



Single-element Standard Solution for AAS. Molybdenum (Mo) 1000 mg/l in HNO₃ 1% HF 1%

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) as amended

Issue date: 2015/8/18 Revision date: 2021/4/28 Version: 1.2

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

1.1. Product identifier

Product form : Mixture
Product name : Single-element Standard Solution for AAS.
Molybdenum (Mo) 1000 mg/l in HNO₃ 1% HF 1%
Product code : B034

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

1.2.1. Relevant identified uses

Main use category : Professional use
Use of the substance/mixture : Reference material
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 MSD Msida | +356 2545 6504 | |
| 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
Acute toxicity (oral), Category 4 H302
Acute toxicity (dermal), Category 3 H311
Acute toxicity (inhalation:dust,mist) Category 4 H332
Skin corrosion/irritation, Category 1, Sub-Category 1B H314
Serious eye damage/eye irritation, Category 1 H318
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

May be corrosive to metals. Toxic in contact with skin. Harmful if inhaled. Harmful 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)



Signal word (CLP)

: Danger

Hazardous ingredients

: nitric acid; hydrofluoric acid

Hazard statements (CLP)

: H290 - May be corrosive to metals.
 H302+H332 - Harmful if swallowed or if inhaled.
 H311 - Toxic in contact with skin.
 H314 - Causes severe skin burns and eye damage.

Precautionary statements (CLP)

: P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 - Wash hands, forearms and face thoroughly after handling.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P330+P331+P310 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.
 P303+P361+P353+P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.. Immediately call a POISON CENTER or doctor.
 P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
 P312 - Call a POISON CENTRE or doctor if you feel unwell.
 P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
 P390 - Absorb spillage to prevent material damage.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|---|--|-----------|--|
| nitric acid | (CAS-No.) 7697-37-2 (EC-No.) 231-714-2 (EC Index-No.) 007-004-00-1 (REACH-no) 01-2119487297-23-XXXX | 1 | Ox. Liq. 2, H272 Met. Corr. 1, H290 Acute Tox. 3 (Inhalation:dust,mist), H331 Skin Corr. 1A, H314 Eye Dam. 1, H318 |
| 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 | 1 | Met. Corr. 1, H290 Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation), H330 Skin Corr. 1A, H314 |
| molybdenum(V) fluoride substance with national workplace exposure limit(s) (AT, BE, BG, CH, CZ, ES, GB, IE, PL, PT, SE, SK) | (CAS-No.) 13819-84-6 | 0,1 – 0,5 | Not classified |

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 |

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| | | |
|-------------------|--|--|
| 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-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. Call a poison center or a doctor if you feel unwell. |
| First-aid measures after skin contact | : Get medical advice/attention. 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. Do not induce vomiting. Call a physician immediately. |

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

| | |
|-------------------------------------|---------------------------|
| Symptoms/effects after skin contact | : Burns. |
| Symptoms/effects after eye contact | : Serious damage to eyes. |
| Symptoms/effects after ingestion | : Burns. |

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Avoid contact with skin, eyes and clothing. Do not breathe dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

:

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 : Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. 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.

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 locked up. Store in a well-ventilated place. Keep cool.

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Incompatible materials : Metals.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

nitric acid (7697-37-2)

