosilicate (16919-19-0)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	2,5 mg/m ³ (Fluorides, inorganic; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

ammonium hexafluorosilicate (16919-19-0)	
Belgium - Occupational Exposure Limits	
Local name	Silicium # Silicium
OEL TWA	2,5 mg/m ³ (Fluorures inorganiques (en F); Belgium; Time-weighted average exposure limit 8 h)
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Croatia - Occupational Exposure Limits	
Local name	Silicij
GVI (OEL TWA) [1]	10 mg/m ³ U (ukupna prašina) 4 mg/m ³ R (respirabilna prašina)
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
Denmark - Occupational Exposure Limits	
Local name	Silicium
OEL TWA [1]	10 mg/m ³
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Silikoon
OEL TWA	10 mg/m ³ 5 mg/m ³ peentolm
Remark	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)
France - Occupational Exposure Limits	
Local name	Silicium
VME (OEL TWA)	2,5 mg/m ³ (Fluorures inorganiques; France; Time-weighted average exposure limit 8 h; VRI: Valeur réglementaire indicative)
Remark	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Greece - Occupational Exposure Limits	
Local name	Πυρίτιο
OEL TWA	10 mg/m ³ εισπν. 5 mg/m ³ αναπν.
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Ireland - Occupational Exposure Limits	
Local name	Silicon Si
OEL TWA [1]	10 mg/m ³ total inhalable dust 4 mg/m ³ respirable dust
Regulatory reference	Chemical Agents Code of Practice 2021

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

ammonium hexafluorosilicate (16919-19-0)	
Netherlands - Occupational Exposure Limits	
TGG-15min (OEL STEL)	2 mg/m ³ (Fluoriden, anorganisch en oplosbaar (als F); Netherlands; Short time value; Public occupational exposure limit value; als F)
Slovakia - Occupational Exposure Limits	
Local name	Silikón
NPHV (OEL TWA) [1]	10 mg/m ³ inhalovateľná frakcia 4 mg/m ³ respirabilná frakcia
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
United Kingdom - Occupational Exposure Limits	
Local name	Silicon
WEL TWA (OEL TWA) [1]	2,5 mg/m ³ Fluorides (inorganic as F); United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Sílan
OEL TWA	0,7 mg/m ³
OEL TWA [ppm]	0,5 ppm
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Silisium
Grønseverdi (OEL TWA) [1]	10 mg/m ³
Remark	1) Grønseverdien er fastsatt lik verdien for sjenerende støv.
Regulatory reference	FOR-2021-06-28-2248
Switzerland - Occupational Exposure Limits	
Local name	Silicium / Silicium
MAK (OEL TWA) [1]	3 mg/m ³ (a) / (a)
Remark	NIOSH
Regulatory reference	www.suva.ch, 28.03.2022
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	2,5 mg/m ³ (Fluorides, as F; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
tantalum pentafluoride (7783-71-3)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Fluorides, inorganic
IOEL TWA	2,5 mg/m ³
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

tantalum pentafluoride (7783-71-3)	
Albania - Occupational Exposure Limits	
Local name	Fluorure, inorganike
OEL TWA	2,5 mg/m ³
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDETIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKË NË PUNË"
Austria - Occupational Exposure Limits	
Local name	Tantal
MAK (OEL TWA)	5 mg/m ³ (E) 2,5 mg/m ³ (als F berechnet, E)
MAK (OEL STEL)	12,5 mg/m ³ (als F berechnet, E, 2x 30(Miw) min)
Regulatory reference	BGBI. II Nr. 156/2021 BGBI. II Nr. 156/2021
Austria - Biological limit values	
Local name	Fluor, seine anorganischen Verbindungen
BLV	7 mg/g creatinine Parameter: Fluorid - Untersuchungsmaterial: Harn - Probenahmezeitpunkt: Wenn die Harnprobe unmittelbar nach Expositions- bzw. Schichtende abgenommen wurde 4 mg/g creatinine Parameter: Fluorid - Untersuchungsmaterial: Harn - Probenahmezeitpunkt: Wenn die Harnprobe vor nachfolgender Schicht abgenommen wurde
Remark	Eignung mit vorzeitiger Folgeuntersuchung: Bei Überschreiten der zulässigen Grenzwerte für Fluorid im Harn. 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)
Belgium - Occupational Exposure Limits	
Local name	Fluorures inorganiques (en F) # Fluoriden (anorganische)
OEL TWA	2,5 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Тантал
OEL TWA	5 mg/m ³
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Croatia - Occupational Exposure Limits	
Local name	Fluoridi, anorganski
GVI (OEL TWA) [1]	2,5 mg/m ³
Remark	Direktiva: 2000/39/EZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граниčnim vrijednostima izloženosti i biološkim граниčnim vrijednostima (NN 1/2021)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

