

### Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
SDS Reference Number: S355  
Issue date: 18/10/2015 Revision date: 08/01/2025 Supersedes version of: 30/03/2023 Version: 1.5

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

### 1.1. Product identifier

Product form : Mixture  
Product name : ICP Standard Solution  
Tin (Sn) 10000mg/l in HNO<sub>3</sub> 2%, HF 2%  
Product code : S355

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

#### Relevant identified uses

Main use category : Professional use  
Use of the substance/mixture : Reference material  
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](mailto:contact@spectracer.com)  
Web: [www.spectracer.com](http://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)	<a href="http://www.npis.org">http://www.npis.org</a>	111 (England & Wales only) or 112 (EU) or 08454 24 24 24 (Scotland)	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Acute toxicity (oral), Category 3 H301  
Acute toxicity (dermal), Category 3 H311  
Skin corrosion/irritation, Category 1, Sub-Category 1B H314  
Serious eye damage/eye irritation, Category 1 H318  
Full text of H- and EUH-statements: see section 16

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

Toxic in contact with skin. Toxic if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage.

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## 2.2. Label elements

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

Hazard pictograms (CLP)



GHS05

GHS06

Signal word (CLP)

: Danger

Contains

: tetrafluorostannane; hydrofluoric Acid

Hazard statements (CLP)

: H301+H311 - Toxic if swallowed or in contact with skin.  
H314 - Causes severe skin burns and eye damage.

Precautionary statements (CLP)

: P260 - Do not breathe dusts or mists.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.  
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.  
P312 - Call a POISON CENTRE or doctor if you feel unwell.  
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.

## 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	tetrafluorostannane (7783-62-2), nitric acid (7697-37-2), hydrofluoric Acid (7664-39-3)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	tetrafluorostannane (7783-62-2), nitric acid (7697-37-2), hydrofluoric Acid (7664-39-3)

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

## SECTION 3: Composition/information on ingredients

### 3.2. 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	1 – 5	Ox. Liq. 3, H272 Met. Corr. 1, H290 Acute Tox. 1 (Inhalation), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
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	1 – 5	Met. Corr. 1, H290 Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation), H330 Skin Corr. 1A, H314
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, RO, SE, SI, SK, IS, MK); substance with a Community workplace exposure limit	CAS-No.: 7783-62-2 EC-No.: 232-016-0	1 – 5	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1B, H314

#### 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	: Take off immediately all contaminated clothing. Rinse skin with water/shower. 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. Call a physician immediately. Do not induce vomiting.
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	: Toxic in contact with skin. Burns.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Toxic if swallowed. Burns.

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

Treat symptomatically.

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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.  
Unsuitable extinguishing media : Do not use a heavy water stream.

### 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.

#### For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.  
Emergency procedures : Ventilate spillage area. Avoid contact with skin, eyes and clothing. 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. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray.  
Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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

Technical measures : Keep in a cool, well-ventilated place away from heat.  
 Storage conditions : Store locked up.  
 Packaging materials : Store always product in container of same material as original container.

#### Germany

Storage class (LGK, TRGS 510) : LGK 6.1B - Non-combustible substances of acute toxicity, categories 1 and 2 / very toxic 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 2A, LGK 3, LGK 4.1A, LGK 4.1B, LGK 4.2, LGK 4.3, LGK 5.1A, LGK 5.1C, LGK 5.2, LGK 6.2, LGK 7  
 Joint storage with restrictions permitted for : LGK 5.1B, LGK 11, LGK 10-13  
 Joint storage permitted for : LGK 2B, LGK 6.1A, LGK 6.1B, LGK 6.1C, LGK 6.1D, LGK 8A, LGK 8B, LGK 10, LGK 12, LGK 13

#### Switzerland

Storage class (LK) : LK 6.1 - Toxic materials

#### 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

tetrafluorostannane (7783-62-2)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Tin (inorganic compounds as Sn)
IOEL TWA	2 mg/m <sup>3</sup>
Regulatory reference	COMMISSION DIRECTIVE 91/322/EEC
Austria - Occupational Exposure Limits	
Local name	Zinn
MAK (OEL TWA)	2 mg/m <sup>3</sup> (E)
MAK (OEL STEL)	4 mg/m <sup>3</sup> (E, 4x 15(Miw) min)
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Etain # Tin
OEL TWA	2.5 mg/m <sup>3</sup> (Fluorures inorganiques (en F); Belgium; Time-weighted average exposure limit 8 h; Etain (oxyde et composés inorganiques de; sauf SnH <sub>4</sub> , en Sn); 2 mg/m <sup>3</sup> ; Belgium; Time-weighted average exposure limit 8 h)
OEL STEL	0.2 mg/m <sup>3</sup> (composés organiques de) # (organische verbindingen)