| | | |
|----------------|--|--|
| EU | Local name | Nitric acid |
| EU | IOELV STEL (mg/m ³) | 2,6 mg/m ³ |
| EU | IOELV STEL (ppm) | 1 ppm |
| EU | Regulatory reference | COMMISSION DIRECTIVE 2006/15/EC |
| Austria | Local name | Salpetersäure |
| Austria | MAK Short time value [mg/m ³] | 2,6 mg/m ³ (Mow) |
| Austria | MAK Short time value [ppm] | 1 ppm (Mow) |
| Austria | Regulatory reference | BGBI. II Nr. 382/2020 |
| Belgium | Local name | Acide nitrique # Salpeterzuur |
| Belgium | Short time value [mg/m ³] | 2,6 mg/m ³ |
| Belgium | Short time value [ppm] | 1 ppm |
| Belgium | Regulatory reference | Koninklijk besluit/Arrêté royal 19/11/2020 |
| Bulgaria | Local name | Азотна киселина |
| Bulgaria | OEL STEL (mg/m ³) | 2,6 mg/m ³ |
| Bulgaria | OEL STEL (ppm) | 1 ppm |
| Bulgaria | Notes | • (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност) |
| Bulgaria | 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.5 от 17 Януари 2020 г.) |
| Croatia | Local name | Dušična kiselina |
| Croatia | KGVI (kratkotrajna гранична vrijednost izloženosti) (mg/m ³) | 2,6 mg/m ³ |
| Croatia | KGVI (kratkotrajna гранична vrijednost izloženosti) (ppm) | 1 ppm |
| Croatia | Naznake (HR) | Direktiva: 2006/15/EZ |
| Croatia | Regulatory reference | Pravilnik o izmjenama i dopunama Pravilnika o граничним vrijednostima izloženosti opasnim tvarima pri radu i o biološkim граничним vrijednostima (NN 91/2018) |
| Czech Republic | Local name | Kyselina dusičná |
| Czech Republic | Expoziční limity (PEL) (mg/m ³) | 1 mg/m ³ |
| Czech Republic | Expoziční limity (PEL) (ppm) | 0,4 ppm |
| Czech Republic | Expoziční limity (NPK-P) (mg/m ³) | 2,5 mg/m ³ |
| Czech Republic | Expoziční limity (NPK-P) (ppm) | 1 ppm |
| Czech Republic | Remark (CZ) | I - dráždí sliznice (oči, dýchací cesty), respektive kůži. |
| Czech Republic | Regulatory reference | Nařízení vlády č. 361/2007 Sb. (Předpis 41/2020 Sb.) |
| Denmark | Local name | Salpetersyre |
| Denmark | Grænseværdi (STEL) (mg/m ³) | 2,6 mg/m ³ |
| Denmark | Grænseværdi (STEL) (ppm) | 1 ppm |

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| nitric acid (7697-37-2) | | |
|-------------------------|--|--|
| Denmark | Anmærkninger (DK) | E (betyder, at stoffet har en EF-grænseværdi); S (betyder, at grænseværdien ikke bør overskrides. Værdien gælder for en eksponeringsperiode på 15 minutter) |
| Denmark | Regulatory reference | BEK nr 698 af 28/05/2020 |
| Estonia | Local name | Lämmastikhape |
| Estonia | OEL STEL (mg/m ³) | 2,6 mg/m ³ |
| Estonia | OEL STEL (ppm) | 1 ppm |
| Estonia | Regulatory reference | Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 17.10.2019, 2); Vabariigi Valitsuse 10. märtsi 2019. a määruse nr 84 |
| Finland | Local name | Typpihappo |
| Finland | HTP-arvo (8h) (mg/m ³) | 1,3 mg/m ³ |
| Finland | HTP-arvo (8h) (ppm) | 0,5 ppm |
| Finland | HTP-arvo (15 min) | 2,6 mg/m ³ |
| Finland | HTP-arvo (15 min) (ppm) | 1 ppm |
| Finland | Regulatory reference | HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö) |
| France | Local name | Acide nitrique |
| France | VLE [mg/m ³] | 2,6 mg/m ³ |
| France | VLE [ppm] | 1 ppm |
| France | Note (FR) | Valeurs réglementaires indicatives |
| France | Regulatory reference | Arrêté du 30 juin 2004 modifié (réf.: INRS ED 984, 2016) |
| Germany | TRGS 900 Local name | Salpetersäure |
| Germany | Occupational exposure limit value (mg/m ³) | 2,6 mg/m ³ |
| Germany | Occupational exposure limit value (ppm) | 1 ppm |
| Germany | TRGS 900 Remark | EU;13;16 |
| Germany | TRGS 900 Regulatory reference | TRGS900 |
| Germany | TRGS 910 Acceptable concentration notes | |
| Gibraltar | Short term mg/m ³ | 2,6 mg/m ³ |
| Gibraltar | Short-term ppm | 1 ppm |
| Gibraltar | Name of agent | Nitric acid |
| Gibraltar | Regulatory reference | Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181) |
| Greece | Local name | Νιτρικό οξύ |
| Greece | OEL STEL (mg/m ³) | 2,6 mg/m ³ |
| Greece | OEL STEL (ppm) | 1 ppm |
| Greece | Regulatory reference | Π.Δ. 162/2007 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους |
| Hungary | Local name | SALÉTRÓMSAV |
| Hungary | CK-érték | 2,6 mg/m ³ |
| Hungary | Megjegyzések (HU) | 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) |

