

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
SDS Reference Number: EQ0122
Issue date: 2016/9/7 Revision date: 2025/1/5 Supersedes version of: 2023/8/21 Version: 1.3

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

1.1. Product identifier

Product form : Mixture
Product name : Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280
Product code : EQ0122

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

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

1.3. Details of the supplier of the safety data sheet

Spectracer UK Ltd.

20 Seymour Mews,
London,
W1H 6BQ,
United Kingdom.

Tel: +44 (0) 207 193 9114
Fax: +44 (0) 203 432 4686
Email: contact@spectracer.com
Web: www.spectracer.com

1.4. Emergency telephone number

Country/Area	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	112 +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]

Corrosive to metals, Category 1 H290
Skin corrosion/irritation, Category 1, Sub-Category 1B H314
Serious eye damage/eye irritation, Category 1 H318

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Safety Data Sheet

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

Hazardous to the aquatic environment – Chronic Hazard, H412

Category 3

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

Adverse physicochemical, human health and environmental effects

May be corrosive to metals. Causes severe skin burns and eye damage. Causes serious eye damage. Harmful to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms (CLP)



GHS05

Signal word (CLP)

: Danger

Contains

: nitric acid

Hazard statements (CLP)

: H290 - May be corrosive to metals.

H314 - Causes severe skin burns and eye damage.

H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements (CLP)

: P260 - Do not breathe dusts or mists.

P273 - Avoid release to the environment.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331+P310 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

Immediately call a POISON CENTER or doctor.

P303+P361+P353+P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor.

P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

P390 - Absorb spillage to prevent material damage.

2.3. Other hazards

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

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	nitric acid (7697-37-2), hydrofluoric Acid (7664-39-3), potassium nitrate (7757-79-1), silver nitrate (7761-88-8)(¹), aluminium nitrate (13473-90-0), boric acid (10043-35-3)(¹), barium nitrate (10022-31-8)(¹), ammonium hexafluorosilicate (16919-19-0)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	nitric acid (7697-37-2), hydrofluoric Acid (7664-39-3), potassium nitrate (7757-79-1), silver nitrate (7761-88-8)(¹), aluminium nitrate (13473-90-0), boric acid (10043-35-3)(¹), barium nitrate (10022-31-8)(¹), ammonium hexafluorosilicate (16919-19-0)

(¹) Substance(s) in concentration below 0.1 % and displayed on a voluntary basis

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

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Safety Data Sheet

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

Component	
Substance(s) 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	boric acid (10043-35-3)(¹)

(¹) Substance(s) in concentration below 0.1 % and displayed on a voluntary basis

SECTION 3: Composition/information on ingredients

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, 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	5 – 10	Ox. Liq. 2, H272 Met. Corr. 1, H290 Acute Tox. 1 (Inhalation), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318
ammonium hexafluorosilicate substance with national workplace exposure limit(s) (BE, DK, EE, FR, GB, GR, HR, IE, NL, 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	0,25 – 0,5	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331
potassium nitrate substance with national workplace exposure limit(s) (BG, LT, LV)	CAS-No.: 7757-79-1 EC-No.: 231-818-8 REACH-no: 01-2119488224-35-XXXX	0,25 – 0,5	Ox. Sol. 3, H272
hydrofluoric Acid substance with national workplace exposure limit(s) (AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, 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
aluminium nitrate substance with national workplace exposure limit(s) (AT, BE, BG, DE, DK, EE, FR, GB, GR, HR, HU, IE, SE, NO, CH)	CAS-No.: 13473-90-0 EC-No.: 236-751-8	0,1 – 0,25	Eye Dam. 1, H318
boric acid substance listed on REACH Candidate List substance with national workplace exposure limit(s) (BE, DE, ES, IE, LT, LV, PT, 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 – 0,1	Repr. 1B, H360FD
barium nitrate substance with national workplace exposure limit(s) (AT, BE, CZ, DE, DK, ES, FI, FR, GB, GI, HR, IE, IT, LT, LU, MT, NL, PL, PT, RO, SE, SI, SK, AL, IS, NO, MK, TR); substance with a Community workplace exposure limit	CAS-No.: 10022-31-8 EC-No.: 233-020-5 EC Index-No.: 056-002-00-7	< 0,05	Ox. Sol. 2, H272 Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319

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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]
silver nitrate substance with national workplace exposure limit(s) (AT, BE, BG, CY, CZ, DE, DK, ES, FI, FR, GB, GI, GR, HR, HU, IE, IT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, AL, IS, NO, MK, RS, CH); substance with a Community workplace exposure limit	CAS-No.: 7761-88-8 EC-No.: 231-853-9 EC Index-No.: 047-001-00-2	< 0,05	Ox. Sol. 2, H272 Met. Corr. 1, H290 Skin Corr. 1B, H314 Aquatic Acute 1, H400 (M=1000) Aquatic Chronic 1, H410 (M=100)

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 general	: Call a physician immediately.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Rinse skin with water/shower. Take off immediately all contaminated clothing. Call a physician immediately.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Rinse mouth. Do not induce vomiting. Call a physician immediately.
First-aid measures for first aider	: First aid workers will be equipped with suitable personal protective equipment.

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

Symptoms/effects after inhalation	: None under normal conditions.
Symptoms/effects after skin contact	: Burns.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns.

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.
Unsuitable extinguishing media	: Do not use a heavy water stream.

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Safety Data Sheet

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

5.2. Special hazards arising from the substance or mixture

Fire hazard	: No fire hazard.
Explosion hazard	: No direct explosion hazard.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions	: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
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

General measures	: Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.
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For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Ventilate spillage area. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.

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".
Emergency procedures	: Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.
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

Additional hazards when processed	: Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling	: Ensure good ventilation of the work station. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Wear personal protective equipment.
Hygiene measures	: Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Keep in a cool, well-ventilated place away from heat.
Storage conditions	: Store in corrosive resistant container with a resistant inner liner. Keep only in original container. Store locked up.
Incompatible materials	: Metals.

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Safety Data Sheet

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Packaging materials : Store always product in container of same material as original container.

Germany

Storage class (LGK, TRGS 510)

: LGK 8B - Non-combustible corrosive substances

Joint storage table

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

: LGK 1, LGK 5.1A, LGK 5.2, LGK 6.2, LGK 7

Joint storage with restrictions permitted for

: LGK 4.1A, LGK 4.2, LGK 4.3, LGK 5.1C

Joint storage permitted for

: LGK 2A, LGK 2B, LGK 3, LGK 4.1B, LGK 5.1B, 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

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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
	1 ppm
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
Albania - Occupational Exposure Limits	
Local name	Acid nitrik
OEL STEL	2,6 mg/m ³
	1 ppm
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDETIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKE NË PUNË"
Austria - Occupational Exposure Limits	
Local name	Salpetersäure
OEL C	2,6 mg/m ³
	1 ppm
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Acide nitrique # Salpeterzuur
OEL STEL	2,6 mg/m ³
	1 ppm