tantalum pentafluoride (7783-71-3)	
Czech Republic - Occupational Exposure Limits	
Local name	Fluoridy anorganické, jako F
PEL (OEL TWA)	2,5 mg/m ³
NPK-P (OEL C)	5 mg/m ³
Remark	I - dráždí sliznice (oči, dýchací cesty), respektive kůže, B - u látky je zaveden biologický expoziční test (BET) v moči nebo krvi.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
Czech Republic - Biological limit values	
Local name	Fluoridy
BLV	10 mg/g creatinine Ukazatel: Fluorid - Biologicky vzorek: moči - Doba odběru: konec směny 60 µmol/mmol Creatinine Ukazatel: Fluorid - Biologicky vzorek: moči - Doba odběru: konec směny
Regulatory reference	Vyhláška č. 107/2013 Sb. (kterou se mění vyhláška č. 432/2003 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Fluorider, undtagen de andetsteds i listen nævnte
OEL TWA [1]	2,5 mg/m ³ beregnet som F
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Fluoriidid, k.a vesinikfluoriid
OEL TWA	2,5 mg/m ³
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Fluoridit, epäorgaaniset
HTP (OEL TWA) [1]	2,5 mg/m ³ F
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Fluorures inorganiques
VME (OEL TWA)	2,5 mg/m ³
Remark	Valeurs réglementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 984, 2016)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Fluoride (als Fluor berechnet)
AGW (OEL TWA) [1]	1 mg/m ³ (E)
Peak exposure limitation factor	4(II)

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

tantalum pentafluoride (7783-71-3)	
Remark	EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden; H - hautresorptiv
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Fluorides, inorganic
OEL TWA	2,5 mg/m ³
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Ταντάλιο
OEL TWA	5 mg/m ³
OEL STEL	10 mg/m ³
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	FLUORIDOK (F-ra számítva)
AK (OEL TWA)	2,5 mg/m ³
Remark	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát), BEM (biológiai expozíciós mutató); EU1 (2000/39/EK irányelvben közölt érték); 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
Hungary - Biological Exposure Indices	
Local name	Fluorid vegyületek
BEI	7 mg/g creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 42 μmol/mmol Creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 4 mg/g creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: köv.m.e. (következő műszak előtt) 24 μmol/mmol Creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: köv.m.e. (következő műszak előtt)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Fluorides, inorganic
OEL TWA [1]	2,5 mg/m ³
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

tantalum pentafluoride (7783-71-3)	
Ireland - Biological limit values	
Local name	Fluorine, Hydrogen Fluoride and Inorganic Fluorides (not uranium hexafluoride)
BMGV	2 mg/l Parameter: Fluoride - Medium: urine - Sampling time: Prior to shift - Notations: B (Background), Ns (Non-specific) 3 mg/l Parameter: Fluoride - Medium: urine - Sampling time: End of shift - Notations: B (Background), Ns (Non-specific)
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
Italy - Occupational Exposure Limits	
Local name	Fluoruri inorganici (espressi come F)
OEL TWA	2,5 mg/m ³
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	Fluorīdi, neorganiskie
OEL TWA	2,5 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2011. gada 1. februārī noteikumiem Nr. 92)
Lithuania - Occupational Exposure Limits	
Local name	Fluoridai, išskyrus vandenilio fluoridą
IPRV (OEL TWA)	2,5 mg/m ³ (kaip F)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Fluorures inorganiques
OEL TWA	2,5 mg/m ³
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
Malta - Occupational Exposure Limits	
Local name	Fluorides, inorganic # Fluorides,inorganiči
OEL TWA	2,5 mg/m ³
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Fluoriden, anorganisch en oplosbaar
TGG-15min (OEL STEL)	2 mg/m ³ (als F)
Regulatory reference	Arbeidsomstandighedenregeling 2022
Poland - Occupational Exposure Limits	
Local name	Tantal
NDS (OEL TWA)	5 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

