

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: EQ0028

Issue date: 07.09.2016 Revision date: 21.08.2023 Supersedes version of: 11.09.2017 Version: 1.2

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

1.1. Product identifier

Product form : Mixture
Product name : PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2
Product code : EQ0028

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

1.2.1. Relevant identified uses

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

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Spectracer UK Ltd.

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

Tel: +44 (0) 207 193 9114

Fax: +44 (0) 203 432 4686

Email: contact@spectracer.co.uk

Web: www.spectracer.com

1.4. Emergency telephone number

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

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Corrosive to metals, Category 1

H290

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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

Adverse physicochemical, human health and environmental effects

May be corrosive to metals.

2.2. Label elements

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

Hazard pictograms (CLP)



GHS05

Signal word (CLP)

: Warning

Contains

: hydrochloric acid; germanium dioxide; molybdenum pentafluoride; palladium dinitrate; ruthenium trichloride; hexafluoroantimonic acid; tetrafluorostannane; iridium trichloride; ammonium hexafluorotitanate

Hazard statements (CLP)

: H290 - May be corrosive to metals.

Precautionary statements (CLP)

: P390 - Absorb spillage to prevent material damage.

2.3. Other hazards

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

Component	
hydrochloric acid (7647-01-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
germanium dioxide (1310-53-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
palladium dinitrate (10102-05-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
hexafluoroantimonic acid (16950-06-4)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
tetrafluorostannane (7783-62-2)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
iridium trichloride (10025-83-9)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

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

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
hydrochloric acid substance with national workplace exposure limit(s) (BE, BG, CZ, DE, DK, EE, ES, FI, FR, GB, GI, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, IS, NO, RS, CH, TR); substance with a Community workplace exposure limit	CAS-No.: 7647-01-0 EC-No.: 231-595-7 EC Index-No.: 017-002-01-X REACH-no: 01-2119484862-27-XXXX	5 – 10	Met. Corr. 1, H290 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335
germanium dioxide substance with national workplace exposure limit(s) (BG, DE, LT, LV, RO)	CAS-No.: 1310-53-8 EC-No.: 215-180-8 REACH-no: 01-2120759331-57-XXXX	< 0,05	Repr. 2, H361 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 3, H412
tetrafluorostannane substance with national workplace exposure limit(s) (AT, BE, BG, CY, CZ, DK, EE, ES, FI, FR, GB, GI, GR, HR, HU, IE, LU, MT, NL, PL, PT, RO, SE, SI, SK, IS, NO, MK, CH); substance with a Community workplace exposure limit	CAS-No.: 7783-62-2 EC-No.: 232-016-0	< 0,05	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1B, H314
molybdenum pentafluoride substance with national workplace exposure limit(s) (AT, BE, BG, CZ, DE, DK, EE, ES, FI, FR, GB, GI, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, AL, NO, CH); substance with a Community workplace exposure limit	CAS-No.: 13819-84-6	< 0,05	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 3 (Inhalation), H331 Skin Corr. 1A, H314 Eye Dam. 1, H318
hexafluoroantimonyic acid substance with national workplace exposure limit(s) (AT, BE, BG, CZ, DK, EE, ES, FR, GB, GR, HR, HU, IE, LV, NL, PL, PT, RO, SE, SI, SK, IS, NO, MK, CH); substance with a Community workplace exposure limit	CAS-No.: 16950-06-4 EC-No.: 241-023-8 EC Index-No.: 051-003-00-9	< 0,05	Met. Corr. 1, H290 Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Chronic 2, H411
palladium dinitrate substance with national workplace exposure limit(s) (FI)	CAS-No.: 10102-05-3 EC-No.: 233-265-8 REACH-no: 01-2120279900-51-XXXX	< 0,05	Ox. Sol. 1, H271 Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410
iridium trichloride substance with national workplace exposure limit(s) (AT, BE, DE, DK, FI, GB, IE, SE, NO, CH)	CAS-No.: 10025-83-9 EC-No.: 233-044-6	< 0,05	Acute Tox. 4 (Oral), H302 Aquatic Chronic 2, H411

Specific concentration limits:

Name	Product identifier	Specific concentration limits (%)
hydrochloric acid	CAS-No.: 7647-01-0 EC-No.: 231-595-7 EC Index-No.: 017-002-01-X REACH-no: 01-2119484862-27-XXXX	(10 ≤ C < 100) STOT SE 3, H335 (10 ≤ C < 25) Eye Irrit. 2, H319 (10 ≤ C < 25) Skin Irrit. 2, H315 (25 ≤ C < 100) Skin Corr. 1B, H314

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

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SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

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

No additional information available

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.
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5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire	: Toxic fumes may be released.
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5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	: Ventilate spillage area.
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6.1.2. For emergency responders

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

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

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

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Ensure good ventilation of the work station. Wear personal protective equipment.
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Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in corrosive resistant container with a resistant inner liner. Keep only in original container. Store in a well-ventilated place. Keep cool.

Incompatible materials : Metals.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

hydrochloric acid (7647-01-0)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Hydrogen chloride
IOEL TWA	8 mg/m ³
IOEL TWA [ppm]	5 ppm
IOEL STEL	15 mg/m ³
IOEL STEL [ppm]	10 ppm
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Belgium - Occupational Exposure Limits	
Local name	Hydrogène (chlorure d') # Waterstofchloride
OEL TWA	8 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Хлороводород
OEL TWA	8 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm
Remark	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)

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hydrochloric acid (7647-01-0)	
Croatia - Occupational Exposure Limits	
Local name	Vodikov klorid
GVI (OEL TWA) [1]	8 mg/m ³
GVI (OEL TWA) [2]	5 ppm
KGVI (OEL STEL)	15 mg/m ³
KGVI (OEL STEL) [ppm]	10 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 1/2021)
Czech Republic - Occupational Exposure Limits	
Local name	Chlorovodík
PEL (OEL TWA)	8 mg/m ³
PEL (OEL TWA) [ppm]	5,3 ppm
NPK-P (OEL C)	15 mg/m ³
NPK-P (OEL C) [ppm]	9,9 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty), respektive kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Hydrogenchlorid (Chlorbrinte)
OEL C	8 mg/m ³
OEL C [ppm]	5 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Vesinikkloriid
OEL TWA	8 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Kloorivety, vedetön
HTP (OEL STEL)	7,6 mg/m ³
HTP (OEL STEL) [ppm]	5 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Chlorure d'hydrogène (Acide chlorhydrique)