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Safety Data Sheet

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

nitric acid (7697-37-2)	
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Азотна киселина
OEL STEL	2,6 mg/m³
	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. 28 от 2024 г., в сила от 05.04.2024 г.)
Croatia - Occupational Exposure Limits	
Local name	Dušična kiselina
KGVI (OEL STEL)	2,6 mg/m³
	1 ppm
Remark	Direktiva: 2006/15/EZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граниčnim vrijednostima izloženosti i biološkim граниčnim vrijednostima (NN 148/2023)
Cyprus - Occupational Exposure Limits	
Local name	Νιτρικό οξύ
OEL STEL	2,6 mg/m³
	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/m³
	0,38 ppm
NPK-P (OEL C)	2,5 mg/m³
	0,95 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty) resp. kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Salpetersyre
OEL STEL	2,6 mg/m³
	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 291 af 19/03/2024

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Safety Data Sheet

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nitric acid (7697-37-2)	
Estonia - Occupational Exposure Limits	
Local name	Lämmastikhape
OEL STEL	2,6 mg/m ³
	1 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
Finland - Occupational Exposure Limits	
Local name	Typpihappo
HTP (OEL TWA)	1,3 mg/m ³
	0,5 ppm
HTP (OEL STEL)	2,6 mg/m ³
	1 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Acide nitrique
VLE (OEL C/STEL)	2,6 mg/m ³
	1 ppm
Remark	Valeurs réglementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 6443, 2022; Outil65; Arrêté du 26 octobre 2007)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Salpetersäure
AGW (OEL TWA)	2,6 mg/m ³
	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
	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
	1 ppm

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Safety Data Sheet

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nitric acid (7697-37-2)	
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	SALÉTROMSAV
CK (OEL STEL)	2,6 mg/m³
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/m³ 1 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024
Italy - Occupational Exposure Limits	
Local name	Acido nitrico
OEL STEL	2,6 mg/m³ 1 ppm
Regulatory reference	Allegato XXXVIII del Decreto Legislativo 4 settembre 2024, n. 135
Latvia - Occupational Exposure Limits	
Local name	Slāpekšķābe
OEL TWA	2 mg/m³ 0,78 ppm
OEL STEL	2,6 mg/m³ 1 ppm
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).
Lithuania - Occupational Exposure Limits	
Local name	Nitrato rūgštis (azoto rūgštis)
TPRV (OEL STEL)	2,6 mg/m³ 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/m³ 1 ppm

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Safety Data Sheet

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nitric acid (7697-37-2)	
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/m³
	1 ppm
Regulatory reference	S.L. 424.24 - Chemical Agents at Work Regulations (L.N. 356 of 2021) # L.S. 424.24 - Regolamenti dwar Aġenti Kimiċi fuq il-Post tax-Xogħol (A.L. 356 tal-2021)
Netherlands - Occupational Exposure Limits	
Local name	Salpeterzuur
TGG-15min (OEL STEL)	1,3 mg/m³
	0,5 ppm (Salpeterzuur; Netherlands; Short time value; Public occupational exposure limit value)
Regulatory reference	Arbeidsomstandighedenregeling 2024
Portugal - Occupational Exposure Limits	
Local name	Ácido nítrico
OEL TWA	2 ppm
OEL STEL	4 ppm
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Acid nitric/Acid azotic
OEL STEL	2,6 mg/m³
	1 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
Serbia - Occupational Exposure Limits	
Local name	азотна киселина
OEL STEL	3 mg/m³
	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/m³
	1 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

nitric acid (7697-37-2)	
Slovenia - Occupational Exposure Limits	
Local name	dušikova kislina
OEL TWA	2,6 mg/m³
	1 ppm
OEL STEL	2,6 mg/m³
	1 ppm
Remark	EU
Regulatory reference	Uradni list RS, št. 29/2024 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
Spain - Occupational Exposure Limits	
Local name	Ácido nítrico
VLA-EC (OEL STEL)	2,6 mg/m³
	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 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Salpetersyra
NGV (OEL TWA)	1,3 mg/m³
	0,5 ppm
KGV (OEL STEL)	2,6 mg/m³
	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/m³
	1 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Saltpéturssýra
OEL STEL	2,6 mg/m³
	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)	5 mg/m³
	2 ppm

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO₃ 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

nitric acid (7697-37-2)	
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2024-04-05-581
North Macedonia - Occupational Exposure Limits	
Local name	азотна киселина
OEL TWA	2,6 mg/m ³
	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 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; (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)	5 mg/m ³
	2 ppm
KZGW (OEL STEL)	5 mg/m ³
	2 ppm
Remark	NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2024
USA - ACGIH - Occupational Exposure Limits	
Local name	Nitric acid
ACGIH OEL TWA	2 ppm
ACGIH OEL STEL	4 ppm
Remark (ACGIH)	TLV® Basis: URT & eye irr; dental erosion
Regulatory reference	ACGIH 2024

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO₃ 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Hydrogen fluoride
IOEL TWA	1,5 mg/m ³
	1,8 ppm
IOEL STEL	2,5 mg/m ³
	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
	1,8 ppm
OEL STEL	2,5 mg/m ³
	3 ppm
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDETIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKË NË PUNË"
Austria - Occupational Exposure Limits	
Local name	Fluorwasserstoff (Flusssäure; Hydrogenfluorid)
MAK (OEL TWA)	1,5 mg/m ³
	1,8 ppm
MAK (OEL STEL)	2,5 mg/m ³ (4x 15(Miw) min)
	3 ppm (4x 15(Miw) min)
Remark	H
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Hydrogène (fluorure d') # Waterstofffluoride
OEL TWA	1,5 mg/m ³
	1,8 ppm
OEL STEL	2,5 mg/m ³
	3 ppm

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
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 werkproces 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.
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Флуороводород
OEL TWA	1,5 mg/m³
	1,8 ppm
OEL STEL	2,5 mg/m³
	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. 28 от 2024 г., в сила от 05.04.2024 г.)
Croatia - Occupational Exposure Limits	
Local name	Vodikov fluorid
GVI (OEL TWA)	1,5 mg/m³
	1,8 ppm
KGVI (OEL STEL)	2,5 mg/m³
	3 ppm
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 148/2023)
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)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
Cyprus - Occupational Exposure Limits	
Local name	Υδροφθόριο
OEL TWA	1,5 mg/m³
	1,8 ppm
OEL STEL	2,5 mg/m³
	3 ppm
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
Czech Republic - Occupational Exposure Limits	
Local name	Fluorovodík
PEL (OEL TWA)	1,5 mg/m³
	1,8 ppm
NPK-P (OEL C)	2,5 mg/m³
	3 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty) resp. kůže.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Hydrogenfluorid (Fluorbrinte)
OEL TWA	1,5 mg/m³
	1,8 ppm
OEL STEL	3 mg/m³
	2,5 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 291 af 19/03/2024
Estonia - Occupational Exposure Limits	
Local name	Vesinikfluoriid
OEL TWA	1,5 mg/m³
	1,8 ppm
OEL STEL	2,5 mg/m³
	3 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
Finland - Occupational Exposure Limits	
Local name	Fluorivety
HTP (OEL TWA)	1,5 mg/m³
	1,8 ppm
HTP (OEL STEL)	2,5 mg/m³
	3 ppm
Remark	lho