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| nitric acid (7697-37-2) | | |
|-------------------------|--|---|
| Hungary | Regulatory reference | 5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről |
| Ireland | Local name | Nitric acid |
| Ireland | OEL (15 min ref) (mg/m ³) | 2,6 mg/m ³ |
| Ireland | OEL (15 min ref) (ppm) | 1 ppm |
| Ireland | Notes (IE) | IOELV (Indicative Occupational Exposure Limit Values) |
| Ireland | Regulatory reference | Chemical Agents Code of Practice 2020 |
| Italy | Local name | Acido nitrico |
| Italy | OEL STEL (mg/m ³) | 2,6 mg/m ³ |
| Italy | OEL STEL (ppm) | 1 ppm |
| Italy | Regulatory reference | Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i. |
| Latvia | Local name | Slāpekļskābe |
| Latvia | OEL TWA (mg/m ³) | 2 mg/m ³ |
| Latvia | OEL TWA (ppm) | 0,78 ppm |
| Latvia | OEL STEL (mg/m ³) | 2,6 mg/m ³ |
| Latvia | OEL STEL (ppm) | 1 ppm |
| Latvia | Regulatory reference | Ministru kabineta 2007. gada 15. maija noteikumi Nr. 325 |
| Lithuania | Local name | Nitrato rūgštis (azoto rūgštis) |
| Lithuania | TPRV (mg/m ³) | 2,6 mg/m ³ |
| Lithuania | TPRV (ppm) | 1 ppm |
| Lithuania | Regulatory reference | LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12) |
| Luxembourg | Local name | Acide nitrique |
| Luxembourg | OEL STEL (mg/m ³) | 2,6 mg/m ³ |
| Luxembourg | OEL STEL (ppm) | 1 ppm |
| Luxembourg | Regulatory reference | Mémorial A N° 684 de 2018 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 | Local name | Nitric acid |
| Malta | OEL STEL (mg/m ³) | 2,6 mg/m ³ |
| Malta | OEL STEL (ppm) | 1 ppm |
| Malta | Regulatory reference | S.L.424.24 - Chemical Agents at Work Regulations (L.N.57 of 2018) |
| Netherlands | Local name | Salpeterzuur |
| Netherlands | Grenswaarde TGG 15MIN (mg/m ³) | 1,3 mg/m ³ |
| Netherlands | Grenswaarde TGG 15MIN (ppm) | 0,5 ppm (Salpeterzuur; Netherlands; Short time value; Public occupational exposure limit value) |
| Netherlands | Regulatory reference | Arbeidsomstandighedenregeling 2020 |
| Poland | Local name | Kwas azotowy (V) |
| Poland | NDS (mg/m ³) | 1,4 mg/m ³ |
| Poland | NDSch (mg/m ³) | 2,6 mg/m ³ |
| Poland | Regulatory reference | Dz. U. 2018 poz. 1286 |
| Portugal | Local name | Ácido nítrico |