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hydrochloric acid (7647-01-0)	
VLE (OEL C/STEL)	7,6 mg/m ³
VLE (OEL C/STEL) [ppm]	5 ppm
Remark	Valeurs réglementaires contraignantes
Regulatory reference	Article R4412-149 du Code du travail (réf.: INRS ED 984, 2016; Décret n° 2019-1487; Décret n° 2020-1546; Décret n° 2021-434; Décret n° 2021-1849)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Hydrogenchlorid
AGW (OEL TWA) [1]	3 mg/m ³
AGW (OEL TWA) [2]	2 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
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Hydrogen chloride
OEL TWA	8 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Υδροχλώριο
OEL TWA	7 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	7 mg/m ³
OEL STEL [ppm]	5 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	SÓSAV
AK (OEL TWA)	8 mg/m ³
CK (OEL STEL)	16 mg/m ³
Remark	i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármat), m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindhármat); EU1 (2000/39/EK irányelvben közölt érték); N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)

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hydrochloric acid (7647-01-0)	
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	Hydrogen chloride
OEL TWA [1]	8 mg/m ³
OEL TWA [2]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
Italy - Occupational Exposure Limits	
Local name	Acido cloridrico
OEL TWA	8 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	Hlorūdeņradis
OEL TWA	8 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325
Lithuania - Occupational Exposure Limits	
Local name	Vandenilio chloridas
IPRV (OEL TWA)	8 mg/m ³
IPRV (OEL TWA) [ppm]	5 ppm
TPRV (OEL STEL)	15 mg/m ³
TPRV (OEL STEL) [ppm]	10 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Chlorure d'hydrogène
OEL TWA	8 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm

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hydrochloric acid (7647-01-0)	
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 chloride
OEL TWA	8 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Zoutzuur
TGG-8u (OEL TWA)	8 mg/m ³
TGG-8u (OEL TWA) [ppm]	5 ppm
TGG-15min (OEL STEL)	15 mg/m ³
TGG-15min (OEL STEL) [ppm]	10 ppm
Regulatory reference	Arbeidsomstandighedenregeling 2022
Poland - Occupational Exposure Limits	
Local name	Chlorowodór
NDS (OEL TWA)	5 mg/m ³
NDSch (OEL STEL)	10 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Ácido clorídrico
OEL C	2 mg/m ³
OEL C [ppm]	2 ppm
Remark	A4 (Agente não classificável como carcinogénico no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Acid clorhidric/Clorură de hidrogen
OEL TWA	8 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Serbia - Occupational Exposure Limits	
Local name	водоник хлорид, хлороводоник
OEL TWA	8 mg/m ³

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hydrochloric acid (7647-01-0)	
OEL TWA [ppm]	5 ppm
OEL STEL	15 mg/m ³
OEL STEL [ppm]	10 ppm
Remark	EУ* – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2000/39/ЕЗ (прва листа)
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
Slovakia - Occupational Exposure Limits	
Local name	Chlorovodík
NPHV (OEL TWA) [1]	8 mg/m ³
NPHV (OEL TWA) [2]	5 ppm
NPHV (OEL STEL)	15 mg/m ³
NPHV (OEL STEL) [ppm]	10 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	vodikov klorid, brezvodni (klorovodik, brezvodni)
OEL TWA	8 mg/m ³
OEL TWA [ppm]	5 ppm
OEL STEL	16 mg/m ³
OEL STEL [ppm]	10 ppm
Remark	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Cloruro de hidrógeno
VLA-ED (OEL TWA) [1]	7,6 mg/m ³
VLA-ED (OEL TWA) [2]	5 ppm
VLA-EC (OEL STEL)	15 mg/m ³
VLA-EC (OEL STEL) [ppm]	10 ppm
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).
Sweden - Occupational Exposure Limits	
Local name	Saltsyra (Väteklorid)
NGV (OEL TWA)	3 mg/m ³
NGV (OEL TWA) [ppm]	2 ppm
KTV (OEL STEL)	6 mg/m ³

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hydrochloric acid (7647-01-0)	
KTV (OEL STEL) [ppm]	4 ppm
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Hydrogen chloride
WEL TWA (OEL TWA) [1]	2 mg/m ³ gas and aerosol mists
WEL TWA (OEL TWA) [2]	1 ppm gas and aerosol mists
WEL STEL (OEL STEL)	8 mg/m ³ gas and aerosol mists
WEL STEL (OEL STEL) [ppm]	5 ppm gas and aerosol mists
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Vetnisklórlíð (klórvetni)
OEL STEL	8 mg/m ³
OEL STEL [ppm]	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	Hydrogenklorid (Saltsyre)
Grenseverdi (OEL TWA) [1]	7 mg/m ³
Grenseverdi (OEL TWA) [2]	5 ppm
Takverdi (OEL C) [1]	7 mg/m ³
Takverdi (OEL C) [2]	5 ppm
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2021-06-28-2248
Switzerland - Occupational Exposure Limits	
Local name	Chlorwasserstoff
MAK (OEL TWA) [1]	3 mg/m ³ 3 mg/m ³
MAK (OEL TWA) [2]	2 ppm 2 ppm
KZGW (OEL STEL)	6 mg/m ³ 6 mg/m ³
KZGW (OEL STEL) [ppm]	4 ppm 4 ppm
Critical toxicity	VRS / OAW
Notation	SS _c / SS _c
Remark	SS _c - OAW ^{KT AN} - DFG, NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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hydrochloric acid (7647-01-0)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Hydrogen chloride
ACGIH OEL C [ppm]	2 ppm
Remark (ACGIH)	TLV® Basis: URT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2022
germanium dioxide (1310-53-8)	
Bulgaria - Occupational Exposure Limits	
Local name	Германий - оксид
OEL TWA	2 mg/m ³
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	0,85 mg/m ³ (E)
Peak exposure limitation factor	2(II)
Remark	AGS - Ausschuss für Gefahrstoffe; 10 - Der Arbeitsplatzgrenzwert bezieht sich auf den Elementgehalt des entsprechenden Metalls
Regulatory reference	TRGS900
Latvia - Occupational Exposure Limits	
Local name	Germānija dioksīds (germānija (IV) oksīds)
OEL TWA	2 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2011. gada 1. februārī noteikumiem Nr. 92)
Lithuania - Occupational Exposure Limits	
Local name	Germanio oksidas
IPRV (OEL TWA)	2 mg/m ³
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Romania - Occupational Exposure Limits	
Local name	Germaniu
OEL TWA	2 mg/m ³
OEL STEL	5 mg/m ³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
molybdenum pentafluoride (13819-84-6)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Fluorides, inorganic
IOEL TWA	2,5 mg/m ³
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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molybdenum pentafluoride (13819-84-6)	
Albania - Occupational Exposure Limits	
Local name	Fluorure, inorganike
OEL TWA	2,5 mg/m ³
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDETIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKË NË PUNË"
Austria - Occupational Exposure Limits	
Local name	Molybdän und Molybdänverbindungen, unlösliche
MAK (OEL TWA)	10 mg/m ³
MAK (OEL STEL)	20 mg/m ³
Regulatory reference	BGBI. II Nr. 156/2021
Austria - Biological limit values	
Local name	Fluor, seine anorganischen Verbindungen
BLV	7 mg/g creatinine Parameter: Fluorid - Untersuchungsmaterial: Harn - Probenahmezeitpunkt: Wenn die Harnprobe unmittelbar nach Expositions- bzw. Schichtende abgenommen wurde 4 mg/g creatinine Parameter: Fluorid - Untersuchungsmaterial: Harn - Probenahmezeitpunkt: Wenn die Harnprobe vor nachfolgender Schicht abgenommen wurde
Remark	Eignung mit vorzeitiger Folgeuntersuchung: Bei Überschreiten der zulässigen Grenzwerte für Fluorid im Harn. Der Zeitabstand zwischen den Untersuchungen beträgt bei Eignung: ein Jahr; bei Eignung mit vorzeitiger Folgeuntersuchung: sechs Monate.
Regulatory reference	Verordnung über die Gesundheitsüberwachung am Arbeitsplatz 2017 (VGÜ 2017)
Belgium - Occupational Exposure Limits	
Local name	Molybdène (composés solubles) (en Mo) # Molybdeenverbindungen (onoplosbaar) (als Mo)
OEL TWA	10 mg/m ³ 0,5 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Молибден
OEL TWA	5 mg/m ³ разтворими съединения (като молибден) 10 mg/m ³ и негови съединения (като молибден)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Croatia - Occupational Exposure Limits	
Local name	Fluoridi, anorganski
GVI (OEL TWA) [1]	2,5 mg/m ³
Remark	Direktiva: 2000/39/EZ