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Fluorwasserstoff
AGW (OEL TWA)	0,83 mg/m³
	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/m³
	1,8 ppm
OEL STEL	2,5 mg/m³
	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/m³
	3 ppm
OEL STEL	2,5 mg/m³
	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/m³
CK (OEL STEL)	2,5 mg/m³
Remark	b (Bőrön át is felszívódik), m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindhármat), BEM (biológiai expozíciós mutató); EU1 (2000/39/EK irányelvben közölt érték); N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
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	1,5 mg/m³
	1,8 ppm
OEL STEL	2,5 mg/m³
	3 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values), Skin (Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible)
Regulatory reference	Chemical Agents Code of Practice 2024
Italy - Occupational Exposure Limits	
Local name	Acido fluoridrico
OEL TWA	1,5 mg/m³
	1,8 ppm
OEL STEL	2,5 mg/m³
	3 ppm
Regulatory reference	Allegato XXXVIII del Decreto Legislativo 4 settembre 2024, n. 135
Latvia - Occupational Exposure Limits	
Local name	Fluorūdeņradis
OEL TWA	1,5 mg/m³
	1,8 ppm
OEL STEL	2,5 mg/m³
	3 ppm
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).
Lithuania - Occupational Exposure Limits	
Local name	Vandenilio fluoridas
IPRV (OEL TWA)	1,5 mg/m³
	1,8 ppm
TPRV (OEL STEL)	2,5 mg/m³
	3 ppm
Remark	Ū (ūmus poveikis)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Fluorure d'hydrogène

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
OEL TWA	1,5 mg/m³
	1,8 ppm
OEL STEL	2,5 mg/m³
	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/m³
	1,8 ppm
OEL STEL	2,5 mg/m³
	3 ppm
Regulatory reference	S.L. 424.24 - Chemical Agents at Work Regulations (L.N. 356 of 2021) # L.S. 424.24 - Regolamenti dwar Aġenti Kimiċi fuq il-Post tax-Xogħol (A.L. 356 tal-2021)
Netherlands - Occupational Exposure Limits	
Local name	Fluorwaterstof
TGG-15min (OEL STEL)	1 mg/m³ (als F)
	1,2 ppm (Fluorwaterstof (als F); Netherlands; Short time value; Public occupational exposure limit value; als F)
Regulatory reference	Arbeidsomstandighedenregeling 2024
Poland - Occupational Exposure Limits	
Local name	Fluorowodór
NDS (OEL TWA)	0,5 mg/m³
NDSCh (OEL STEL)	2 mg/m³
Regulatory reference	Dz. U. 2024 poz. 1017 wraz z późn. zm.
Portugal - Occupational Exposure Limits	
Local name	Ácido fluorídrico, expresso em F
OEL TWA	0,5 ppm
OEL C	2 mg/m³
	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/m³
	1,8 ppm
OEL STEL	2,5 mg/m³
	3 ppm

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
Serbia - Occupational Exposure Limits	
Local name	водоник флуорид, флуороводоник
OEL TWA	2 mg/m³
	2 ppm
OEL STEL	3 mg/m³
	3 ppm
Remark	ЕУ* – 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)	1,5 mg/m³
	1,8 ppm
NPHV (OEL STEL)	2,5 mg/m³
	3 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 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. (122/2024 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	vodikov fluorid
OEL TWA	1,5 mg/m³
	1,8 ppm
OEL STEL	2,25 mg/m³
	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 (Biološka mejna vrednost), EU
Regulatory reference	Uradni list RS, št. 29/2024 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
Slovenia - Biological limit values	
Local name	vodikov fluorid in anorganske fluorove spojine (fluoridi)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
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 dnevomživo
Regulatory reference	Uradni list RS, št. 29/24 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
Spain - Occupational Exposure Limits	
Local name	Fluoruro de hidrógeno
VLA-ED (OEL TWA)	1,5 mg/m³ 1,8 ppm
VLA-EC (OEL STEL)	2,5 mg/m³ 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 2024. 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 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Vätefluorid (Fluorväte)
NGV (OEL TWA)	1,5 mg/m³ 1,8 ppm
KGV (OEL STEL)	1,7 mg/m³ 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)	1,5 mg/m³ (as F) 1,8 ppm (as F)
WEL STEL (OEL STEL)	2,5 mg/m³ (as F)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
	3 ppm (as F)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Vetnisflúoríð (flúorvetni)
OEL TWA	0,6 mg/m³
	0,7 ppm
OEL STEL	2,5 mg/m³ Þakgildið er miðað við fimm mínútna tímabil
	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)	0,5 mg/m³
	0,6 ppm
Korttidsverdi (OEL STEL)	1,5 mg/m³
	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-2024-04-05-581
North Macedonia - Occupational Exposure Limits	
Local name	Флуороводород
OEL TWA	1,5 mg/m³
	1,8 ppm
KTV	1,5
Short time value [mg/m³]	2,25 mg/m³
Short time value [ppm]	2,7 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанци 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/m3 или во ml/m3(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 супстанци („Службен весник на Република Македонија“ бр.46/10)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

hydrofluoric Acid (7664-39-3)	
Switzerland - Occupational Exposure Limits	
Local name	Acide fluorhydrique / Fluorwasserstoff
MAK (OEL TWA)	0,83 mg/m³
	1 ppm
KZGW (OEL STEL)	1,66 mg/m³
	2 ppm
Notation	SS _C , B / SS _C , B
Remark	HSE, NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2024
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	0,5 ppm
ACGIH OEL C	2 ppm
Remark (ACGIH)	TLV® Basis: URT, LRT, skin, & eye irr; fluorosis. Notations: Skin; BEI
Regulatory reference	ACGIH 2024
potassium nitrate (7757-79-1)	
Bulgaria - Occupational Exposure Limits	
Local name	Калиев нитрат
OEL TWA	5 mg/m³
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 28 от 2024 г., в сила от 05.04.2024 г.)
Latvia - Occupational Exposure Limits	
Local name	Kālija nitrāts
OEL TWA	5 mg/m³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).
Lithuania - Occupational Exposure Limits	
Local name	Kalio nitratas
IPRV (OEL TWA)	5 mg/m³

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

potassium nitrate (7757-79-1)	
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
silver nitrate (7761-88-8)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Silver (soluble compounds as Ag)
IOEL TWA	0,01 mg/m³
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
Albania - Occupational Exposure Limits	
Local name	Argjend, metalik
OEL TWA	0,1 mg/m³
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	Silber
MAK (OEL TWA)	0,1 mg/m³
MAK (OEL STEL)	0,1 mg/m³
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Argent (composés solubles) (en Ag) # Zilver (oplosbare verbindingen, als Ag)
OEL TWA	0,01 mg/m³ (Argent (composés solubles) (en Ag); Belgium; Time-weighted average exposure limit 8 h)
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Сребро, метал•
OEL TWA	0,1 mg/m³ 0,1 mg/m³ метал 0,01 mg/m³ разтворими съединения (като сребро)
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. 28 от 2024 г., в сила от 05.04.2024 г.)
Croatia - Occupational Exposure Limits	
Local name	Srebro, metal
GVI (OEL TWA)	0,1 mg/m³ 0,01 mg/m³
Remark	EU* (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2000/39/ EC (prva lista))
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