tantalum pentafluoride (7783-71-3)	
Portugal - Occupational Exposure Limits	
Local name	Fluoretos, expressos em F
OEL TWA	2,5 mg/m ³
Remark	A4 (Agente não classificável como carcinogénico no Homem); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014
Portugal - Biological Exposure Indices	
Local name	Fluoretos
BEI	2 mg/l Parâmetro: Fluoretos - Meio: urina - Momento da amostragem: Início do turno - Notação: Vb (Valor basal), Ne (Não específico) 3 mg/l Parâmetro: Fluoretos - Meio: urina - Momento da amostragem: Fim do turno - Notação: Vb (Valor basal), Ne (Não específico)
Romania - Occupational Exposure Limits	
Local name	Fluoruri anorganice
OEL TWA	2,5 mg/m ³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Romania - Biological limit values	
Local name	Fluor și compuși
BLV	5 mg/g creatinine Indicador biologic: Fluor - Material biologic: urină - Momentul recoltării: sfârșit de schimb
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 584/2018)
Slovakia - Occupational Exposure Limits	
Local name	Fluoridy – anorganické (ako F)
NPHV (OEL TWA) [1]	2,5 mg/m ³
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovakia - Biological limit values	
Local name	Fluorovodík a anorganické zlúčeniny fluóru (fluoridy)
BLV	7 mg/g creatinine Zisťovaný faktor: Fluoridy - Vyšetovaný materiál: moč - Čas odberu vzorky: b) koniec expozície alebo pracovnej zmeny 4 mg/g creatinine Zisťovaný faktor: Fluoridy - Vyšetovaný materiál: moč - Čas odberu vzorky: d) pred nasledujúcou pracovnou zmenou
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (Zmena: 471/2011 Z.z.)
Slovenia - Occupational Exposure Limits	
Local name	fluorid – anorg.(računano kot fluor)
OEL TWA	2,5 mg/m ³
OEL STEL	10 mg/m ³
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), BAT (Biološka mejna vrednost), EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

tantalum pentafluoride (7783-71-3)	
Spain - Occupational Exposure Limits	
Local name	Fluoruros inorgánicos, excepto el hexafluoruro de uranio y los expresamente indicados
VLA-ED (OEL TWA) [1]	2,5 mg/m ³ como F
Remark	VLB® (Agente químico que tiene Valor Límite Biológico), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Spain - Biological limit values	
Local name	Fluoruros inorgánicos
BLV	2 mg/l Parámetro: Fluoruros - Medio: Orina - Momento de muestreo: Antes de la jornada 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), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos) 3 mg/l Parámetro: Fluoruros - Medio: Orina - Momento de muestreo: Final de la jornada 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), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Sweden - Occupational Exposure Limits	
Local name	Fluorider (som F)
NGV (OEL TWA)	2 mg/m ³
Remark	31 (Vid exponering för blandningar av fluorider och vätefluorid ska nivågränsvärdet för fluorider tillämpas)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Fluoride
WEL TWA (OEL TWA) [1]	2,5 mg/m ³ (inorganic as F)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Tantal, duft, sem Ta
OEL TWA	5 mg/m ³
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Uorganiske fluorider (beregnet som F)
Grenseverdi (OEL TWA) [1]	0,5 mg/m ³
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2021-06-28-2248
Switzerland - Occupational Exposure Limits	
Local name	Fluorures / Fluoride