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molybdenum pentafluoride (13819-84-6)	
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
Croatia - Biological limit values	
Local name	Fluor
BLV	24 mmol/mol Creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: prije radne smjene 4 mg/g creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: prije radne smjene 40 mmol/mol Creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene 8 mg/g creatinine Karakteristični pokazatelj: fluoridi - Biološki uzorak: mokraća - Vrijeme uzorkovanja: na kraju radne smjene
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 91/2018)
Czech Republic - Occupational Exposure Limits	
Local name	Molybden
PEL (OEL TWA)	5 mg/m ³
NPK-P (OEL C)	25 mg/m ³
Remark	I - dráždí sliznice (oči, dýchací cesty), respektive kůži, B - u látky je zaveden biologický expoziční test (BET) v moči nebo krvi.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
Czech Republic - Biological limit values	
Local name	Fluoridy
BLV	10 mg/g creatinine Ukazatel: Fluorid - Biologický vzorek: moči - Doba odběru: konec směny 60 µmol/mmol Creatinine Ukazatel: Fluorid - Biologický vzorek: moči - Doba odběru: konec směny
Regulatory reference	Vyhláška č. 107/2013 Sb. (kterou se mění vyhláška č. 432/2003 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Fluorider, undtagen de andetsteds i listen nævnte
OEL TWA [1]	2,5 mg/m ³ beregnet som F
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Fluoriidid, k.a vesinikfluoriid
OEL TWA	2,5 mg/m ³
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Fluoridit, epäorgaaniset
HTP (OEL TWA) [1]	2,5 mg/m ³ F
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)

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molybdenum pentafluoride (13819-84-6)	
France - Occupational Exposure Limits	
Local name	Fluorures inorganiques
VME (OEL TWA)	2,5 mg/m ³
Remark	Valeurs réglementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 984, 2016)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Fluor
AGW (OEL TWA) [1]	1,6 mg/m ³
AGW (OEL TWA) [2]	1 ppm
Peak exposure limitation factor	2(l)
Remark	EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); 13 - Eine Begründung für die Ableitung eines gesundheitsbasierten AGW liegt nicht vor
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Fluorides, inorganic
OEL TWA	2,5 mg/m ³
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Hungary - Occupational Exposure Limits	
Local name	FLUORIDOK (F-ra számítva)
AK (OEL TWA)	2,5 mg/m ³
Remark	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát), BEM (biológiai expozíciós mutató); EU1 (2000/39/EK irányelvben közölt érték); T (Azok az anyagok, amelyek egészségkárosító hatása TARTÓS expozícióit követően jelentkeznek)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Hungary - Biological Exposure Indices	
Local name	Fluorid vegyületek
BEI	7 mg/g creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 42 µmol/mmol Creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) 4 mg/g creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: köv.m.e. (következő műszak előtt) 24 µmol/mmol Creatinine Biológiai expozíciós (hatás) mutató: fluorid - Biológiai minta: vizeletben - Mintavétel ideje: köv.m.e. (következő műszak előtt)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Molybdenum compounds (as Mo)
OEL TWA [1]	0,5 mg/m ³ R (Respirable)

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molybdenum pentafluoride (13819-84-6)	
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
Ireland - Biological limit values	
Local name	Fluorine, Hydrogen Fluoride and Inorganic Fluorides (not uranium hexafluoride)
BMGV	2 mg/l Parameter: Fluoride - Medium: urine - Sampling time: Prior to shift - Notations: B (Background), Ns (Non-specific) 3 mg/l Parameter: Fluoride - Medium: urine - Sampling time: End of shift - Notations: B (Background), Ns (Non-specific)
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
Italy - Occupational Exposure Limits	
Local name	Fluoruri inorganici (espressi come F)
OEL TWA	2,5 mg/m ³
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	Fluorīdi, neorganiskie
OEL TWA	2,5 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2011. gada 1. februārī noteikumiem Nr. 92)
Lithuania - Occupational Exposure Limits	
Local name	Fluoridai, išskyrus vandenilio fluoridą
IPRV (OEL TWA)	2,5 mg/m ³ (kaip F)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Fluorures inorganiques
OEL TWA	2,5 mg/m ³
Regulatory reference	Mémorial A N° 226 de 2021 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
Malta - Occupational Exposure Limits	
Local name	Fluorides, inorganic # Fluorides,inorganici
OEL TWA	2,5 mg/m ³
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Fluoriden, anorganisch en oplosbaar
TGG-15min (OEL STEL)	2 mg/m ³ (als F)
Regulatory reference	Arbeidsomstandighedenregeling 2022
Poland - Occupational Exposure Limits	
Local name	Molibden i jego związki w przeliczeniu na Mo
NDS (OEL TWA)	4 mg/m ³