silver nitrate (7761-88-8)	
Cyprus - Occupational Exposure Limits	
Local name	Αργυρος (διαλυτές ενώσεις ως Ag)
OEL TWA	0,01 mg/m ³
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
Czech Republic - Occupational Exposure Limits	
Local name	St íbro
PEL (OEL TWA)	0,1 mg/m ³
NPK-P (OEL C)	0,3 mg/m ³
Remark	S - látka má senzibilizující účinek (s větou H317, H334), T - toxická pro reprodukci kategorie 1A a 1B (s větou H360 včetně příslušných kódů).
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Sølv, pulver, støv og opløselige forbindelser
OEL TWA	0,01 mg/m ³ beregnet som Ag
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 291 af 19/03/2024
Estonia - Occupational Exposure Limits	
Local name	Hõbe, metall, vähelahustuvad ühendid
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
Finland - Occupational Exposure Limits	
Local name	Hopea, metalli
HTP (OEL TWA)	0,1 mg/m ³ Ag
HTP (OEL STEL)	0,03 mg/m ³ Ag
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
France - Occupational Exposure Limits	
Local name	Argent (métallique)
VME (OEL TWA)	0,1 mg/m ³
Remark	Valeurs réglementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 6443, 2022; Outil65; Arrêté du 26 octobre 2007)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Silber
AGW (OEL TWA)	0,1 mg/m ³ E (mg/m ³)
Peak exposure limitation factor	8(II)
Remark	DFG,EU
Regulatory reference	TRGS900

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

silver nitrate (7761-88-8)	
Gibraltar - Occupational Exposure Limits	
Local name	Silver (soluble compounds as Ag)
OEL TWA	0,01 mg/m ³
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Αργυρος μεταλλικός
OEL TWA	0,1 mg/m ³
Regulatory reference	Π.Δ. 339/2001 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	EZÜST, fém
AK (OEL TWA)	0,1 mg/m ³
CK (OEL STEL)	0,4 mg/m ³
Remark	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
Ireland - Occupational Exposure Limits	
Local name	Silver (metallic)
OEL TWA	0,1 mg/m ³
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024
Italy - Occupational Exposure Limits	
Local name	Argento, metallico
OEL TWA	0,1 mg/m ³
Regulatory reference	Allegato XXXVIII del Decreto Legislativo 4 settembre 2024, n. 135
Latvia - Occupational Exposure Limits	
Local name	Sudrabs,metāliskais
OEL TWA	0,1 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).
Luxembourg - Occupational Exposure Limits	
Local name	Argent métallique
OEL TWA	0,1 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	Silver,metallic

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

silver nitrate (7761-88-8)	
OEL TWA	0,1 mg/m³
Regulatory reference	S.L. 424.24 - Chemical Agents at Work Regulations (L.N. 356 of 2021) # L.S. 424.24 - Regolamenti dwar Aġenti Kimiċi fuq il-Post tax-Xogħol (A.L. 356 tal-2021)
Netherlands - Occupational Exposure Limits	
Local name	Zilver, oplosbare verbindingen
TGG-8u (OEL TWA)	0,01 mg/m³ (als Ag)
Regulatory reference	Arbeidsomstandighedenregeling 2024
Poland - Occupational Exposure Limits	
Local name	Srebro dymy i pyły
NDS (OEL TWA)	0,05 mg/m³
Remark	Frakcja wdychalna – frakcja aerozolu wnikająca przez nos i usta, która stwarza zagrożenie dla zdrowia po zdeponowaniu w drogach oddechowych.
Regulatory reference	Dz. U. 2024 poz. 1017 wraz z późn. zm.
Portugal - Occupational Exposure Limits	
Local name	Prata
OEL TWA	0,1 mg/m³ Metal, poeiras e fumos 0,01 mg/m³ Compostos solúveis, expressos em Ag
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Argint
OEL TWA	0,1 mg/m³ (Metalic)
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
Serbia - Occupational Exposure Limits	
Local name	сребро, метал
OEL TWA	0 mg/m³
Remark	EY* – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2000/39/E3 (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	Striebro (ako Ag)
NPHV (OEL TWA)	0,1 mg/m³ kovové 0,01 mg/m³ rozpustné zlúčeniny
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	srebro [7440-22-4] (topne spojine, računano kot Ag)
OEL TWA	0,01 mg/m³
OEL STEL	0,02 mg/m³
Remark	EU

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

silver nitrate (7761-88-8)	
Regulatory reference	Uradni list RS, št. 29/2024 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
Spain - Occupational Exposure Limits	
Local name	Plata
VLA-ED (OEL TWA)	0,1 mg/m³ metal 0,01 mg/m³ Compuestos solubles de plata, como Ag
Remark	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Silver, metall och svårösliga föreningar (som Ag)
NGV (OEL TWA)	0,1 mg/m³ totaldamm
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, Arbetskyddsstyrelsen, 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)
Sweden - Biological limit values	
Local name	Kviksilver
BLV	50 nmol/l Kvicksilverhalten i blod
Regulatory reference	Medicinska kontroller i arbetslivet (AFS 2019:3)
United Kingdom - Occupational Exposure Limits	
Local name	Silver
WEL TWA (OEL TWA)	0,01 mg/m³ soluble compounds as Ag 0,1 mg/m³ metallic
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Silfur, duft, ryk og leysanleg sambönd, sem Ag
OEL TWA	0,01 mg/m³
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Sølv, metallstøv og røyk
Grenseverdi (OEL TWA)	0,1 mg/m³
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2024-04-05-581

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

silver nitrate (7761-88-8)	
North Macedonia - Occupational Exposure Limits	
Local name	Сребро (растворливи соединенија, сметано како Ag)
OEL TWA	0,01 mg/m³
Remark	(EU) European Union – гранична вредност, определена на ниво на Европската унија
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија“ бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	Silber
MAK (OEL TWA)	0,1 mg/m³ 0,01 mg/m³
KZGW (OEL STEL)	0,8 mg/m³ 0,02 mg/m³
Remark	e(mg/m³) - Haut ^{KT HU} - NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2024
USA - ACGIH - Occupational Exposure Limits	
Local name	Silver
ACGIH OEL TWA	0,01 mg/m³ (Silver Soluble compounds, as Ag; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
Remark (ACGIH)	TLV® Basis: Argyria
Regulatory reference	ACGIH 2024
aluminium nitrate (13473-90-0)	
Austria - Occupational Exposure Limits	
Local name	Aluminium (als Metall)
MAK (OEL TWA)	10 mg/m³ (E)
MAK (OEL STEL)	20 mg/m³ (E, 2x 60(Miw) min)
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Aluminium (sels solubles) (en Al) # Aluminiumzouten (oplosbaar) (als Al)
OEL TWA	2 mg/m³
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Алуминий
OEL TWA	10 mg/m³ (метален прах и оксиди). (инхалабилна фракция) 1,5 mg/m³ (метален прах и оксиди). (респирабилна фракция) 2 mg/m³ (неорганични разтворими съединения (като алуминий))
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 28 от 2024 г., в сила от 05.04.2024 г.)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