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

tantalum pentafluoride (7783-71-3)	
MAK (OEL TWA) [1]	1 mg/m ³ (i) / (e)
KZGW (OEL STEL)	4 mg/m ³ (i) / (e)
Critical toxicity	Os / Knochen
Notation	R, SS _C , B / H, SS _C , B
Remark	HSE, NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022
Switzerland - BAT	
Local name	Fluorures / Fluorwasserstoff
BAT	4 mg/l (211 µmol/l; Paramètre biologique: Fluorures; Substrat d'examen: Urine; Moment du prélèvement: Fin de l'exposition, de la période de travail.) / (211 µmol/l; Biologischer Parameter: Fluorid; Untersuchungsmaterial: Urin; Probennahmezeitpunkt: Expositionsende, bzw. Schichtende.)
Remark	Influence de l'environnement. / Umwelteinflüsse.
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
USA - ACGIH - Occupational Exposure Limits	
Local name	Fluorides, as F
ACGIH OEL TWA	2,5 mg/m ³
Remark (ACGIH)	TLV® Basis: Bone dam; fluorosis. Notations: A4 (Not classifiable as a Human Carcinogen); BEI
Regulatory reference	ACGIH 2022
tungsten hexafluoride (7783-82-6)	
Austria - Occupational Exposure Limits	
Local name	Wolfram
MAK (OEL TWA)	5 mg/m ³
MAK (OEL STEL)	10 mg/m ³
Regulatory reference	BGBl. II Nr. 156/2021 BGBl. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Tungstène (composés insolubles) (en W) # Wolfraam (onoplosb. verb. als W)
OEL TWA	1 mg/m ³ (Tungstène (composés solubles) (en W); Belgium; Time-weighted average exposure limit 8 h)
OEL STEL	3 mg/m ³ (Tungstène (composés solubles) (en W); Belgium; Short time value)
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Волфрам
OEL TWA	1 mg/m ³ (разтв. съединения (като волфрам)) 5 mg/m ³ (неразтв. съединения (като волфрам))
OEL STEL	3 mg/m ³ (разтв. съединения (като волфрам)) 10 mg/m ³ (неразтв. съединения (като волфрам))

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

tungsten hexafluoride (7783-82-6)	
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.)
Denmark - Occupational Exposure Limits	
Local name	Wolfram, pulver, støv og uopløselige forbindelser
OEL TWA [1]	5 mg/m ³ beregnet som W
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Volfram, metall, vähelahustuvad ühendid (arvutatudvolframile)
OEL TWA	5 mg/m ³
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Volframi, metalli
HTP (OEL TWA) [1]	5 mg/m ³
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
VME (OEL TWA)	2,5 mg/m ³ (Fluorures inorganiques; France; Time-weighted average exposure limit 8 h; VRI: Valeur réglementaire indicative)
Ireland - Occupational Exposure Limits	
Local name	Tungsten & compounds (as W), soluble compounds
OEL TWA [1]	1 mg/m ³ 5 mg/m ³
OEL STEL	3 mg/m ³ 10 mg/m ³
Regulatory reference	Chemical Agents Code of Practice 2021
Netherlands - Occupational Exposure Limits	
TGG-15min (OEL STEL)	2 mg/m ³ (Fluoriden, anorganisch en oplosbaar (als F); Netherlands; Short time value; Public occupational exposure limit value; als F)
Poland - Occupational Exposure Limits	
Local name	Wolfram dymy i pyły
NDS (OEL TWA)	5 mg/m ³
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
Portugal - Occupational Exposure Limits	
Local name	Tungsténio
OEL TWA	5 mg/m ³ Metal e compostos insolúveis, expresso em W 1 mg/m ³ Compostos solúveis, expresso em W
OEL STEL	10 mg/m ³ Metal e compostos insolúveis, expresso em W 3 mg/m ³ Compostos solúveis, expresso em W

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

tungsten hexafluoride (7783-82-6)	
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Tungsten; carbura de tungsten
OEL TWA	2 mg/m ³
OEL STEL	6 mg/m ³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Slovakia - Occupational Exposure Limits	
Local name	Wolfrám
NPHV (OEL TWA) [1]	5 mg/m ³ nerozpustné zlúčeniny 1 mg/m ³ rozpustné zlúčeniny
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	volfram
OEL TWA	5 mg/m ³
Spain - Occupational Exposure Limits	
Local name	Tungsteno (Wolframio)
VLA-ED (OEL TWA) [1]	5 mg/m ³ metal 5 mg/m ³ Compuestos insolubles, como W 1 mg/m ³ Compuestos solubles, como W
VLA-EC (OEL STEL)	10 mg/m ³ metal 10 mg/m ³ Compuestos insolubles, como W 3 mg/m ³ Compuestos solubles, como W
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Sweden - Occupational Exposure Limits	
Local name	Volfram, metall och svårlösliga föreningar (som W)
NGV (OEL TWA)	5 mg/m ³
Remark	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 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Tungsten
WEL TWA (OEL TWA) [1]	1 mg/m ³ and compounds (as W), soluble compounds 5 mg/m ³ and compounds (as W), insoluble compounds and others
WEL STEL (OEL STEL)	3 mg/m ³ and compounds (as W), soluble compounds 10 mg/m ³ and compounds (as W), insoluble compounds and others
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Wolfram, duft, ryk og torleysnaleg sambönd, sem W