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| nitric acid (7697-37-2) | | |
|-------------------------|---|---|
| Portugal | OEL TWA (ppm) | 2 ppm |
| Portugal | OEL STEL (ppm) | 4 ppm |
| Slovakia | Regulatory reference | Norma Portuguesa NP 1796:2014 |
| Romania | Local name | Acid nitric/Acid azotic |
| Romania | OEL STEL (mg/m ³) | 2,6 mg/m ³ |
| Romania | OEL STEL (ppm) | 1 ppm |
| Romania | Regulatory reference | Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 157/2020) |
| Slovakia | Local name | Kyselina dusičná |
| Slovakia | OEL STEL (mg/m ³) | 2,6 mg/m ³ |
| Slovakia | OEL STEL (ppm) | 1 ppm |
| Slovakia | Regulatory reference | Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.) |
| Slovenia | Local name | dušikova kislina |
| Slovenia | OEL TWA (mg/m ³) | 2,6 mg/m ³ |
| Slovenia | OEL TWA (ppm) | 1 ppm |
| Slovenia | OEL STEL (mg/m ³) | 2,6 mg/m ³ |
| Slovenia | OEL STEL (ppm) | 1 ppm |
| Slovenia | Remark (SI) | EU |
| Slovenia | Regulatory reference | Uradni list RS, št. 78/2019 z dne 20.12.2019 |
| Spain | Local name | Ácido nítrico |
| Spain | VLA-EC (mg/m ³) | 2,6 mg/m ³ |
| Spain | VLA-EC (ppm) | 1 ppm |
| Spain | Notes | VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo). |
| Spain | Regulatory reference | Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT |
| Sweden | Local name | Salpetersyra |
| Sweden | nivågränsvärde (NVG) (mg/m ³) | 1,3 mg/m ³ |
| Sweden | nivågränsvärde (NVG) (ppm) | 0,5 ppm |
| Sweden | kortidsvärde (KTV) (mg/m ³) | 2,6 mg/m ³ |
| Sweden | kortidsvärde (KTV) (ppm) | 1 ppm |
| Sweden | Regulatory reference | Hygieniska gränsvärden (AFS 2018:1) |
| United Kingdom | Local name | Nitric acid |
| United Kingdom | WEL STEL (mg/m ³) | 2,6 mg/m ³ |
| United Kingdom | WEL STEL (OEL STEL) [ppm] | 1 ppm |
| United Kingdom | Regulatory reference | EH40/2005 (Fourth edition, 2020). HSE |
| Iceland | Local name | Saltpéturssýra |
| Iceland | OEL (15 min ref) (mg/m ³) | 2,6 mg/m ³ |
| Iceland | OEL (15 min ref) (ppm) | 1 ppm |
| Iceland | Regulatory reference | Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009) |
| Norway | Local name | Salpetersyre |
| Norway | Grenseverdier (AN) (mg/m ³) | 5 mg/m ³ |

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|-------------------------|---------------------------|--|
| Norway | Grenseverdier (AN) (ppm) | 2 ppm |
| Norway | Merknader (NO) | E: EU har en veiledende grenseverdi for stoffet. |
| Norway | Regulatory reference | FOR-2020-04-06-695 |
| Switzerland | Local name | Acide nitrique / Salpetersäure |
| Switzerland | MAK (mg/m ³) | 5 mg/m ³ |
| Switzerland | MAK (ppm) | 2 ppm |
| Switzerland | KZGW (mg/m ³) | 5 mg/m ³ |
| Switzerland | KZGW (ppm) | 2 ppm |
| Switzerland | Critical toxicity | VRS, Yeux, Dent / OAW, Auge, Zahn |
| Switzerland | Remark | NIOSH, OSHA |
| Switzerland | Regulatory reference | www.suva.ch, 01.01.2021 |
| USA - ACGIH | Local name | Nitric acid |
| USA - ACGIH | ACGIH TWA (ppm) | 2 ppm |
| USA - ACGIH | ACGIH STEL (ppm) | 4 ppm |
| USA - ACGIH | Remark (ACGIH) | TLV® Basis: URT & eye irr; dental erosion |
| USA - ACGIH | Regulatory reference | ACGIH 2020 |