aluminium nitrate (13473-90-0)	
Croatia - Occupational Exposure Limits	
Local name	Aluminij
GVI (OEL TWA)	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 148/2023)
Denmark - Occupational Exposure Limits	
Local name	Aluminium, opløselige salte
OEL TWA	1 mg/m ³ beregnet som Al
Regulatory reference	BEK nr 291 af 19/03/2024
Estonia - Occupational Exposure Limits	
Local name	Alumiinium, metalliline ja oksiidid
OEL TWA	10 mg/m ³ kogu tolmu (respireeritav fraktsioon) 4 mg/m ³ peentolmu (respireeritav fraktsioon)
Remark	1 (Peentolmu koosneb alla 2,5-mikromeetrise läbimõõduga osakestest, mis võivad koos sissehingatava õhuga jõuda kopsualveoolidesse)
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
France - Occupational Exposure Limits	
Local name	Aluminium
VME (OEL TWA)	10 mg/m ³ (métal) 5 mg/m ³ (pulvérulent)
Remark	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 6443, 2022; Outil65)
Germany - Biological limit values (TRGS 903)	
Local name	Aluminium
Biological limit value	50 µg/g creatinine Parameter: Aluminium - Untersuchungsmaterial: U = Urin - Probenahmezeitpunkt: c) am Schichtende, bei Langzeitexposition nach mehreren vorangegangenen Schichten - Festlegung/Begründung: 11/2018 DFG
Regulatory reference	TRGS 903
Greece - Occupational Exposure Limits	
Local name	Αργίλιο μεταλλικό & οξείδιο του αργιλίου
OEL TWA	10 mg/m ³ αναπν. 5 mg/m ³ εισπν.
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	ALUMINIUM (oldható, AL-ra számolva)
AK (OEL TWA)	1 mg/m ³ respirábilis frakció
Remark	N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

aluminium nitrate (13473-90-0)	
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	Aluminium salts, soluble
OEL TWA	2 mg/m³
Remark	Advisory OELV (Advisory Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024
Sweden - Occupational Exposure Limits	
Local name	Aluminium, lösliga föreningar (som Al)
NGV (OEL TWA)	1 mg/m³ totaldamm
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. Filterdiameteren 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	Aluminium
WEL TWA (OEL TWA)	2 mg/m³ alkyl compounds 2 mg/m³ salts, soluble 10 mg/m³ metal, inhalable dust 4 mg/m³ metal, respirable dust
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Norway - Occupational Exposure Limits	
Local name	Aluminiumløselige salter (beregnet som Al)
Grenseverdi (OEL TWA)	2 mg/m³
Regulatory reference	FOR-2024-04-05-581
Switzerland - BAT	
Local name	Aluminium métal / Aluminium (Metall)
BAT	50 µg/g creatinine (0.21 µmol/mmol cr.; Paramètre biologique: Aluminium; Substrat d'examen: Urine; Moment du prélèvement: Exposition de longue durée: après plusieurs périodes de travail.) / (0.21 µmol/mmol cr.; Biologischer Parameter: Aluminium; Untersuchungsmaterial: Urin; Probennahmezeitpunkt: Bei Langzeitexposition: nach mehreren vorangegangenen Schichten.)
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
boric acid (10043-35-3)	
Austria - Occupational Exposure Limits	
Local name	Borsäure (Orthoborsäure)
Remark	Fortpflanzungsgefährdend: F, D
Regulatory reference	BGBl. II Nr. 156/2021

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

boric acid (10043-35-3)	
Belgium - Occupational Exposure Limits	
Local name	Borate, composés inorganiques de # Boraat, anorganische verbindingen van
OEL TWA	2 mg/m³
OEL STEL	6 mg/m³
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Borsäure und Natriumborate
AGW (OEL TWA)	0,5 mg/m³ (E)
Peak exposure limitation factor	2(I)
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	2 mg/m³
Remark	Advisory OELV (Advisory Occupational Exposure Limit Values), Repr.1B (Substances which are presumed human reproductive toxicants)
Regulatory reference	Chemical Agents Code of Practice 2024
Latvia - Occupational Exposure Limits	
Local name	Borskābe
OEL TWA	10 mg/m³
Remark	Repr. 1B
Regulatory reference	Ministru kabineta 2008. gada 29. septembra noteikumi Nr. 803 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 190).
Lithuania - Occupational Exposure Limits	
Local name	Boro rūgštis
IPRV (OEL TWA)	10 mg/m³
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/m³ I (Fração inalável)
OEL STEL	6 mg/m³ I (Fração inalável)
Remark	A4 (Agente não classificável como carcinogénico no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

boric acid (10043-35-3)	
Spain - Occupational Exposure Limits	
Local name	Ácido bórico
VLA-ED (OEL TWA)	2 mg/m³
VLA-EC (OEL STEL)	6 mg/m³
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 2024. INSHT
Switzerland - Occupational Exposure Limits	
Local name	Acide borique / Borsäure
MAK (OEL TWA)	1,8 mg/m³ (i) / (e)
KZGW (OEL STEL)	1,8 mg/m³ (i) / (e)
Notation	R1 _B , SS _B / R1 _B , SS _B
Remark	NIOSH
Regulatory reference	www.suva.ch, 01.01.2024
USA - ACGIH - Occupational Exposure Limits	
Local name	Boric acid
ACGIH OEL TWA	2 mg/m³ (Borate compounds, inorganic; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value; Inhalable fraction)
ACGIH OEL STEL	6 mg/m³ (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 2024
barium nitrate (10022-31-8)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Barium (soluble compounds as Ba)
IOEL TWA	0,5 mg/m³
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
Albania - Occupational Exposure Limits	
Local name	Barium
OEL TWA	0,5 mg/m³ (përbërje të tretshme, si Ba)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

barium nitrate (10022-31-8)	
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	Bariumverbindungen, lösliche (ausgenommen Bariumchromat)
MAK (OEL TWA)	0,5 mg/m ³ (als Ba berechnet, E)
MAK (OEL STEL)	2 mg/m ³ (als Ba berechnet, E, 4x 15(Miw) min)
Regulatory reference	BGBl. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Baryum (composés solubles) (en Ba) # Barium (oplosbare verbindingen) (als Ba)
OEL TWA	0,5 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Croatia - Occupational Exposure Limits	
Local name	Barij (topljivi spojevi kao Ba)
GVI (OEL TWA)	0,5 mg/m ³
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 148/2023)
Czech Republic - Occupational Exposure Limits	
Local name	Barya sloučeniny rozpustné, jako Ba
PEL (OEL TWA)	0,5 mg/m ³
NPK-P (OEL C)	2,5 mg/m ³
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Bariumforbindelser, opløselige
OEL TWA	0,5 mg/m ³ beregnet som Ba
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 291 af 19/03/2024
Finland - Occupational Exposure Limits	
Local name	Barium, liukoiset yhdisteet
HTP (OEL TWA)	0,5 mg/m ³ Ba
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
VME (OEL TWA)	0,5 mg/m ³ (Baryum (composés solubles), en Ba; France; Time-weighted average exposure limit 8 h; VRI: Valeur réglementaire indicative)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Bariumverbindungen, löslich (außer Bariumoxid und Bariumhydroxid)
AGW (OEL TWA)	0,5 mg/m ³ (E)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