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

tungsten hexafluoride (7783-82-6)	
OEL TWA	5 mg/m ³
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
North Macedonia - Occupational Exposure Limits	
Local name	Волфрам
OEL TWA	5 mg/m ³ (I) 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)
Switzerland - Occupational Exposure Limits	
Local name	Tungsten u. seine Verbindungen (s. Wolfram u. seine Verbindungen)
MAK (OEL TWA) [1]	1 mg/m ³ 1 mg/m ³ 5 mg/m ³
Critical toxicity	SNC, Fibpulm / ZNS, Lungenfibrose
Remark	e(mg/m ³) - ZNS, Lungenfib - NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022
USA - ACGIH - Occupational Exposure Limits	
Local name	Tungsten and compounds, in the absence of Cobalt, as W
ACGIH OEL TWA	2,5 mg/m ³ (Fluorides, as F; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
Remark (ACGIH)	Lung dam
Regulatory reference	ACGIH 2022
zirconium dinitrate oxide, hydrate (14985-18-3)	
Austria - Occupational Exposure Limits	
Local name	Zirkon
MAK (OEL TWA)	5 mg/m ³
Remark	Sah
Regulatory reference	BGBI. II Nr. 156/2021 BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Zirconium (composés du) (en Zr) # Zirkonium (en verbindingen) (als Zr)
OEL TWA	5 mg/m ³
OEL STEL	10 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Denmark - Occupational Exposure Limits	
Local name	Zirconiumforbindelser
OEL TWA [1]	5 mg/m ³ beregnet som Zr

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

zirconium dinitrate oxide, hydrate (14985-18-3)	
Regulatory reference	BEK nr 2203 af 29. november 2021
Finland - Occupational Exposure Limits	
Local name	Zirkonium
HTP (OEL TWA) [1]	1 mg/m ³
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
Ireland - Occupational Exposure Limits	
Local name	Zirconium compounds (as Zr)
OEL TWA [1]	5 mg/m ³
OEL STEL	10 mg/m ³
Regulatory reference	Chemical Agents Code of Practice 2021
Lithuania - Occupational Exposure Limits	
Local name	Cirkonis
IPRV (OEL TWA)	6 mg/m ³
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Poland - Occupational Exposure Limits	
Local name	Cyrkon i jego związki w przeliczeniu na Zr
NDS (OEL TWA)	5 mg/m ³
NDSCh (OEL STEL)	10 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Zircónio e compostos, expressos em Zr
OEL TWA	5 mg/m ³
OEL STEL	10 mg/m ³
Remark	A4 (Agente não classificável como carcinogénico no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Zirconiu și compuși (exprimati în Zr)
OEL TWA	5 mg/m ³
OEL STEL	10 mg/m ³
Slovenia - Occupational Exposure Limits	
Local name	cirkonij prah,legure in v vodi netopne cirkonijeve spojine
OEL TWA	1 mg/m ³
OEL STEL	1 mg/m ³
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Circonio

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

zirconium dinitrate oxide, hydrate (14985-18-3)	
VLA-ED (OEL TWA) [1]	5 mg/m ³ elemental 5 mg/m ³ Compuestos de circonio, como Zr
VLA-EC (OEL STEL)	10 mg/m ³ elemental 10 mg/m ³ Compuestos de circonio, como Zr
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
United Kingdom - Occupational Exposure Limits	
Local name	Zirconium compounds (as Zr)
WEL TWA (OEL TWA) [1]	5 mg/m ³
WEL STEL (OEL STEL)	10 mg/m ³
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Sirkóníumsambönd, sem Zr
OEL TWA	5 mg/m ³
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
North Macedonia - Occupational Exposure Limits	
Local name	Циркониум - прав, легури и нерастворливи цирконијеви соединенија
OEL TWA	1 mg/m ³ (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)
Switzerland - Occupational Exposure Limits	
Local name	Composés de zirconium (sauf le dioxyde et le tétrachlorure) / Zirkoniumverbindungen (ausser -dioxid und -tetrachlorid)
MAK (OEL TWA) [1]	5 mg/m ³ (i) / (e)
KZGW (OEL STEL)	10 mg/m ³ (i) / (e)
Remark	NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022
USA - ACGIH - Occupational Exposure Limits	
Local name	Zirconium
ACGIH OEL TWA	5 mg/m ³
ACGIH OEL STEL	10 mg/m ³
Remark (ACGIH)	TLV® Basis: Resp irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2022

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

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

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

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

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	: 1,07
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).