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tetrafluorostannane (7783-62-2)	
Remark	D: la mention "D" signifie que la r�sorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette r�sorption peut se faire tant par contact direct que par pr�sence de l'agent dans l'air. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.
Regulatory reference	Koninklijk besluit/Arr�t� royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Калай
OEL TWA	2 mg/m <sup>3</sup> (неорг. съединения, оксиди (като калай)) 0.1 mg/m <sup>3</sup> (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. 28 от 2024 г., в сила от 05.04.2024 г.)
Croatia - Occupational Exposure Limits	
Local name	Kositar, anorganski spojevi kao Sn (osim SnH4)
GVI (OEL TWA)	2 mg/m <sup>3</sup>
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 148/2023)
Cyprus - Occupational Exposure Limits	
Local name	Κασσίτερος (ανόργανες ενώσεις ως Sn)
OEL TWA	2 mg/m <sup>3</sup>
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 <sup>3</sup>
NPK-P (OEL C)	4 mg/m <sup>3</sup>
Remark	I - dr�žd� sliznice (oči, d�ychac� cesty) resp. k�ži.
Regulatory reference	Nařizen� vl�dy �. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Tinforbindelser, uorganiske
OEL TWA	2 mg/m <sup>3</sup> beregnet som Sn
Remark	E (betyder, at stoffet har en EU-gr�nsev�rdi)
Regulatory reference	BEK nr 1619 af 19/12/2024
Estonia - Occupational Exposure Limits	
Local name	Tinaorganilised �hendid arvatatud tinale (Sn)
OEL TWA	0.1 mg/m <sup>3</sup>

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OEL STEL	0.2 mg/m <sup>3</sup>
Remark	A (Naha kaudu kergesti imenduv aine)
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
Finland - Occupational Exposure Limits	
Local name	Tina, metalli
HTP (OEL TWA)	2 mg/m <sup>3</sup> Sn
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
France - Occupational Exposure Limits	
VME (OEL TWA)	2.5 mg/m <sup>3</sup> (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 <sup>3</sup>
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 <sup>3</sup>
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	ÓN SZERVETLEN VEGYÜLETEI (Sn-ra számítva)
AK (OEL TWA)	2 mg/m <sup>3</sup>
CK (OEL STEL)	8 mg/m <sup>3</sup>
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	2 mg/m <sup>3</sup> Metal 2 mg/m <sup>3</sup> Oxide & inorganic compounds, except tin hydride 0.1 mg/m <sup>3</sup> Organic compounds
OEL STEL	0.2 mg/m <sup>3</sup> Organic compounds
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024
Luxembourg - Occupational Exposure Limits	
Local name	Etain (composés inorganiques en Sn)
OEL TWA	2 mg/m <sup>3</sup>

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tetrafluorostannane (7783-62-2)	
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
<b>Malta - Occupational Exposure Limits</b>	
Local name	Tin (inorganic compounds as Sn)
OEL TWA	2 mg/m <sup>3</sup>
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)
<b>Netherlands - Occupational Exposure Limits</b>	
Local name	Tin
TGG-8u (OEL TWA)	2 mg/m <sup>3</sup> (anorganische verbindingen als Sn)
TGG-15min (OEL STEL)	2 mg/m <sup>3</sup> (Fluoriden, anorganisch en oplosbaar (als F); Netherlands; Short time value; Public occupational exposure limit value; als F)
Regulatory reference	Arbeidsomstandighedenregeling 2024
<b>Romania - Occupational Exposure Limits</b>	
Local name	Staniu (compuși anorganici exprimați în Sn)
OEL TWA	2 mg/m <sup>3</sup>
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
<b>Slovakia - Occupational Exposure Limits</b>	
Local name	Cín zlúčeniny anorganické (ako Sn)
NPHV (OEL TWA)	2 mg/m <sup>3</sup>
NPHV (OEL STEL)	4 mg/m <sup>3</sup>
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
<b>Slovenia - Occupational Exposure Limits</b>	
Local name	kositrove (IV) spojine (anorganske, računano kot Sn)
OEL TWA	2 mg/m <sup>3</sup>
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
<b>Spain - Occupational Exposure Limits</b>	
Local name	Estaño metal
VLA-ED (OEL TWA)	2 mg/m <sup>3</sup>
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
<b>Sweden - Occupational Exposure Limits</b>	
Local name	Tenn metall och oorg. föreningar (som Sn)
NGV (OEL TWA)	2 mg/m <sup>3</sup> 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)