barium nitrate (10022-31-8)	
Peak exposure limitation factor	1(I)
Remark	EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); 13 - Eine Begründung für die Ableitung eines gesundheitsbasierten AGW liegt nicht vor; 10 - Der Arbeitsplatzgrenzwert bezieht sich auf den Elementgehalt des entsprechenden Metalls; 15 - Für die analytische Bestimmung wird folgende Vorgehensweise empfohlen: "Analytische Methoden zur Prüfung gesundheitsschädlicher Arbeitsstoffe", Band 1 "Luftanalysen", 14. Lieferung 2005, und "Spezielle Vorbemerkungen", Kap. 4.7.1, S. 29-30, Wiley-VCH Verlag GmbH & Co.KGaA, Weinheim oder "Messung von Gefahrstoffen", BGIA-Arbeitsmappe, Erich Schmidt Verlag, Bielefeld
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Barium (soluble compounds as Ba)
OEL TWA	0,5 mg/m³
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Ireland - Occupational Exposure Limits	
Local name	Barium compounds, (soluble compounds as Ba)
OEL TWA	0,5 mg/m³
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024
Italy - Occupational Exposure Limits	
Local name	Bario (composti solubili come Ba)
OEL TWA	0,5 mg/m³
Regulatory reference	Allegato XXXVIII del Decreto Legislativo 4 settembre 2024, n. 135
Lithuania - Occupational Exposure Limits	
Local name	Baris (tirpieji junginiai, kaip Ba)
IPRV (OEL TWA)	0,5 mg/m³
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Baryum (composés solubles en Ba)
OEL TWA	0,5 mg/m³
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	Barium (soluble compounds as Ba) # Barium (kompost li jinħallu bħala Ba)
OEL TWA	0,5 mg/m³
Regulatory reference	S.L. 424.24 - Chemical Agents at Work Regulations (L.N. 356 of 2021) # L.S. 424.24 - Regolamenti dwar Aġenti Kimiċi fuq il-Post tax-Xogħol (A.L. 356 tal-2021)
Netherlands - Occupational Exposure Limits	
Local name	Barium

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

barium nitrate (10022-31-8)	
TGG-8u (OEL TWA)	0,5 mg/m³ oplosbare verbindingen (als Ba)
Regulatory reference	Arbeidsomstandighedenregeling 2024
Poland - Occupational Exposure Limits	
Local name	Bar i jego związki nieorganiczne w przeliczeniu na Ba
NDS (OEL TWA)	0,5 mg/m³
Regulatory reference	Dz. U. 2024 poz. 1017 wraz z późn. zm.
Portugal - Occupational Exposure Limits	
Local name	Bário e compostos solúveis, expressos em Ba
OEL TWA	0,5 mg/m³
Remark	A4 (Agente não classificável como carcinogénico no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Bariu (compuși solubili exprimați ca Ba)
OEL TWA	0,5 mg/m³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
Slovakia - Occupational Exposure Limits	
Local name	Bárium zlúčeniny rozpustné ako Ba
NPHV (OEL TWA)	0,5 mg/m³
Remark	Najvyššie prípustné expozičné limity pre pevné aerosóly s prevažne nešpecifickým účinkom. Ak je obsah fibrogénnej zložky > 1 %, v respirabilnej frakcii prachu sa vypočíta NPELr pre respirabilnú frakciu prachu podľa tohto vzorca: NPELr = 10/% Fr (mg/m3)
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	barij (topne spojine, računano kot Ba)
OEL TWA	0,5 mg/m³
OEL STEL	0,5 mg/m³
Remark	EU
Regulatory reference	Uradni list RS, št. 29/2024 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
Spain - Occupational Exposure Limits	
Local name	Bario
VLA-ED (OEL TWA)	0,5 mg/m³ elemental 0,5 mg/m³ Compuestos de bario solubles, como Ba
Remark	c (Los términos “soluble” e “insoluble” se entienden con referencia al agua), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país).

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

barium nitrate (10022-31-8)	
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Barium, lösliga föreningar (som Ba)
NGV (OEL TWA)	0,5 mg/m³ totaldamm
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. Filterdiameteren 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	Barium
WEL TWA (OEL TWA)	0,5 mg/m³ compounds, soluble (as Ba)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Baríumsambönd, uppleysanleg (sem Ba)
OEL TWA	0,5 mg/m³
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Barium og bariumforb. (unntatt bariumsulfat) (beregnet som Ba)
Grenseverdi (OEL TWA)	0,5 mg/m³
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2024-04-05-581
North Macedonia - Occupational Exposure Limits	
Local name	Бариум (растворливи соединенија, пресметани како Ba)
OEL TWA	0,5 mg/m³
Remark	(EU) European Union – гранична вредност, определена на ниво на Европската унија
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија“ бр.46/10)
USA - ACGIH - Occupational Exposure Limits	
Local name	Barium and soluble compounds
ACGIH OEL TWA	0,5 mg/m³
Remark (ACGIH)	TLV® Basis: Eye, skin, & GI irr; muscular stimulation. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2024

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

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)
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 16/11/2023
Croatia - Occupational Exposure Limits	
Local name	Silicij
GVI (OEL TWA)	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 148/2023)
Denmark - Occupational Exposure Limits	
Local name	Silicium
OEL TWA	10 mg/m ³
Regulatory reference	BEK nr 291 af 19/03/2024
Estonia - Occupational Exposure Limits	
Local name	Silikoon
OEL TWA	10 mg/m ³ Respireeritav fraktsioon 5 mg/m ³ peentolm (respireeritav fraktsioon)
Remark	1 (Peentolm koosneb alla 2,5-mikromeetrise läbimõõduga osakestest, mis võivad koos sissehingatava õhuga jõuda kopsualveoolidesse)
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
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 6443, 2022; Outil65)
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

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

ammonium hexafluorosilicate (16919-19-0)	
OEL TWA	10 mg/m³ total inhalable dust 4 mg/m³ respirable dust
Remark	Advisory OELV (Advisory Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024
Netherlands - Occupational Exposure Limits	
TGG-15min (OEL STEL)	2 mg/m³ (Fluoriden, anorganisch en oplosbaar (als F); Netherlands; Short time value; Public occupational exposure limit value; als F)
United Kingdom - Occupational Exposure Limits	
Local name	Silicon
WEL TWA (OEL TWA)	2,5 mg/m³ 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/m³ 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
Grenseverdi (OEL TWA)	10 mg/m³
Remark	1) Grenseverdien er fastsatt lik verdien for sjenerende støv.
Regulatory reference	FOR-2024-04-05-581
Switzerland - Occupational Exposure Limits	
Local name	Silicium / Silicium
MAK (OEL TWA)	3 mg/m³ (a) / (a)
Remark	NIOSH
Regulatory reference	www.suva.ch, 01.01.2024
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	2,5 mg/m³ (Fluorides, as F; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

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.

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO₃ 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

Personal protective equipment symbol(s):



Eye and face protection

Eye protection:

Safety glasses

Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Not available
Odour	: Not available
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Non flammable.
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: Not available
Solubility	: Miscible with water.
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: 1,07
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

No additional information available

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

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

metals.