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
-----------------------	-----------------

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
LD50 dermal rabbit	≤ 50 mg/kg
boric acid (10043-35-3)	
LD50 oral rat	2660 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 Inhalation - Rat	> 2,12 mg/l
germanium dioxide (1310-53-8)	
LD50 oral rat	> 2000 mg/kg bodyweight
LC50 Inhalation - Rat	1,42 mg/l/4h
ammonium sulphate (7783-20-2)	
LD50 oral rat	2840 mg/kg
LD50 dermal rat	> 2000 mg/kg bodyweight
ammonium hexafluorosilicate (16919-19-0)	
LD50 oral rat	100 mg/kg bodyweight
LD50 oral	70 mg/kg bodyweight mouse
tungsten hexafluoride (7783-82-6)	
LC50 Inhalation - Rat [ppm]	4970 ppm
zirconium dinitrate oxide, hydrate (14985-18-3)	
LD50 oral rat	> 2000 mg/kg
Skin corrosion/irritation : Causes skin irritation.	
nitric acid (7697-37-2)	
pH	< 1
hydrofluoric Acid (7664-39-3)	
pH	< 1
boric acid (10043-35-3)	
pH	5,1
molybdenum pentafluoride (13819-84-6)	
pH	< 2
ammonium sulphate (7783-20-2)	
pH	5,5 (1.3 %)
Serious eye damage/irritation : Causes serious eye irritation.	
nitric acid (7697-37-2)	
pH	< 1
hydrofluoric Acid (7664-39-3)	
pH	< 1

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

boric acid (10043-35-3)	
pH	5,1
molybdenum pentafluoride (13819-84-6)	
pH	< 2
ammonium sulphate (7783-20-2)	
pH	5,5 (1.3 %)
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
tantalum pentafluoride (7783-71-3)	
IARC group	3 - Not classifiable
ammonium sulphate (7783-20-2)	
NOAEL (chronic, oral, animal/male, 2 years)	256 mg/kg bodyweight rat
NOAEL (chronic, oral, animal/female, 2 years)	284 mg/kg bodyweight rat
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
nitric acid (7697-37-2)	
NOAEL (oral, rat, 90 days)	1500 mg/kg bodyweight
NOAEC (inhalation, rat, gas, 90 days)	2,15 ppm
germanium dioxide (1310-53-8)	
LOAEL (oral, rat, 90 days)	37,5 mg/kg bodyweight
STOT-repeated exposure	May cause damage to organs (kidneys) through prolonged or repeated exposure (inhalation, oral).
Aspiration hazard	: Not classified
nitric acid (7697-37-2)	
Viscosity, kinematic	0,595 mm ² /s
tungsten hexafluoride (7783-82-6)	
Viscosity, kinematic	0,006 mm ² /s

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

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

nitric acid (7697-37-2)	
EC50 - Crustacea [1]	180 mg/l Daphnia magna (Water flea)
Threshold limit - Algae [1]	> 19 mg/l
hydrofluoric Acid (7664-39-3)	
EC50 - Crustacea [1]	270 mg/l Daphnia magna (Water flea)
NOEC (chronic)	14,1 mg/l Daphnia magna (Water flea)
NOEC chronic fish	4 mg/l Oncorhynchus mykiss (Rainbow trout)
boric acid (10043-35-3)	
LC50 - Fish [1]	79,7 mg/l Pimephales promelas (Fathead minnow)
EC50 72h - Algae [1]	54 – 66 mg/l Phaeodactylum tricornutum
NOEC chronic fish	6,4 mg/l Brachydanio rerio (zebra-fish)
NOEC chronic crustacea	25,9 mg/l Daphnia magna (Water flea)
germanium dioxide (1310-53-8)	
LC50 - Fish [1]	103,5 mg/l Brachydanio rerio (zebra-fish)
EC50 - Crustacea [1]	67,5 mg/l Daphnia magna (Water flea)
EC50 72h - Algae [1]	0,206 mg/l Navicula pelliculosa
NOEC chronic algae	0,1 mg/l Navicula pelliculosa
ammonium sulphate (7783-20-2)	
LC50 - Fish [1]	53 mg/l Oncorhynchus mykiss (Rainbow trout)
EC50 - Crustacea [1]	169 mg/l Daphnia magna (Water flea)
ammonium hexafluorosilicate (16919-19-0)	
EC50 - Crustacea [1]	35,4 mg/l Daphnia magna (Water flea)
EC50 72h - Algae [1]	16,6 – 19,6 mg/l Pseudokirchneriella subcapitata
tungsten hexafluoride (7783-82-6)	
LC50 - Fish [1]	51 mg/l
EC50 96h - Algae [1]	43 mg/l Pseudokirchneriella subcapitata
NOEC chronic fish	4 mg/l Oncorhynchus mykiss (Rainbow trout)