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tetrafluorostannane (7783-62-2)	
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Tin compounds, inorganic, except SnH4
WEL TWA (OEL TWA)	2 mg/m <sup>3</sup> (as Sn4)
WEL STEL (OEL STEL)	4 mg/m <sup>3</sup> (as Sn4)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Iceland - Occupational Exposure Limits</b>	
Local name	Tinsambönd, ólífræn, sem Sn
OEL TWA	2 mg/m <sup>3</sup>
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
<b>North Macedonia - Occupational Exposure Limits</b>	
Local name	Калаж (неоргански соединенија, пресметано како Sn)
OEL TWA	2 mg/m <sup>3</sup> (I) 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)
<b>USA - ACGIH - Occupational Exposure Limits</b>	
Local name	Tin and inorganic compounds, excluding Tin hydride and Indium tin oxide, as Sn
ACGIH OEL TWA	2 mg/m <sup>3</sup> (I - 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 2024
<b>nitric acid (7697-37-2)</b>	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Nitric acid
IOEL STEL	2.6 mg/m <sup>3</sup> 1 ppm
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
<b>Albania - Occupational Exposure Limits</b>	
Local name	Acid nitrik
OEL STEL	2.6 mg/m <sup>3</sup> 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 KIMIKË NË PUNË"
<b>Austria - Occupational Exposure Limits</b>	
Local name	Salpetersäure

# ICP Standard Solution

## Tin (Sn) 10000mg/l in HNO<sub>3</sub> 2%, HF 2%

### Safety Data Sheet

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

nitric acid (7697-37-2)	
OEL C	2.6 mg/m <sup>3</sup>
	1 ppm
Regulatory reference	BGBI. II Nr. 156/2021
<b>Belgium - Occupational Exposure Limits</b>	
Local name	Acide nitrique # Salpeterzuur
OEL STEL	2.6 mg/m <sup>3</sup>
	1 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
<b>Bulgaria - Occupational Exposure Limits</b>	
Local name	Азотна киселина
OEL STEL	2.6 mg/m <sup>3</sup>
	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.)
<b>Croatia - Occupational Exposure Limits</b>	
Local name	Dušična kiselina
KGVI (OEL STEL)	2.6 mg/m <sup>3</sup>
	1 ppm
Remark	Direktiva: 2006/15/EZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граничним vrijednostima izloženosti i biološkim граничним vrijednostima (NN 148/2023)
<b>Cyprus - Occupational Exposure Limits</b>	
Local name	Νιτρικό οξύ
OEL STEL	2.6 mg/m <sup>3</sup>
	1 ppm
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
<b>Czech Republic - Occupational Exposure Limits</b>	
Local name	Kyselina dusičná
PEL (OEL TWA)	1 mg/m <sup>3</sup>
	0.38 ppm
NPK-P (OEL C)	2.5 mg/m <sup>3</sup>
	0.95 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty) resp. kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
<b>Denmark - Occupational Exposure Limits</b>	
Local name	Salpetersyre

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

nitric acid (7697-37-2)	
OEL STEL	2.6 mg/m <sup>3</sup>
	1 ppm
Remark	E (betyder, at stoffet har en EU-grænseværdi)
Regulatory reference	BEK nr 1619 af 19/12/2024
Estonia - Occupational Exposure Limits	
Local name	Lämmastikhape
OEL STEL	2.6 mg/m <sup>3</sup>
	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 <sup>3</sup>
	0.5 ppm
HTP (OEL STEL)	2.6 mg/m <sup>3</sup>
	1 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
France - Occupational Exposure Limits	
Local name	Acide nitrique
VLE (OEL C/STEL)	2.6 mg/m <sup>3</sup>
	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 <sup>3</sup>
	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 <sup>3</sup>
	1 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Νιτρικό οξύ