10.6. Hazardous decomposition products

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

SECTION 11: Toxicological information

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

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

nitric acid (7697-37-2)

LC50 Inhalation - Rat	> 2,65 mg/L air
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hydrofluoric Acid (7664-39-3)

LD50 dermal rabbit	≤ 50 mg/kg
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potassium nitrate (7757-79-1)

LD50 oral rat	> 2000 mg/kg bodyweight
LD50 dermal rat	> 5000 mg/kg bodyweight
LC50 Inhalation - Rat	> 0,527 mg/L air

silver nitrate (7761-88-8)

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

aluminium nitrate (13473-90-0)

LD50 oral rat	> 2000 mg/kg
LD50 oral	2261 mg/kg bodyweight mouse
LD50 dermal rabbit	> 5000 mg/kg

boric acid (10043-35-3)

LD50 oral rat	2660 mg/kg
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Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

boric acid (10043-35-3)	
LD50 dermal rabbit	> 2000 mg/kg
LC50 Inhalation - Rat	> 2,12 mg/l
barium nitrate (10022-31-8)	
LD50 oral rat	300 (50 – 300) mg/kg
LD50 dermal rat	> 2000 mg/kg bodyweight
LC50 Inhalation - Rat	> 1 mg/l/4h
LC50 Inhalation - Rat (Dust/Mist)	> 1,1 mg/l
ammonium hexafluorosilicate (16919-19-0)	
LD50 oral rat	100 mg/kg bodyweight
LD50 oral	70 mg/kg bodyweight mouse
Skin corrosion/irritation : Causes severe skin burns.	
nitric acid (7697-37-2)	
pH	< 1
hydrofluoric Acid (7664-39-3)	
pH	< 1
potassium nitrate (7757-79-1)	
pH	≈ 7
aluminium nitrate (13473-90-0)	
pH	2 – 4
boric acid (10043-35-3)	
pH	5,1
barium nitrate (10022-31-8)	
pH	5 – 8
Serious eye damage/irritation : Causes serious eye damage.	
nitric acid (7697-37-2)	
pH	< 1
hydrofluoric Acid (7664-39-3)	
pH	< 1
potassium nitrate (7757-79-1)	
pH	≈ 7
aluminium nitrate (13473-90-0)	
pH	2 – 4
boric acid (10043-35-3)	
pH	5,1

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO₃ 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

barium nitrate (10022-31-8)	
pH	5 – 8
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
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
potassium nitrate (7757-79-1)	
NOAEL (oral, rat, 90 days)	≥ 1500 mg/kg bodyweight
silver nitrate (7761-88-8)	
LOAEL (oral, rat, 90 days)	125 mg/kg bodyweight
Aspiration hazard	: Not classified
nitric acid (7697-37-2)	
Viscosity, kinematic	0,595 mm ² /s
aluminium nitrate (13473-90-0)	
Viscosity, kinematic	0,778 mm ² /s

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Harmful to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Harmful to aquatic life with long lasting effects.

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)
potassium nitrate (7757-79-1)	
LC50 - Fish [1]	1378 mg/l Poecilia reticulata (Guppy)

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO₃ 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

potassium nitrate (7757-79-1)	
EC50 - Crustacea [1]	490 mg/l Daphnia magna (Water flea)
silver nitrate (7761-88-8)	
LC50 - Fish [1]	1,5 µg/l (Silver (Ag)) Pimephales promelas (Fathead minnow)
EC50 - Crustacea [1]	0,22 µg/l Silver (Ag) Daphnia magna (Water flea)
aluminium nitrate (13473-90-0)	
LC50 - Fish [1]	58,4 mg/l Oncorhynchus mykiss (Rainbow trout)
EC50 - Crustacea [1]	4,3 mg/l Daphnia magna (Water flea)
EC50 72h - Algae [1]	0,24 mg/l Pseudokirchneriella subcapitata
NOEC (chronic)	1,3 mg/l Daphnia magna (Water flea)
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)
barium nitrate (10022-31-8)	
LC50 - Fish [1]	> 3,5 mg/l Brachydanio rerio (zebra-fish)
EC50 - Crustacea [1]	16 – 18 mg/l Ceriodaphnia dubia
EC50 72h - Algae [1]	> 1,15 mg/l Pseudokirchneriella subcapitata
NOEC (chronic)	2,9 mg/l Daphnia magna (Water flea)
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

12.2. Persistence and degradability

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO₃ 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280	
Persistence and degradability	Rapidly degradable
nitric acid (7697-37-2)	
Persistence and degradability	Rapidly degradable
hydrofluoric Acid (7664-39-3)	
Persistence and degradability	Rapidly degradable
potassium nitrate (7757-79-1)	
Persistence and degradability	Rapidly degradable
silver nitrate (7761-88-8)	
Persistence and degradability	Rapidly degradable

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

aluminium nitrate (13473-90-0)	
Persistence and degradability	Rapidly degradable
boric acid (10043-35-3)	
Persistence and degradability	Rapidly degradable
barium nitrate (10022-31-8)	
Persistence and degradability	Rapidly degradable
ammonium hexafluorosilicate (16919-19-0)	
Persistence and degradability	Rapidly degradable

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
silver nitrate (7761-88-8)	
Partition coefficient n-octanol/water (Log Pow)	0,19 (estimated value)
aluminium nitrate (13473-90-0)	
Bioaccumulative potential	Not bioaccumulative.
boric acid (10043-35-3)	
Partition coefficient n-octanol/water (Log Pow)	0,18
barium nitrate (10022-31-8)	
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	nitric acid (7697-37-2), hydrofluoric Acid (7664-39-3), potassium nitrate (7757-79-1), silver nitrate (7761-88-8)(¹), aluminium nitrate (13473-90-0), boric acid (10043-35-3)(¹), barium nitrate (10022-31-8)(¹), ammonium hexafluorosilicate (16919-19-0)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	nitric acid (7697-37-2), hydrofluoric Acid (7664-39-3), potassium nitrate (7757-79-1), silver nitrate (7761-88-8)(¹), aluminium nitrate (13473-90-0), boric acid (10043-35-3)(¹), barium nitrate (10022-31-8)(¹), ammonium hexafluorosilicate (16919-19-0)

(¹) Substance(s) in concentration below 0.1 % and displayed on a voluntary basis

12.6. Endocrine disrupting properties

No additional information available

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

12.7. Other adverse effects

silver nitrate (7761-88-8)

Other information	Avoid release to the environment.
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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations.
Additional information	: Do not re-use empty containers.