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molybdenum pentafluoride (13819-84-6)	
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Molibdénio, expresso em Mo Compostos solúveis
OEL TWA	0,5 mg/m ³ R (Fração respirável) 10 mg/m ³ I (Fração inalável) 3 mg/m ³ R (Fração respirável)
Remark	A4 (Agente não classificável como carcinogénico no Homem); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014
Portugal - Biological Exposure Indices	
Local name	Fluoretos
BEI	2 mg/l Parâmetro: Fluoretos - Meio: urina - Momento da amostragem: Início do turno - Notação: Vb (Valor basal), Ne (Não específico) 3 mg/l Parâmetro: Fluoretos - Meio: urina - Momento da amostragem: Fim do turno - Notação: Vb (Valor basal), Ne (Não específico)
Romania - Occupational Exposure Limits	
Local name	Fluoruri anorganice
OEL TWA	2,5 mg/m ³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Romania - Biological limit values	
Local name	Fluor și compuși
BLV	5 mg/g creatinine Indicator biologic: Fluor - Material biologic: urină - Momentul recoltării: sfârșit de schimb
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 584/2018)
Slovakia - Occupational Exposure Limits	
Local name	Molybdén a jeho zlúčeniny rozpustné (ako Mo)
NPHV (OEL TWA) [1]	5 mg/m ³ 10 mg/m ³ inhalovateľná frakcia 5 mg/m ³ respirabilná frakcia
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovakia - Biological limit values	
Local name	Fluorovodík a anorganické zlúčeniny fluóru (fluoridy)
BLV	7 mg/g creatinine Zisťovaný faktor: Fluoridy - Vyšetovaný materiál: moč - Čas odberu vzorky: b) koniec expozície alebo pracovnej zmeny 4 mg/g creatinine Zisťovaný faktor: Fluoridy - Vyšetovaný materiál: moč - Čas odberu vzorky: d) pred nasledujúcou pracovnou zmenou
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (Zmena: 471/2011 Z.z.)
Slovenia - Occupational Exposure Limits	
Local name	fluorid – anorg.(računano kot fluor)
OEL TWA	2,5 mg/m ³
OEL STEL	10 mg/m ³

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molybdenum pentafluoride (13819-84-6)	
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), BAT (Biološka mejna vrednost), EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Slovenia - Biological limit values	
Local name	vodikov fluorid in anorganske fluorove spojine (fluoridi)
BLV	7 mg/g creatinine Parameter: fluorid - Biološki vzorec: urin - Čas vzorčenja: ob koncu delovne izmene 4 mg/g creatinine Parameter: fluorid - Biološki vzorec: urin - Čas vzorčenja: pred naslednjim delovnim dnevom
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Molibdeno
VLA-ED (OEL TWA) [1]	10 mg/m ³ elemental. Fracción inhalable 3 mg/m ³ elemental. Fracción respirable 10 mg/m ³ Compuestos insolubles, como Mo. Fracción inhalable 3 mg/m ³ Compuestos insolubles, como Mo. Fracción respirable 0,5 mg/m ³ Compuestos solubles, como Mo. Fracción respirable
Remark	VLB® (Agente químico que tiene Valor Límite Biológico), VLI (Agente químico para el que la U.E. estableció en su día un valor Límite indicativo).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Spain - Biological limit values	
Local name	Fluoruros inorgánicos
BLV	2 mg/l Parámetro: Fluoruros - Medio: Orina - Momento de muestreo: Antes de la jornada laboral - Notas: F (Fondo. El indicador está generalmente presente en cantidades detectables en personas no expuestas laboralmente. Estos niveles de fondo están considerados en el valor VLB), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos) 3 mg/l Parámetro: Fluoruros - Medio: Orina - Momento de muestreo: Final de la jornada laboral - Notas: F (Fondo. El indicador está generalmente presente en cantidades detectables en personas no expuestas laboralmente. Estos niveles de fondo están considerados en el valor VLB), I (Significa que el indicador biológico es inespecífico puesto que puede encontrarse después de la exposición a otros agentes químicos)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Sweden - Occupational Exposure Limits	
Local name	Molybden, metall och svårlösliga föreningar (som Mo)
NGV (OEL TWA)	10 mg/m ³ totaldamm 5 mg/m ³ respirabelt damm
Remark	31 (Vid exponering för blandningar av fluorider och vätefluorid ska nivågränsvärdet för fluorider tillämpas)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Molybdenum
WEL TWA (OEL TWA) [1]	10 mg/m ³ insoluble compounds (as Mo) 5 mg/m ³ soluble compounds (as Mo)