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

nitric acid (7697-37-2)	
OEL STEL	2.6 mg/m <sup>3</sup>
	1 ppm
Regulatory reference	Π.Δ. 162/2007 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	SALÉTRÓMSAV
CK (OEL STEL)	2.6 mg/m <sup>3</sup>
	1 ppm
Remark	i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát), m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindhármát); EU2 (2006/15/EK irányelvben közölt érték)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Nitric acid
OEL STEL	2.6 mg/m <sup>3</sup>
	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/m <sup>3</sup>
	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/m <sup>3</sup>
	0.78 ppm
OEL STEL	2.6 mg/m <sup>3</sup>
	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/m <sup>3</sup>
	1 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Acide nitrique
OEL STEL	2.6 mg/m <sup>3</sup>

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nitric acid (7697-37-2)	
	1 ppm
Regulatory reference	Mémorial A N° 226 de 2021 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
Malta - Occupational Exposure Limits	
Local name	Nitric acid
OEL STEL	2.6 mg/m <sup>3</sup> 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/m <sup>3</sup> 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/m <sup>3</sup> 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/m <sup>3</sup> 1 ppm
Remark	EУ** – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2006/15/ЕЗ (друга листа)
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
Slovakia - Occupational Exposure Limits	
Local name	Kyselina dusičná
NPHV (OEL STEL)	2.6 mg/m <sup>3</sup> 1 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	dušikova kislina

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nitric acid (7697-37-2)	
OEL TWA	2.6 mg/m <sup>3</sup>
	1 ppm
OEL STEL	2.6 mg/m <sup>3</sup>
	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/m <sup>3</sup>
	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/m <sup>3</sup>
	0.5 ppm
KGV (OEL STEL)	2.6 mg/m <sup>3</sup>
	1 ppm
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Nitric acid
WEL STEL (OEL STEL)	2.6 mg/m <sup>3</sup>
	1 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Saltpéturssýra
OEL STEL	2.6 mg/m <sup>3</sup>
	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/m <sup>3</sup>
	2 ppm
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2024-04-05-581

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nitric acid (7697-37-2)	
<b>North Macedonia - Occupational Exposure Limits</b>	
Local name	азотна киселина
OEL TWA	2.6 mg/m <sup>3</sup>
	1 ppm
KTV	1
Short time value [mg/m <sup>3</sup> ]	2.6 mg/m <sup>3</sup>
Short time value [ppm]	1 ppm
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 покусно време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m <sup>3</sup> или во ml/m <sup>3</sup> (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (EU) European Union – гранична вредност, определена на ниво на Европската унија; (*) дополнување на граничната вредност заради донесената Директива на Комисијата 2006/15ES од 7 февруари 2006 за создавање на втора листа на индикативни гранични вредности за професионална изложеност според директивата 98/24/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)
<b>Switzerland - Occupational Exposure Limits</b>	
Local name	Acide nitrique / Salpetersäure
MAK (OEL TWA)	5 mg/m <sup>3</sup>
	2 ppm
KZGW (OEL STEL)	5 mg/m <sup>3</sup>
	2 ppm
Remark	NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2025
<b>USA - ACGIH - Occupational Exposure Limits</b>	
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
<b>hydrofluoric Acid (7664-39-3)</b>	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Hydrogen fluoride
IOEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm

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hydrofluoric Acid (7664-39-3)	
IOEL STEL	2.5 mg/m <sup>3</sup>
	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 <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	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 <sup>3</sup>
	1.8 ppm
MAK (OEL STEL)	2.5 mg/m <sup>3</sup> (4x 15(Miw) min)
	3 ppm (4x 15(Miw) min)
Remark	H
Regulatory reference	BGBl. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Hydrogène (fluorure d') # Waterstofffluoride
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	3 ppm
Remark	M: la mention "M" indique que lors d'une exposition supérieure à la valeur limite, des irritations apparaissent ou un danger d'intoxication aiguë existe. Le procédé de travail doit être conçu de telle façon que l'exposition ne dépasse jamais la valeur limite. Lors des mesurages, la période d'échantillonnage doit être aussi courte que possible afin de pouvoir effectuer des mesurages fiables. Le résultat des mesurages est calculé en fonction de la période d'échantillonnage. # M: de vermelding "M" duidt aan dat bij de blootstelling boven de grenswaarde irritatie optreedt of er gevaar bestaat voor acute vergiftiging. Het werkprocédé moet zo zijn ontworpen dat de blootstelling de grenswaarde nooit overschrijdt. Bij een controle geldt dat de bemonsterde periode zo kort mogelijk moet zijn om een betrouwbare meting te kunnen verrichten. Het meetresultaat wordt dan gerelateerd aan de beschouwde periode.
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023