| molybdenum(V) fluoride (13819-84-6) | | |
|-------------------------------------|---|--|
| Austria | Local name | Molybdän und Molybdänverbindungen, unlösliche |
| Austria | MAK [mg/m ³] | 10 mg/m ³ |
| Austria | MAK Short time value [mg/m ³] | 20 mg/m ³ |
| Belgium | Local name | Molybdène (composés solubles) (en Mo) # Molybdeenverbindingen (onoplosbaar) (als Mo) |
| Belgium | Limit value [mg/m ³] | 10 mg/m ³ 0,5 mg/m ³ |
| Bulgaria | Local name | Молибден |
| Bulgaria | OEL TWA (mg/m ³) | 5 mg/m ³ разтворими съединения (като молибден) 10 mg/m ³ и негови съединения (като молибден) |
| Czech Republic | Local name | Molybden |
| Czech Republic | Expoziční limity (PEL) (mg/m ³) | 5 mg/m ³ |
| Czech Republic | Expoziční limity (NPK-P) (mg/m ³) | 25 mg/m ³ |
| Germany | TRGS 910 Acceptable concentration notes | |
| Ireland | Local name | Molybdenum compounds (as Mo) |
| Ireland | OEL (8 hours ref) (mg/m ³) | 0,5 mg/m ³ R (Respirable) |
| Ireland | Regulatory reference | Chemical Agents Code of Practice 2020 |
| Poland | Local name | Molibden i jego związki w przeliczeniu na Mo |
| Poland | NDS (mg/m ³) | 4 mg/m ³ |
| Poland | NDSch (mg/m ³) | 10 mg/m ³ |
| Portugal | Local name | Molibdénio, expresso em Mo Compostos solúveis |
| Portugal | OEL TWA (mg/m ³) | 0,5 mg/m ³ R (Fração respirável) 10 mg/m ³ I (Fração inalável) 3 mg/m ³ R (Fração respirável) |
| Slovakia | Local name | Molybdén a jeho zlúčeniny rozpustné (ako Mo) |

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|-------------------------------------|---|--|
| Slovakia | NPHV (priemerná) (mg/m ³) | 5 mg/m ³ 10 mg/m ³ inhalovateľná frakcia 5 mg/m ³ respirabilná frakcia |
| Spain | Local name | Molibdeno |
| Spain | VLA-ED (mg/m ³) | 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 |
| Sweden | Local name | Molybden, metall och svårösliga. föreningar (som Mo) |
| Sweden | nivågränsvärde (NVG) (mg/m ³) | 10 mg/m ³ totaldamm 5 mg/m ³ respirabelt damm |
| Sweden | Anmärkning (SE) | 2 (Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagning av totaldamm och respirabelt damm, Metod nr 1010, Arbetskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provtas inte den totala mängden luftburna partiklar med denna metod) |
| United Kingdom | Local name | Molybdenum |
| United Kingdom | WEL TWA (mg/m ³) | 10 mg/m ³ insoluble compounds (as Mo) 5 mg/m ³ soluble compounds (as Mo) |
| United Kingdom | WEL STEL (mg/m ³) | 20 mg/m ³ insoluble compounds (as Mo) 10 mg/m ³ soluble compounds (as Mo) |
| United Kingdom | Regulatory reference | EH40/2005 (Fourth edition, 2020). HSE |
| Switzerland | Local name | Molybdänverbindungen löslich (als Mo berechnet) |
| Switzerland | MAK (mg/m ³) | 5 mg/m ³ 10 mg/m ³ |
| Switzerland | Remark | e(mg/m ³) - UAW ^{KT AN} - NIOSH |
| USA - ACGIH | Local name | Molybdenum, metal and insoluble compounds, as Mo |
| USA - ACGIH | ACGIH TWA (mg/m ³) | 10 mg/m ³ (I - Inhalable particulate matter) 3 mg/m ³ (R - Respirable particulate matter) |
| USA - ACGIH | Remark (ACGIH) | TLV® Basis: LRT irr |
| USA - ACGIH | Regulatory reference | ACGIH 2020 |