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molybdenum pentafluoride (13819-84-6)	
WEL STEL (OEL STEL)	10 mg/m ³ soluble compounds (as Mo)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Norway - Occupational Exposure Limits	
Local name	Uorganiske fluorider (beregnet som F)
Grenseverdi (OEL TWA) [1]	0,5 mg/m ³
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2021-06-28-2248
Switzerland - Occupational Exposure Limits	
Local name	Molybdänverbindungen löslich (als Mo berechnet)
MAK (OEL TWA) [1]	5 mg/m ³ 10 mg/m ³
KZGW (OEL STEL)	4 mg/m ³ (i) / (e)
Critical toxicity	Os / Knochen
Notation	R, SS _C , B / H, SS _C , B
Remark	e(mg/m ³) - UAW ^{KT AN} - NIOSH
Regulatory reference	www.suva.ch, 28.03.2022
Switzerland - BAT	
Local name	Fluorures / Fluorwasserstoff
BAT	4 mg/l (211 µmol/l; Paramètre biologique: Fluorures; Substrat d'examen: Urine; Moment du prélèvement: Fin de l'exposition, de la période de travail.) / (211 µmol/l; Biologischer Parameter: Fluorid; Untersuchungsmaterial: Urin; Probennahmezeitpunkt: Expositionsende, bzw. Schichtende.)
Remark	Influence de l'environnement. / Umwelteinflüsse.
Regulatory reference	Ordonnance 832.30 (OPA), article 50 al. 3, www.suva.ch/valeurs-limites / Verordnung 832.30 (VUV), Art. 50 Abs. 3, www.suva.ch/grenzwerte
USA - ACGIH - Occupational Exposure Limits	
Local name	Fluorides, as F
ACGIH OEL TWA	2,5 mg/m ³
Remark (ACGIH)	TLV® Basis: Bone dam; fluorosis. Notations: A4 (Not classifiable as a Human Carcinogen); BEI
Regulatory reference	ACGIH 2022
palladium dinitrate (10102-05-3)	
Finland - Occupational Exposure Limits	
Local name	Palladium
HTP (OEL TWA) [1]	0,5 mg/m ³
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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hexafluoroantimony acid (16950-06-4)	
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)
Austria - Occupational Exposure Limits	
Local name	Antimon
MAK (OEL TWA)	0,5 mg/m ³
MAK (OEL STEL)	5 mg/m ³
Regulatory reference	BGBI. II Nr. 156/2021 BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Antimoine et ses composés (en Sb) # Antimoon en verbindingen (als Sb)
OEL TWA	0,5 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	АНТИМОН
OEL TWA	0,5 mg/m ³ и неорганични съединения (като антимон)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Croatia - Occupational Exposure Limits	
Local name	Antimon i drugi spojevi kao (Sb) osim atimonovog trihidrida
GVI (OEL TWA) [1]	0,5 mg/m ³
Remark	Xn (Štetno); N (opasno za okoliš)
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граниčnim vrijednostima izloženosti i biološkim граниčnim vrijednostima (NN 1/2021)
Czech Republic - Occupational Exposure Limits	
Local name	Antimon
PEL (OEL TWA)	0,5 mg/m ³
NPK-P (OEL C)	1,5 mg/m ³
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Antimon, pulver og forbindelser
OEL TWA [1]	0,5 mg/m ³ beregnet som Sb, se dog stibin
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Antimon ja oksiidid (arvutatud antimonile)
OEL TWA	0,5 mg/m ³
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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

hexafluoroantimony acid (16950-06-4)	
France - Occupational Exposure Limits	
Local name	Antimoine et ses composés, en Sb
VME (OEL TWA)	0,5 mg/m ³ (Antimoine et ses composés, en Sb; France; Time-weighted average exposure limit 8 h; VL: Valeur non réglementaire indicative; Fluorures inorganiques; 2.5 mg/m ³ ; France; Time-weighted average exposure limit 8 h; VRI: Valeur réglementaire indicative)
Remark	Valeurs recommandées/admises; certains ou tous ces composés sont classés cancérigène de catégorie 1A, 1B ou 2
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Greece - Occupational Exposure Limits	
Local name	Αντιμόνιο και ενώσεις του (ως Sb)
OEL TWA	0,5 mg/m ³
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	ANTIMON ÉS SZERVETLEN VEGYÜLETEI (Sb-ra számítva)
AK (OEL TWA)	0,5 mg/m ³
Remark	i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát); 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	Antimony & compounds (as Sb)
OEL TWA [1]	0,5 mg/m ³
Regulatory reference	Chemical Agents Code of Practice 2021
Latvia - Occupational Exposure Limits	
Local name	Antimonametāliskie putekļi
OEL TWA	0,2 mg/m ³
OEL STEL	0,5 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2011. gada 1. februārī noteikumiem Nr. 92)
Netherlands - Occupational Exposure Limits	
Local name	Antimoon
TGG-8u (OEL TWA)	0,5 mg/m ³ en -verbindingen (als Sb)
TGG-15min (OEL STEL)	2 mg/m ³ (Fluoriden, anorganisch en oplosbaar (als F); Netherlands; Short time value; Public occupational exposure limit value; als F)
Regulatory reference	Arbeidsomstandighedenregeling 2022
Poland - Occupational Exposure Limits	
Local name	Antymon i jego związki nieorganiczne, z wyjątkiem stibanu w przeliczeniu na Sb
NDS (OEL TWA)	0,5 mg/m ³
Regulatory reference	Dz. U. 2018 poz. 1286

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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

hexafluoroantimony acid (16950-06-4)	
Portugal - Occupational Exposure Limits	
Local name	Antimónio e compostos, expressos em Sb
OEL TWA	0,5 mg/m ³
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Antimoniu (stibiu)
OEL TWA	0,2 mg/m ³
OEL STEL	0,5 mg/m ³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Romania - Biological limit values	
Local name	Antimoniu (Stibiu)
BLV	1 mg/l Indicator biologic: Antimoniu - Material biologic: urină - Momentul recoltării: sfârșit de schimb
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 584/2018)
Slovakia - Occupational Exposure Limits	
Local name	Antimón a jeho anorganické zlúčeniny ako Sb
NPHV (OEL TWA) [1]	0,5 mg/m ³
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	antimon
OEL TWA	0,5 mg/m ³
OEL STEL	2 mg/m ³
Spain - Occupational Exposure Limits	
Local name	Antimonio
VLA-ED (OEL TWA) [1]	0,5 mg/m ³ elemental 0,5 mg/m ³ Compuestos de antimonio, como Sb, excepto hidruro de antimonio
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Sweden - Occupational Exposure Limits	
Local name	Antimon, och föreningar (som Sb), utom Antimontrihydrid
NGV (OEL TWA)	0,25 mg/m ³ inhalerbart damm
Remark	3 (Med inhalerbar fraktion menas den mängd partiklar, av totalmängden partiklar i luften, som man inandas genom näsa och mun)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Antimony
WEL TWA (OEL TWA) [1]	0,5 mg/m ³ and compounds except stibine (as Sb)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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hexafluoroantimony acid (16950-06-4)	
Iceland - Occupational Exposure Limits	
Local name	Antimón, duft og sambönd (sem Sb)
OEL TWA	0,5 mg/m ³
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Antimon og antimonforb. (beregnet som Sb)
Grenseverdi (OEL TWA) [1]	0,5 mg/m ³
Remark	K: Kjemikalier som skal betraktes som kreftfremkallende.
Regulatory reference	FOR-2021-06-28-2248
North Macedonia - Occupational Exposure Limits	
Local name	АНТИМОН
OEL TWA	0,5 mg/m ³ (l) инхалабилна фракција – дел на вкупно суспендирани материји, кои работникот ги вдишува
KTV	4
Short time value [mg/m ³]	2 mg/m ³
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
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	Antimon
MAK (OEL TWA) [1]	0,5 mg/m ³
Critical toxicity	VRS, Peau / OAW, Haut
Notation	R2 / R2
Remark	e(mg/m ³) - Haut & OAW - NIOSH
Regulatory reference	www.suva.ch, 28.03.2022
USA - ACGIH - Occupational Exposure Limits	
Local name	Antimony and compounds, as Sb
ACGIH OEL TWA	0,5 mg/m ³
Remark (ACGIH)	TLV® Basis: Skin & URT irr
Regulatory reference	ACGIH 2022