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hydrofluoric Acid (7664-39-3)	
<b>Bulgaria - Occupational Exposure Limits</b>	
Local name	Флуороводород
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	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.)
<b>Croatia - Occupational Exposure Limits</b>	
Local name	Vodikov fluorid
GVI (OEL TWA)	1.5 mg/m <sup>3</sup>
	1.8 ppm
KGVI (OEL STEL)	2.5 mg/m <sup>3</sup>
	3 ppm
Remark	Direktiva: 2000/39/EZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, граничним vrijednostima izloženosti i biološkim граничним vrijednostima (NN 148/2023)
<b>Croatia - Biological limit values</b>	
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, граничним vrijednostima izloženosti i biološkim граничним vrijednostima (NN 91/2018)
<b>Cyprus - Occupational Exposure Limits</b>	
Local name	Υδροφθόριο
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	3 ppm
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
<b>Czech Republic - Occupational Exposure Limits</b>	
Local name	Fluorovodík
PEL (OEL TWA)	1.5 mg/m <sup>3</sup>

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hydrofluoric Acid (7664-39-3)	
	1.8 ppm
NPK-P (OEL C)	2.5 mg/m <sup>3</sup>
	3 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	Hydrogenfluorid (Fluorbrinte)
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	3 ppm
Remark	E (betyder, at stoffet har en EU-grænseværdi)
Regulatory reference	BEK nr 1619 af 19/12/2024
Estonia - Occupational Exposure Limits	
Local name	Vesinikfluoriid
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	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/m <sup>3</sup>
	1.8 ppm
HTP (OEL STEL)	2.5 mg/m <sup>3</sup>
	3 ppm
Remark	lho
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Fluorwasserstoff
AGW (OEL TWA)	0.83 mg/m <sup>3</sup>
	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

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hydrofluoric Acid (7664-39-3)	
<b>Germany - Biological limit values (TRGS 903)</b>	
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
<b>Gibraltar - Occupational Exposure Limits</b>	
Local name	Hydrogen fluoride
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	3 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
<b>Greece - Occupational Exposure Limits</b>	
Local name	Υδροφθόριο
OEL TWA	2.5 mg/m <sup>3</sup>
	3 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	3 ppm
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
<b>Hungary - Occupational Exposure Limits</b>	
Local name	HIDROGÉN-FLUORID
AK (OEL TWA)	1.5 mg/m <sup>3</sup>
CK (OEL STEL)	2.5 mg/m <sup>3</sup>
Remark	b (Bőrön át is felszívódik), m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindhármát), BEM (biológiai expozíciós mutató); EU1 (2000/39/EK irányelvben közölt érték); N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
<b>Ireland - Occupational Exposure Limits</b>	
Local name	Hydrogen fluoride (as F)
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	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

# ICP Standard Solution

## Tin (Sn) 10000mg/l in HNO<sub>3</sub> 2%, HF 2%

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

hydrofluoric Acid (7664-39-3)	
<b>Italy - Occupational Exposure Limits</b>	
Local name	Acido fluoridrico
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	3 ppm
Regulatory reference	Allegato XXXVIII del Decreto Legislativo 4 settembre 2024, n. 135
<b>Latvia - Occupational Exposure Limits</b>	
Local name	Fluorūdeņradis
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	3 ppm
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).
<b>Lithuania - Occupational Exposure Limits</b>	
Local name	Vandenilio fluoridas
IPRV (OEL TWA)	1.5 mg/m <sup>3</sup>
	1.8 ppm
TPRV (OEL STEL)	2.5 mg/m <sup>3</sup>
	3 ppm
Remark	Ū (ūmus poveikis)
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
<b>Luxembourg - Occupational Exposure Limits</b>	
Local name	Fluorure d'hydrogène
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	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
<b>Malta - Occupational Exposure Limits</b>	
Local name	Hydrogen fluoride
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	3 ppm
Regulatory reference	S.L. 424.24 - Chemical Agents at Work Regulations (L.N. 356 of 2021) # L.S. 424.24 - Regolamenti dwar Agenti Kimiċi fuq il-Post tax-Xogħol (A.L. 356 tal-2021)