| hydrofluoric acid (7664-39-3) | | |
|-------------------------------|---------------------------------------|--|
| EU | Local name | Hydrogen fluoride |
| EU | IOELV TWA (mg/m ³) | 1,5 mg/m ³ |
| EU | IOELV TWA (ppm) | 1,8 ppm |
| EU | IOELV STEL (mg/m ³) | 2,5 mg/m ³ |
| EU | IOELV STEL (ppm) | 3 ppm |
| EU | Regulatory reference | COMMISSION DIRECTIVE 2000/39/EC |
| Belgium | Local name | Hydrogène (fluorure d') # Waterstofffluoride |
| Belgium | Limit value [mg/m ³] | 1,5 mg/m ³ |
| Belgium | Limit value [ppm] | 1,8 ppm |
| Belgium | Short time value [mg/m ³] | 2,5 mg/m ³ |

Single-element Standard Solution for AAS.

Molybdenum (Mo) 1000 mg/l in HNO₃ 1% HF 1%

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| hydrofluoric acid (7664-39-3) | | |
|-------------------------------|--|--|
| Belgium | Short time value [ppm] | 3 ppm |
| Belgium | Remark (BE) | M: la mention "M" indique que lors d'une exposition supérieure à la valeur limite, des irritations apparaissent ou un danger d'intoxication aiguë existe. Le procédé de travail doit être conçu de telle façon que l'exposition ne dépasse jamais la valeur limite. Lors des mesurages, la période d'échantillonnage doit être aussi courte que possible afin de pouvoir effectuer des mesurages fiables. Le résultat des mesurages est calculé en fonction de la période d'échantillonnage. # M: de vermelding "M" duidt aan dat bij de blootstelling boven de grenswaarde irritatie optreedt of er gevaar bestaat voor acute vergiftiging. Het werkproces moet zo zijn ontworpen dat de blootstelling de grenswaarde nooit overschrijdt. Bij een controle geldt dat de bemonsterde periode zo kort mogelijk moet zijn om een betrouwbare meting te kunnen verrichten. Het meetresultaat wordt dan gerelateerd aan de beschouwde periode. |
| Belgium | Regulatory reference | Koninklijk besluit/Arrêté royal 19/11/2020 |
| Bulgaria | Local name | Флуороводород |
| Bulgaria | OEL TWA (mg/m ³) | 1,5 mg/m ³ |
| Bulgaria | OEL TWA (ppm) | 1,8 ppm |
| Bulgaria | OEL STEL (mg/m ³) | 2,5 mg/m ³ |
| Bulgaria | OEL STEL (ppm) | 3 ppm |
| Bulgaria | Notes | • (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност) |
| Bulgaria | 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.5 от 17 Януари 2020 г.) |
| Croatia | Local name | Vodikov fluorid |
| Croatia | GVI (granična vrijednost izloženosti) (mg/m ³) | 1,5 mg/m ³ |
| Croatia | GVI (granična vrijednost izloženosti) (ppm) | 1,8 ppm |
| Croatia | KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³) | 2,5 mg/m ³ |
| Croatia | KGVI (kratkotrajna granična vrijednost izloženosti) (ppm) | 3 ppm |
| Croatia | Naznake (HR) | Direktiva: 2000/39/EZ |
| Croatia | Regulatory reference | Pravilnik o izmjenama i dopunama Pravilnika o graničnim vrijednostima izloženosti opasnim tvarima pri radu i o biološkim graničnim vrijednostima (NN 91/2018) |
| Czech Republic | Local name | Fluorovodík |
| Czech Republic | Expoziční limity (PEL) (mg/m ³) | 1,5 mg/m ³ |
| Czech Republic | Expoziční limity (PEL) (ppm) | 1,8 ppm |
| Czech Republic | Expoziční limity (NPK-P) (mg/m ³) | 2,5 mg/m ³ |
| Czech Republic | Expoziční limity (NPK-P) (ppm) | 3 ppm |
| Czech Republic | Remark (CZ) | I - dráždí sliznice (oči, dýchací cesty), respektive kůži. |
| Czech Republic | Regulatory reference | Nařízení vlády č. 361/2007 Sb. (Předpis 41/2020 Sb.) |
| Denmark | Local name | Hydrogenfluorid (Fluorbrinte) |
| Denmark | Grænseværdi (8 timer) (mg/m ³) | 1,5 mg/m ³ |
| Denmark | Grænseværdi (8 timer) (ppm) | 1,8 ppm |