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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tetrafluorostannane (7783-62-2)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Tin (inorganic compounds as Sn)
IOEL TWA	2 mg/m ³ 2 mg/m ³
Regulatory reference	COMMISSION DIRECTIVE 91/322/EEC COMMISSION DIRECTIVE 91/322/EEC
Austria - Occupational Exposure Limits	
Local name	Zinn
MAK (OEL TWA)	2 mg/m ³ (E)
MAK (OEL STEL)	4 mg/m ³ (E, 4x 15(Miw) min)
Regulatory reference	BGBl. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Etain # Tin
OEL TWA	2,5 mg/m ³ (Fluorures inorganiques (en F); Belgium; Time-weighted average exposure limit 8 h; Etain (oxyde et composés inorganiques de; sauf SnH4, en Sn); 2 mg/m ³ ; Belgium; Time-weighted average exposure limit 8 h)
OEL STEL	0,2 mg/m ³ (composés organiques de) # (organische verbindingen)
Remark	D: la mention "D" signifie que la résorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette résorption peut se faire tant par contact direct que par présence de l'agent dans l'air. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Bulgaria - Occupational Exposure Limits	
Local name	Калай
OEL TWA	2 mg/m ³ (неорг. съединения, оксиди (като калай))• 0,1 mg/m ³ (орг. съединения (като калай))
Remark	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Croatia - Occupational Exposure Limits	
Local name	Kositar, anorganski spojevi kao Sn (osim SnH4)
GVI (OEL TWA) [1]	2 mg/m ³
Remark	Direktiva: 91/322/EEZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)
Cyprus - Occupational Exposure Limits	
Local name	Κασσίτερος (ανόργανες ενώσεις ως Sn)
OEL TWA	2 mg/m ³

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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tetrafluorostannane (7783-62-2)	
Remark	Τα υπάρχοντα επιστημονικά δεδομένα για τις συνέπειες στην υγεία είναι ιδιαίτερα περιορισμένα
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
Czech Republic - Occupational Exposure Limits	
Local name	Cínu anorganické sloučeniny, jako Sn
PEL (OEL TWA)	2 mg/m ³
NPK-P (OEL C)	4 mg/m ³
Remark	I - dráždí sliznice (oči, dýchací cesty), respektive kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Tinforbindelser, uorganiske
OEL TWA [1]	2 mg/m ³ beregnet som Sn
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 2203 af 29. november 2021
Estonia - Occupational Exposure Limits	
Local name	Tinaorgaanilised ühendid arvutatud tinale (Sn)
OEL TWA	0,1 mg/m ³
OEL STEL	0,2 mg/m ³
Remark	A (Naha kaudu kergesti imenduv aine)
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1)
Finland - Occupational Exposure Limits	
Local name	Tina, metalli
HTP (OEL TWA) [1]	2 mg/m ³ Sn
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
VME (OEL TWA)	2,5 mg/m ³ (Fluorures inorganiques; France; Time-weighted average exposure limit 8 h; VRI: Valeur réglementaire indicative)
Gibraltar - Occupational Exposure Limits	
Local name	Tin (inorganic compounds as Sn)
OEL TWA	2 mg/m ³
Remark	Existing scientific data on health effects appear to be particularly limited
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Κασσίτερος
OEL TWA	2 mg/m ³
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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tetrafluorostannane (7783-62-2)	
Hungary - Occupational Exposure Limits	
Local name	ÓN SZERVETLEN VEGYÜLETEI (Sn-ra számítva)
AK (OEL TWA)	2 mg/m ³
CK (OEL STEL)	8 mg/m ³
Remark	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát); EU91 (91/322/EGK 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	Tin, as Sn
OEL TWA [1]	2 mg/m ³ Metal 2 mg/m ³ Oxide & inorganic compounds, except tin hydride 0,1 mg/m ³ Organic compounds
OEL STEL	0,2 mg/m ³ Organic compounds
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
Luxembourg - Occupational Exposure Limits	
Local name	Etain (composés inorganiques en Sn)
OEL TWA	2 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	Tin (inorganic compounds as Sn)
OEL TWA	2 mg/m ³
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Tin
TGG-8u (OEL TWA)	2 mg/m ³ (anorganische verbindingen als Sn)
TGG-15min (OEL STEL)	2 mg/m ³ (Fluoriden, anorganisch en oplosbaar (als F); Netherlands; Short time value; Public occupational exposure limit value; als F)
Regulatory reference	Arbeidsomstandighedenregeling 2022
Poland - Occupational Exposure Limits	
Local name	Cyna i jej związki nieorganiczne, z wyjątkiem stannanu (cyny wodorku)
NDS (OEL TWA)	2 mg/m ³ w przeliczeniu na Sn: frakcja wycalna
Remark	Frakcja wdychalna – frakcja aerozolu wnikająca przez nos i usta, która po zdeponowaniu w drogach oddechowych stwarza zagrożenie dla zdrowia.
Regulatory reference	Dz. U. 2018 poz. 1286
Portugal - Occupational Exposure Limits	
Local name	Estanho e compostos, excluindo Hidreto de estanho