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hydrofluoric Acid (7664-39-3)	
<b>Netherlands - Occupational Exposure Limits</b>	
Local name	Fluorwaterstof
TGG-15min (OEL STEL)	1 mg/m <sup>3</sup> (als F)
	1.2 ppm (Fluorwaterstof (als F); Netherlands; Short time value; Public occupational exposure limit value; als F)
Regulatory reference	Arbeidsomstandighedenregeling 2024
<b>Poland - Occupational Exposure Limits</b>	
Local name	Fluorowodór
NDS (OEL TWA)	0.5 mg/m <sup>3</sup>
NDSch (OEL STEL)	2 mg/m <sup>3</sup>
Regulatory reference	Dz. U. 2024 poz. 1017 wraz z późn. zm.
<b>Portugal - Occupational Exposure Limits</b>	
Local name	Ácido fluorídrico, expresso em F
OEL TWA	0.5 ppm
OEL C	2 mg/m <sup>3</sup>
	2 ppm
Remark	P (Toxicidade percutânea); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014
<b>Romania - Occupational Exposure Limits</b>	
Local name	Acid fluorhidric/Fluorură de hidrogen
OEL TWA	1.5 mg/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.5 mg/m <sup>3</sup>
	3 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
<b>Serbia - Occupational Exposure Limits</b>	
Local name	водоник флуорид, флуороводоник
OEL TWA	2 mg/m <sup>3</sup>
	2 ppm
OEL STEL	3 mg/m <sup>3</sup>
	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)
<b>Slovakia - Occupational Exposure Limits</b>	
Local name	Fluórovodík, kyselina fluorovodíková (ako F)
NPHV (OEL TWA)	1.5 mg/m <sup>3</sup>
	1.8 ppm

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hydrofluoric Acid (7664-39-3)	
NPHV (OEL STEL)	2.5 mg/m <sup>3</sup>
	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/m <sup>3</sup>
	1.8 ppm
OEL STEL	2.25 mg/m <sup>3</sup>
	2.7 ppm
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), BAT (Biolóška mejna vrednost), EU
Regulatory reference	Uradni list RS, št. 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)
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. 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/m <sup>3</sup>
	1.8 ppm
VLA-EC (OEL STEL)	2.5 mg/m <sup>3</sup>
	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

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

hydrofluoric Acid (7664-39-3)	
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/m <sup>3</sup> 1.8 ppm
KGV (OEL STEL)	1.7 mg/m <sup>3</sup> 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/m <sup>3</sup> (as F) 1.8 ppm (as F)
WEL STEL (OEL STEL)	2.5 mg/m <sup>3</sup> (as F) 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/m <sup>3</sup> 0.7 ppm
OEL STEL	2.5 mg/m <sup>3</sup> 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/m <sup>3</sup> 0.6 ppm
Korttidsverdi (OEL STEL)	1.5 mg/m <sup>3</sup> 1.8 ppm

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hydrofluoric Acid (7664-39-3)	
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/m <sup>3</sup>
	1.8 ppm
KTV	1.5
Short time value [mg/m <sup>3</sup> ]	2.25 mg/m <sup>3</sup>
Short time value [ppm]	2.7 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m <sup>3</sup> или во ml/m <sup>3</sup> (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (BAT) биолошка гранична вредност – праг на биолошка гранична вредност, што значи предупредување на опасна хемиска супстанца и нејзини метаболити во ткивата, телесните течности или издишувањето на воздухот, без оглед на тоа, дали опасната хемиска супстанца е внесена во организмот со вдишување, голтање или преку кожата; (EU) European Union – гранична вредност, определена на ниво на Европската унија
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија” бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	Acide fluorhydrique / Fluorwasserstoff
MAK (OEL TWA)	0.83 mg/m <sup>3</sup>
	1 ppm
KZGW (OEL STEL)	1.66 mg/m <sup>3</sup>
	2 ppm
Notation	SS <sub>C</sub> , B / SS <sub>C</sub> , B
Remark	HSE, NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2025
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; Probenahmezeitpunkt: 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

# ICP Standard Solution

## Tin (Sn) 10000mg/l in HNO<sub>3</sub> 2%, HF 2%

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

#### hydrofluoric Acid (7664-39-3)

#### 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

#### 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.

###### 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	: ≈ 0 °C
Boiling point	: ≈ 100 °C
Flammability	: Non flammable.
Lower explosion limit	: Not available
Upper explosion limit	: Not available