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
hydrofluoric Acid (7664-39-3)	
Partition coefficient n-octanol/water (Log Pow)	-1,4

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

boric acid (10043-35-3)	
Partition coefficient n-octanol/water (Log Pow)	0,18
niobium pentafluoride (7783-68-8)	
Partition coefficient n-octanol/water (Log Pow)	0,21 Quantitative structure-activity relationship (QSAR)
ammonium sulphate (7783-20-2)	
Partition coefficient n-octanol/water (Log Pow)	-5,1

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
hydrofluoric Acid (7664-39-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
boric acid (10043-35-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
germanium dioxide (1310-53-8)	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
niobium pentafluoride (7783-68-8)	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
ammonium sulphate (7783-20-2)	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
ammonium hexafluorosilicate (16919-19-0)	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
tantalum pentafluoride (7783-71-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
tungsten hexafluoride (7783-82-6)	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
zirconium dinitrate oxide, hydrate (14985-18-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. 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.

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not dangerous goods in terms of transport regulations				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
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

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
3(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)	Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942 ; nitric acid ; hydrofluoric 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.	boric acid	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.
65.	ammonium sulphate ; ammonium hexafluorosilicate	Inorganic ammonium salts

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: Boric acid (EC 233-139-2, CAS 10043-35-3)

PIC Regulation (Prior Informed Consent)

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

POP Regulation (Persistent Organic Pollutants)

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

Ozone Regulation (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.

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

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

Please see 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 32	Occupational disorders caused by fluoride, hydrofluoric acid and its mineral salts

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

: niobium pentafluoride,tantalum pentafluoride,tungsten hexafluoride are listed

: niobium pentafluoride,tantalum pentafluoride,tungsten hexafluoride are listed

: None of the components are listed

: None of the components are listed

: None of the components are listed

Denmark

Danish National Regulations

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

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes

Section	Changed item	Change	Comments
	Supersedes version of	Added	
	Revision date	Modified	
	Flammability	Modified	
2.1	Adverse physicochemical, human health and environmental effects	Modified	
2.1	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Modified	
2.2	Precautionary statements (CLP)	Modified	
2.2	Hazard statements (CLP)	Modified	
4.1	First-aid measures after skin contact	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

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

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 (Dermal)	Acute toxicity (dermal), Category 1
Acute Tox. 1 (Inhalation)	Acute toxicity (inhal.), Category 1
Acute Tox. 1 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 1
Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral), Category 2
Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
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 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
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.

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/ tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

Full text of H- and EUH-statements:	
H280	Contains gas under pressure; may explode if heated.
H290	May be corrosive to metals.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
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.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H360FD	May damage fertility. May damage the unborn child.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.
Met. Corr. 1	Corrosive to metals, Category 1
Ox. Liq. 2	Oxidising Liquids, Category 2
Ox. Liq. 3	Oxidising Liquids, Category 3
Ox. Sol. 2	Oxidising Solids, Category 2
Press. Gas (Comp.)	Gases under pressure : Compressed gas
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 Sens. 1	Skin sensitisation, Category 1
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Skin Irrit. 2	H315	Calculation method

Multi-element calibration standard-4B - 12 components; 10ug/ml each of B ; Ge ; Mo ; Nb ; P ; Re ; S ; Si ; Ta ; Ti ; W ; Zr in HNO3 2%/tr. HF Equivalent to Agilent Ref: 8500-6942

Safety Data Sheet

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

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

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.