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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tetrafluorostannane (7783-62-2)	
OEL TWA	2 mg/m ³ Metal 2 mg/m ³ Óxido e compostos inorgânicos, expresso em Sn 0,1 mg/m ³ Compostos orgânicos, expresso em Sn
OEL STEL	0,2 mg/m ³ Compostos orgânicos, expresso em Sn
Remark	Compostos orgânicos: P (Toxicidade percutânea); A4 (Agente não classificável como carcinogénico no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Staniu (compuși anorganici exprimați în Sn)
OEL TWA	2 mg/m ³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Slovakia - Occupational Exposure Limits	
Local name	Cín zlúčeniny anorganické (ako Sn)
NPHV (OEL TWA) [1]	2 mg/m ³
NPHV (OEL STEL)	4 mg/m ³
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	kositrove (IV) spojine (anorganske, računano kot Sn)
OEL TWA	2 mg/m ³
Remark	EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Estaño metal
VLA-ED (OEL TWA) [1]	2 mg/m ³
Remark	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
Sweden - Occupational Exposure Limits	
Local name	Tenn metall och oorg. föreningar (som Sn)
NGV (OEL TWA)	2 mg/m ³ inhalerbar fraktion
Remark	3 (Med inhalerbar fraktion menas den mängd partiklar, av totalmängden partiklar i luften, som man inandas genom näsa och mun)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Tin compounds, inorganic, except SnH ₄
WEL TWA (OEL TWA) [1]	2 mg/m ³ (as Sn ₄)
WEL STEL (OEL STEL)	4 mg/m ³ (as Sn ₄)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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tetrafluorostannane (7783-62-2)	
Iceland - Occupational Exposure Limits	
Local name	Tinsambönd, ólífræn, sem Sn
OEL TWA	2 mg/m ³
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Tinnforbindelser, uorganiske (beregnet som Sn)
Grenseverdi (OEL TWA) [1]	2 mg/m ³
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2021-06-28-2248
North Macedonia - Occupational Exposure Limits	
Local name	Калaj (неорганиски соединенија, пресметано како Sn)
OEL TWA	2 mg/m ³ (l) инхалабилна фракција – дел на вкупно суспендирани материји, кои работникот ги вдишува
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	Etain, composés inorganiques / Zinnverbindungen, anorganische
MAK (OEL TWA) [1]	2 mg/m ³ (i) / (e)
KZGW (OEL STEL)	4 mg/m ³ (i) / (e)
Critical toxicity	Fibpulm / Lungenfibrose
Remark	NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022
USA - ACGIH - Occupational Exposure Limits	
Local name	Tin and inorganic compounds, excluding Tin hydride and Indium tin oxide, as Sn
ACGIH OEL TWA	2 mg/m ³ (l - Inhalable particulate matter)
Remark (ACGIH)	Non fibrous = TLV® Basis: URT irr Fibrous (including whiskers) = TLV® Basis: Mesothelioma; cancer. Notations: A2 (Suspected Human Carcinogen)
Regulatory reference	ACGIH 2022
iridium trichloride (10025-83-9)	
Austria - Occupational Exposure Limits	
Local name	Indium und seine Verbindungen
MAK (OEL TWA)	0,1 mg/m ³ (als In berechnet, E)
MAK (OEL STEL)	0,2 mg/m ³ (als In berechnet, E, 4x 15(Miw) min)
Regulatory reference	BGBI. II Nr. 156/2021

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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iridium trichloride (10025-83-9)	
Belgium - Occupational Exposure Limits	
Local name	Indium et composés (en In) # Indium en -verbindingen (als In)
OEL TWA	0,1 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Denmark - Occupational Exposure Limits	
Local name	Indium, pulver, støv og forbindelser
OEL TWA [1]	0,1 mg/m ³ beregnet som In
Regulatory reference	BEK nr 2203 af 29. november 2021
Finland - Occupational Exposure Limits	
Local name	Indium ja sen yhdisteet
HTP (OEL TWA) [1]	0,1 mg/m ³ In
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Indium
AGW (OEL TWA) [1]	0,0001 mg/m ³ (A)
Peak exposure limitation factor	8(II)
Remark	AGS - Ausschuss für Gefahrstoffe; 10 - Der Arbeitsplatzgrenzwert bezieht sich auf den Elementgehalt des entsprechenden Metalls
Regulatory reference	TRGS900
Ireland - Occupational Exposure Limits	
Local name	Indium & Compounds (as In)
OEL TWA [1]	0,1 mg/m ³
OEL STEL	0,3 mg/m ³
Regulatory reference	Chemical Agents Code of Practice 2021
Sweden - Occupational Exposure Limits	
Local name	Indium och oorg föreningar (som In)
NGV (OEL TWA)	0,1 mg/m ³ totaldamm
Remark	3 (Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagnings av totaldamm och respirabelt damm, Metod nr 1010, Arbetarskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provtas inte den totala mängden luftburna partiklar med denna metod)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Indium
WEL TWA (OEL TWA) [1]	0,1 mg/m ³ and compounds (as In)
WEL STEL (OEL STEL)	0,3 mg/m ³ and compounds (as In)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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Iridium trichloride (10025-83-9)	
Norway - Occupational Exposure Limits	
Local name	Indium og Indiumforb. (beregnet som In)
Grenseverdi (OEL TWA) [1]	0,1 mg/m ³
Regulatory reference	FOR-2021-06-28-2248
Switzerland - Occupational Exposure Limits	
Local name	Indium et ses composés / Indium und seine Verbindungen
MAK (OEL TWA) [1]	0,1 mg/m ³ (i) / (e)
Critical toxicity	Poumons, Dent / Lunge, Zahn
Remark	NIOSH, OSHA
Regulatory reference	www.suva.ch, 28.03.2022
USA - ACGIH - Occupational Exposure Limits	
Local name	Indium and compounds, as In
ACGIH OEL TWA	0,1 mg/m ³
Remark (ACGIH)	TLV® Basis: Pulm edema; pneumonitis; dental erosion; malaise
Regulatory reference	ACGIH 2022

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment:

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

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

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

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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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

germanium dioxide (1310-53-8)

LD50 oral rat	> 2000 mg/kg bodyweight
LC50 Inhalation - Rat	1,42 mg/l/4h

palladium dinitrate (10102-05-3)

LD50 oral rat	200 – 2000 mg/kg
Skin corrosion/irritation	: Not classified

hydrochloric acid (7647-01-0)

pH	< 1
----	-----

molybdenum pentafluoride (13819-84-6)

pH	< 2
----	-----

palladium dinitrate (10102-05-3)

pH	< 2
----	-----

hexafluoroantimonic acid (16950-06-4)

pH	< 2
----	-----

Serious eye damage/irritation : Not classified

hydrochloric acid (7647-01-0)

pH	< 1
----	-----

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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molybdenum pentafluoride (13819-84-6)	
pH	< 2
palladium dinitrate (10102-05-3)	
pH	< 2
hexafluoroantimonic acid (16950-06-4)	
pH	< 2
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
hydrochloric acid (7647-01-0)	
IARC group	3 - Not classifiable
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
hydrochloric acid (7647-01-0)	
STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure	: Not classified
germanium dioxide (1310-53-8)	
LOAEL (oral, rat, 90 days)	37,5 mg/kg bodyweight
STOT-repeated exposure	May cause damage to organs (kidneys) through prolonged or repeated exposure (inhalation, oral).
Aspiration hazard	: Not classified

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

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

germanium dioxide (1310-53-8)	
LC50 - Fish [1]	103,5 mg/l Brachydanio rerio (zebra-fish)
EC50 - Crustacea [1]	67,5 mg/l Daphnia magna (Water flea)
EC50 72h - Algae [1]	0,206 mg/l Navicula pelliculosa
NOEC chronic algae	0,1 mg/l Navicula pelliculosa
palladium dinitrate (10102-05-3)	
LC50 - Fish [1]	306 µg/l Oncorhynchus mykiss (Rainbow trout)
EC50 - Crustacea [1]	35,19 µg/l Daphnia magna (Water flea)