# ICP Standard Solution

## Tin (Sn) 10000mg/l in HNO<sub>3</sub> 2%, HF 2%

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

Flash point	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: < 2
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	: ≈ 1.02
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

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

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

#### 10.4. Conditions to avoid

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

#### 10.5. Incompatible materials

No additional information available

#### 10.6. Hazardous decomposition products

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

### SECTION 11: Toxicological information

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

Acute toxicity (oral)	: Toxic if swallowed.
Acute toxicity (dermal)	: Toxic in contact with skin.
Acute toxicity (inhalation)	: Not classified

ICP Standard Solution Tin (Sn) 10000mg/l in HNO <sub>3</sub> 2%, HF 2%	
ATE CLP (oral)	247.967 mg/kg bodyweight
ATE CLP (dermal)	249.072 mg/kg bodyweight
nitric acid (7697-37-2)	
LC50 Inhalation - Rat	> 2.65 mg/L air

# ICP Standard Solution

## Tin (Sn) 10000mg/l in HNO<sub>3</sub> 2%, HF 2%

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

#### hydrofluoric Acid (7664-39-3)

LD50 dermal rabbit ≤ 50 mg/kg

Skin corrosion/irritation : Causes severe skin burns.  
pH: < 2

#### hydrofluoric Acid (7664-39-3)

pH < 1

Serious eye damage/irritation : Causes serious eye damage.  
pH: < 2

#### hydrofluoric Acid (7664-39-3)

pH < 1

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

Aspiration hazard : Not classified

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

Viscosity, kinematic 0.595 mm<sup>2</sup>/s

### 11.2. Information on other hazards

No additional information available

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

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

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

#### tetrafluorostannane (7783-62-2)

EC50 - Crustacea [1] 21.56 mg/l Daphnia magna (Water flea)

#### 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)

# ICP Standard Solution

## Tin (Sn) 10000mg/l in HNO<sub>3</sub> 2%, HF 2%

### Safety Data Sheet

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

#### 12.2. Persistence and degradability

##### ICP Standard Solution Tin (Sn) 10000mg/l in HNO<sub>3</sub> 2%, HF 2%

Persistence and degradability	Rapidly degradable
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##### tetrafluorostannane (7783-62-2)

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

#### 12.3. Bioaccumulative potential

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

Partition coefficient n-octanol/water (Log Pow)	-2.3
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##### hydrofluoric Acid (7664-39-3)

Partition coefficient n-octanol/water (Log Pow)	-1.4
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#### 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	tetrafluorostannane (7783-62-2), nitric acid (7697-37-2), hydrofluoric Acid (7664-39-3)
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Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	tetrafluorostannane (7783-62-2), nitric acid (7697-37-2), hydrofluoric Acid (7664-39-3)
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#### 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

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.
Ecological waste information	: Avoid release to the environment.
European List of Waste (LoW, EC 2000/532)	: 16 05 06* - laboratory chemicals consisting of or containing dangerous substances including mixtures of laboratory chemicals

# ICP Standard Solution

## Tin (Sn) 10000mg/l in HNO<sub>3</sub> 2%, HF 2%

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#### SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number or ID number</b>				
UN 2922	UN 2922	UN 2922	UN 2922	UN 2922
<b>14.2. UN proper shipping name</b>				
CORROSIVE LIQUID, TOXIC, N.O.S. (hydrofluoric Acid ; nitric acid)	CORROSIVE LIQUID, TOXIC, N.O.S. (hydrofluoric Acid ; nitric acid)	Corrosive liquid, toxic, n.o.s. (hydrofluoric Acid ; nitric acid)	CORROSIVE LIQUID, TOXIC, N.O.S. (hydrofluoric Acid ; nitric acid)	CORROSIVE LIQUID, TOXIC, N.O.S. (hydrofluoric Acid ; nitric acid)
<b>Transport document description</b>				
UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (hydrofluoric Acid ; nitric acid), 8 (6.1), II, (E)	UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (hydrofluoric Acid ; nitric acid), 8 (6.1), II	UN 2922 Corrosive liquid, toxic, n.o.s. (hydrofluoric Acid ; nitric acid), 8 (6.1), II	UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (hydrofluoric Acid ; nitric acid), 8 (6.1), II	UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (hydrofluoric Acid ; nitric acid), 8 (6.1), II
<b>14.3. Transport hazard class(es)</b>				
8 (6.1)	8 (6.1)	8 (6.1)	8 (6.1)	8 (6.1)
<b>14.4. Packing group</b>				
II	II	II	II	II
<b>14.5. Environmental hazards</b>				
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
No supplementary information available				