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3264	UN 3264	UN 3264	UN 3264	UN 3264
14.2. UN proper shipping name				
CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid ; hydrofluoric Acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid ; hydrofluoric Acid)	Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid ; hydrofluoric Acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid ; hydrofluoric Acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid ; hydrofluoric Acid)
Transport document description				
UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid ; hydrofluoric Acid), 8, II, (E)	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid ; hydrofluoric Acid), 8, II	UN 3264 Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid ; hydrofluoric Acid), 8, II	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid ; hydrofluoric Acid), 8, II	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid ; hydrofluoric Acid), 8, II
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No EmS-No. (Fire): F-A EmS-No. (Spillage): S-B	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

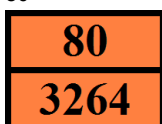
according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

ADR	IMDG	IATA	ADN	RID
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR)	: C1
Special provisions (ADR)	: 274
Limited quantities (ADR)	: 1I
Excepted quantities (ADR)	: E2
Packing instructions (ADR)	: P001, IBC02
Mixed packing provisions (ADR)	: MP15
Portable tank and bulk container instructions (ADR)	: T11
Portable tank and bulk container special provisions (ADR)	: TP2, TP27
Tank code (ADR)	: L4BN
Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
Hazard identification number (Kemler No.)	: 80
Orange plates	:



Tunnel restriction code (ADR)	: E
EAC code	: 2X
APP code	: B

Transport by sea

Special provisions (IMDG)	: 274
Limited quantities (IMDG)	: 1 L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T11
Tank special provisions (IMDG)	: TP2, TP27
Stowage category (IMDG)	: B
Stowage and handling (IMDG)	: SW2

Air transport

PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y840
PCA limited quantity max net quantity (IATA)	: 0.5L
PCA packing instructions (IATA)	: 851
PCA max net quantity (IATA)	: 1L
CAO packing instructions (IATA)	: 855
CAO max net quantity (IATA)	: 30L
Special provisions (IATA)	: A3
ERG code (IATA)	: 8L

Inland waterway transport

Classification code (ADN)	: C1
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 1 L
Excepted quantities (ADN)	: E2
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 0

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

Rail transport

Classification code (RID)	: C1
Special provisions (RID)	: 274
Limited quantities (RID)	: 1L
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P001, IBC02
Mixed packing provisions (RID)	: MP15
Portable tank and bulk container instructions (RID)	: T11
Portable tank and bulk container special provisions (RID)	: TP2, TP27
Tank codes for RID tanks (RID)	: L4BN
Transport category (RID)	: 2
Colis express (express parcels) (RID)	: CE6
Hazard identification number (RID)	: 80

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

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)	Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280 ; 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
3(c)	Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1
65.	ammonium hexafluorosilicate	Inorganic ammonium salts

REACH Annex XIV (Authorisation List)

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

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

REACH Candidate List (SVHC)

Contains substance(s) listed on the REACH Candidate List < 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 (2024/590)

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

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

Contains substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items: Hydrogen fluoride (7664-39-3).

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 are not to 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 within 24 hours.

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

ANNEX II REPORTABLE EXPLOSIVES PRECURSORS

List of substances on their own or in mixtures or in substances for which suspicious transactions and significant disappearances and thefts are to be reported within 24 hours.

Name	CAS-No.	Combined Nomenclature code (CN)	Combined Nomenclature code for mixture without constituents which would determine classification under another CN code
Potassium nitrate	7757-79-1	2834 21 00	ex 3824 99 96

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)

National regulations

France

Occupational diseases	
Code	Description
RG 32	Occupational disorders caused by fluoride, hydrofluoric acid and its mineral salts

Germany

VOC ordinance (ChemVOCFarbV) :

Quality Control Standard, 7A Elements; K 1000mg/l ; Ag 50mg/l ; Al 100mg/l ; B 100mg/l ; Ba 100mg/l ; Na 100mg/l ; Si 500mg/l in HNO3 5%/ tr. HF Equivalent to Perkin Elmer Ref: N9300280

Safety Data Sheet

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

Water hazard class (WGK) : WGK 3, Highly hazardous to water (Classification according to AwSV, Annex 1).
Hazardous Incident Ordinance (12. BImSchV) : Is not subject to the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

ABM category : A(2) - toxic for aquatic organisms, may have longterm hazardous effects in aquatic environment
SZW-lijst van kankerverwekkende stoffen : None of the components are listed
SZW-lijst van mutagene stoffen : None of the components are listed
SZW-lijst van reprotoxische stoffen – Borstvoeding : None of the components are listed
SZW-lijst van reprotoxische stoffen – : boric acid is listed
Vruchtbaarheid
SZW-lijst van reprotoxische stoffen – Ontwikkeling : boric acid is listed

Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

Poland

Polish National Regulations : Act of 25 February 2011 on chemical substances and their mixtures (J. o L. No. 63, item 322 as amended; consolidated text J. o L. 2019, item 1225).
Act of 14 December 2012 on waste (J. o L. 2013, item 322 as amended; consolidated text J. o L. 2020, item 797).
The announcement of Marshal of the Sejm of the Republic of Poland dated 19 October 2016 concerning the consolidated text announcement of the decree on the management of packaging and packaging waste (J. o L. 2016, item 1863 as amended).
Decree of the Minister of Environment of 14 December 2014 on the catalogue of waste (J. o L. 2014, item 1923).
Act of 19 August 2011 on the Carriage of Dangerous Goods (J. o L. 2011 No. 227, item 1367 as amended; consolidated text J. o L. 2020, item 154).
Regulation of the Minister of Family, Labour and Social Policy of 12 June 2018 on the highest permissible concentration and intensity of noxious agents for health at work environment (J. o L. item 1286 as amended).
The announcement of Minister of Health dated 9 September 2016 concerning the consolidated text announcement of the decree of the Minister of Health of 30 December 2004 on health and safety at work related to exposure to chemical agents at work (J. o L. of 16 September 2016, item 1488)
Regulation of the Minister of Health of 2 February 2011 on tests and measurements of the noxious agents for health at work environment (J. o L. No. 33, item 166 as amended).
Regulation of the Minister of Environment of 9 December 2003 on particularly hazardous substances to the environment (J. o L. No. 217, item 2141).
ADR Agreement: Government Statement of 13 March 2023 on the entry into force of amendments to Annexes A and B to the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), signed in Geneva on 30 September 1957 (J. o. L. 2023, item 891)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes

Section	Changed item	Comments
4.1	First-aid measures for first aider	Added
4.2	Symptoms/effects after inhalation	Added
5.1	Unsuitable extinguishing media	Added

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Safety Data Sheet

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

Indication of changes		
Section	Changed item	Comments
5.2	Fire hazard	Added
5.2	Explosion hazard	Added
5.3	Firefighting instructions	Added
6.1	Emergency procedures	Added
6.1	Protective equipment	Added
6.1	General measures	Added
6.3	For containment	Added
7.1	Additional hazards when processed	Added
7.2	Technical measures	Added
7.2	Packaging materials	Added
7.2	Storage conditions	Modified
13.1	Sewage disposal recommendations	Added
13.1	Additional information	Added
13.1	Regional waste regulation	Added
13.1	Product/Packaging disposal recommendations	Modified
15.1	REACH Annex XVII	Modified
16	Abbreviations and acronyms	Modified

Abbreviations and acronyms:	
ACGIH	American Conference of Government Industrial Hygienists
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)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor

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Abbreviations and acronyms:	
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

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. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral), Category 2

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Full text of H- and EUH-statements:	
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 (Inhalation)	Acute toxicity (inhal.), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
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
Ox. Sol. 3	Oxidising Solids, Category 3
Repr. 1B	Reproductive toxicity, Category 1B
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H360FD	May damage fertility. May damage the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Met. Corr. 1	H290	On basis of test data
Skin Corr. 1B	H314	Calculation method
Eye Dam. 1	H318	Calculation method

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Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Aquatic Chronic 3	H412	Calculation method

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.