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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tetrafluorostannane (7783-62-2)

EC50 - Crustacea [1]	21,56 mg/l Daphnia magna (Water flea)
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12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Component

hydrochloric acid (7647-01-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
germanium dioxide (1310-53-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
palladium dinitrate (10102-05-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
hexafluoroantimonic acid (16950-06-4)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
tetrafluorostannane (7783-62-2)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
iridium trichloride (10025-83-9)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

SECTION 14: Transport information






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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3264	UN 3264	UN 3264	UN 3264	UN 3264

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2


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ADR	IMDG	IATA	ADN	RID
14.2. UN proper shipping name				
CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (hydrochloric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (hydrochloric acid)	Corrosive liquid, acidic, inorganic, n.o.s. (hydrochloric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (hydrochloric acid)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (hydrochloric acid)
Transport document description				
UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (hydrochloric acid), 8, III, (E)	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (hydrochloric acid), 8, III	UN 3264 Corrosive liquid, acidic, inorganic, n.o.s. (hydrochloric acid), 8, III	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (hydrochloric acid), 8, III	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (hydrochloric acid), 8, III
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR)	: C1
Special provisions (ADR)	: 274
Limited quantities (ADR)	: 5I
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P001, IBC03, LP01, R001
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T7
Portable tank and bulk container special provisions (ADR)	: TP1, TP28
Tank code (ADR)	: L4BN
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Hazard identification number (Kemler No.)	: 80
Orange plates	: 
Tunnel restriction code (ADR)	: E
EAC code	: 2X
APP code	: B

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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Transport by sea

Special provisions (IMDG)	: 223, 274
Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P001, LP01
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T7
Tank special provisions (IMDG)	: TP1, TP28
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: Causes burns to skin, eyes and mucous membranes.

Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y841
PCA limited quantity max net quantity (IATA)	: 1L
PCA packing instructions (IATA)	: 852
PCA max net quantity (IATA)	: 5L
CAO packing instructions (IATA)	: 856
CAO max net quantity (IATA)	: 60L
Special provisions (IATA)	: A3
ERG code (IATA)	: 8L

Inland waterway transport

Classification code (ADN)	: C1
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 5 L
Excepted quantities (ADN)	: E1
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: C1
Special provisions (RID)	: 274
Limited quantities (RID)	: 5L
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P001, IBC03, LP01, R001
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T7
Portable tank and bulk container special provisions (RID)	: TP1, TP28
Tank codes for RID tanks (RID)	: L4BN
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W12
Colis express (express parcels) (RID)	: CE8
Hazard identification number (RID)	: 80

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
3(b)	hydrochloric acid ; hexafluoroantimonic 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)	hexafluoroantimonic 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 class 4.1

REACH Annex XIV (Authorisation List)

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

REACH Candidate List (SVHC)

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

PIC Regulation (Prior Informed Consent)

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

POP Regulation (Persistent Organic Pollutants)

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

Ozone Regulation (1005/2009)

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

Explosives Precursors Regulation (2019/1148)

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

Drug Precursors Regulation (273/2004)

Contains 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)

Name	CN designation	CAS-No.	CN code	Category	Threshold	Annex
Hydrochloric acid	Hydrogen chloride	7647-01-0	2806 10 00	Category 3		Annex I

15.1.2. National regulations

France

Occupational diseases	
Code	Description
RG 66	Occupational rhinitis and asthma

Germany

Water hazard class (WGK)

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

Storage class (LGK, TRGS 510)

: LGK 8B - Non-combustible corrosive substances.

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

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Joint storage table	:	<table border="1"> <tr> <td>LGK 1</td> <td>LGK 2A</td> <td>LGK 2B</td> <td>LGK 3</td> <td>LGK 4.1A</td> </tr> <tr> <td>LGK 4.1B</td> <td>LGK 4.2</td> <td>LGK 4.3</td> <td>LGK 5.1A</td> <td>LGK 5.1B</td> </tr> <tr> <td>LGK 5.1C</td> <td>LGK 5.2</td> <td>LGK 6.1A</td> <td>LGK 6.1B</td> <td>LGK 6.1C</td> </tr> <tr> <td>LGK 6.1D</td> <td>LGK 6.2</td> <td>LGK 7</td> <td>LGK 8A</td> <td>LGK 8B</td> </tr> <tr> <td>LGK 10</td> <td>LGK 11</td> <td>LGK 12</td> <td>LGK 13</td> <td>LGK 10-13</td> </tr> </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
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.																									
Hazardous Incident Ordinance (12. BImSchV)	:	Is not subject of the Hazardous Incident Ordinance (12. BImSchV)																									

Netherlands

ABM category	:	B(4) - low hazard for aquatic organisms
SZW-lijst van kankerverwekkende stoffen	:	tetrafluorostannane is listed
SZW-lijst van mutagene stoffen	:	tetrafluorostannane is listed
SZW-lijst van reprotoxische stoffen – Borstvoeding	:	None of the components are listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid	:	None of the components are listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling	:	None of the components are 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
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15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes			
Section	Changed item	Change	Comments
	Supersedes version of	Added	
	Revision date	Modified	
	Flammability	Modified	
2.2	Precautionary statements (CLP)	Modified	
8.2	Personal protective equipment	Modified	
15.1	REACH Annex XVII	Modified	
16	Abbreviations and acronyms	Added	

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)

PA Tuning Solution 2 - 8 components; Ge 10mg/l ; Mo 10mg/l ; Pd 10mg/l ; Ru 10mg/l ; Sb 10mg/l ; Sn 10mg/l ; Ir 5mg/l ; Ti 5mg/l in HCl 5% Equivalent to Agilent Ref: 5188-6524-2

Safety Data Sheet

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

Abbreviations and acronyms:	
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
Acute Tox. 1 (Dermal)	Acute toxicity (dermal), Category 1
Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral), Category 2
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4

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Full text of H- and EUH-statements:	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H271	May cause fire or explosion; strong oxidiser.
H290	May be corrosive to metals.
H300	Fatal if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
Met. Corr. 1	Corrosive to metals, Category 1
Ox. Sol. 1	Oxidising Solids, Category 1
Repr. 2	Reproductive toxicity, Category 2
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

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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
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Safety Data Sheet (SDS), EU

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