#### 14.6. Special precautions for user

##### Overland transport


Classification code (ADR)	: CT1
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)	: T7
Portable tank and bulk container special provisions (ADR)	: TP2
Tank code (ADR)	: L4BN
Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV13, CV28
Hazard identification number (Kemler No.)	: 86

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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) : T7  
Tank special provisions (IMDG) : TP2  
Stowage category (IMDG) : B  
Stowage and handling (IMDG) : SW2  
Properties and observations (IMDG) : Causes burns to skin, eyes and mucous membranes. Toxic if swallowed, by skin contact or by inhalation.

#### 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) : 8P

#### Inland waterway transport

Classification code (ADN) : CT1  
Special provisions (ADN) : 274, 802  
Limited quantities (ADN) : 1 L  
Excepted quantities (ADN) : E2  
Carriage permitted (ADN) : T  
Equipment required (ADN) : PP, EP, TOX, A  
Ventilation (ADN) : VE02  
Number of blue cones/lights (ADN) : 2

#### Rail transport

Classification code (RID) : CT1  
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) : T7  
Portable tank and bulk container special provisions (RID) : TP2  
Tank codes for RID tanks (RID) : L4BN  
Transport category (RID) : 2  
Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW28  
Colis express (express parcels) (RID) : CE6  
Hazard identification number (RID) : 86

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#### 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)	ICP Standard Solution Tin (Sn) 10000mg/l in HNO <sub>3</sub> 2%, HF 2% ; 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

##### REACH Annex XIV (Authorisation List)

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

##### REACH Candidate List (SVHC)

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

##### PIC Regulation (Prior Informed Consent)

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

##### POP Regulation (Persistent Organic Pollutants)

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

##### Ozone Regulation (2024/590)

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.

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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

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

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

#### National regulations

##### Austria

Toxic Substances Ordinance 2000 : Is subject to the Toxic Substances Ordinance 2000.

##### France

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

##### Germany

Water hazard class (WGK) : WGK 2, Significantly hazardous to water (Classification according to AwSV, Annex 1).  
 Chemicals Prohibition Ordinance (ChemVerbotsV) : This product is subject to ChemVerbotsV Annex 2 Entry 1. The following requirements must be observed: authorization requirement (according to § 6 paragraph 1 sentence 1), basic requirements for carrying out the delivery (according to § 8 paragraph 1, 3 and 4), identification and documentation (according to § 9 paragraph 1 to 3) and exclusion of the shipping route (according to § 10).  
 Major Accidents Ordinance (12. BImSchV) : Is not subject to the Major Accidents 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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#### 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	<b>Added</b>
4.2	Symptoms/effects after inhalation	<b>Added</b>
4.2	Symptoms/effects after skin contact	<b>Modified</b>
4.2	Symptoms/effects after ingestion	<b>Modified</b>
5.1	Unsuitable extinguishing media	<b>Added</b>
5.2	Explosion hazard	<b>Added</b>
5.2	Fire hazard	<b>Added</b>
5.3	Firefighting instructions	<b>Added</b>
6.1	Emergency procedures	<b>Added</b>
6.1	Protective equipment	<b>Added</b>
6.1	General measures	<b>Added</b>
6.3	For containment	<b>Added</b>
7.1	Additional hazards when processed	<b>Added</b>
7.2	Technical measures	<b>Added</b>

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Indication of changes		
Section	Changed item	Comments
7.2	Packaging materials	<b>Added</b>
7.2	Storage conditions	<b>Modified</b>
13.1	Sewage disposal recommendations	<b>Added</b>
13.1	Additional information	<b>Added</b>
13.1	Regional waste regulation	<b>Added</b>
13.1	Product/Packaging disposal recommendations	<b>Modified</b>
16	Abbreviations and acronyms	<b>Modified</b>

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
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

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Abbreviations and acronyms:	
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
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
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
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
H272	May intensify fire; oxidiser.

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

H290	May be corrosive to metals.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.

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

Acute Tox. 3 (Oral)	H301	Calculation method
Acute Tox. 3 (Dermal)	H311	Calculation method
Skin Corr. 1B	H314	Calculation method
Eye Dam. 1	H318	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.