Single-element Standard Solution for AAS.

Molybdenum (Mo) 1000 mg/l in HNO₃ 1% HF 1%

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| hydrofluoric acid (7664-39-3) | | |
|-------------------------------|--|---|
| Denmark | Anmærkninger (DK) | E (betyder, at stoffet har en EF-grænseværdi) |
| Denmark | Regulatory reference | BEK nr 698 af 28/05/2020 |
| Estonia | Local name | Vesinikfluoriid |
| Estonia | OEL TWA (mg/m ³) | 1,5 mg/m ³ |
| Estonia | OEL TWA (ppm) | 1,8 ppm |
| Estonia | OEL STEL (mg/m ³) | 2,5 mg/m ³ |
| Estonia | OEL STEL (ppm) | 3 ppm |
| Estonia | Regulatory reference | Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 17.10.2019, 2); Vabariigi Valitsuse 10. märtsi 2019. a määruse nr 84 |
| Finland | Local name | Fluorivety |
| Finland | HTP-arvo (8h) (mg/m ³) | 1,5 mg/m ³ |
| Finland | HTP-arvo (8h) (ppm) | 1,8 ppm |
| Finland | HTP-arvo (15 min) | 2,5 mg/m ³ |
| Finland | HTP-arvo (15 min) (ppm) | 3 ppm |
| Finland | Huomautus (FI) | Iho |
| Finland | Regulatory reference | HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö) |
| France | Local name | Fluorure d'hydrogène (Acide fluorhydrique) |
| France | VME [mg/m ³] | 1,5 mg/m ³ |
| France | VME [ppm] | 1,8 ppm |
| France | VLE [mg/m ³] | 2,5 mg/m ³ |
| France | VLE [ppm] | 3 ppm |
| France | Note (FR) | Valeurs réglementaires contraignantes |
| France | Regulatory reference | Article R4412-149 du Code du travail (réf.: INRS ED 984, 2016; Décret n° 2019-1487) |
| Germany | TRGS 900 Local name | Fluorwasserstoff |
| Germany | Occupational exposure limit value (mg/m ³) | 0,83 mg/m ³ |
| Germany | Occupational exposure limit value (ppm) | 1 ppm |
| Germany | Peak exposure limitation factor | 2(l) |
| Germany | TRGS 900 Remark | DFG;EU;Y;H |
| Germany | TRGS 900 Regulatory reference | TRGS900 |
| Germany | TRGS 903 Local name | Hydrogenfluorid (Fluorwasserstoff) und anorganische Fluorverbindungen (Fluoride) |
| Germany | TRGS 903 Biological limit value | 7 mg/g creatinine Parameter: Fluorid - Untersuchungsmaterial: U = Urin - Probenahmezeitpunkt: b) Expositionsende, bzw. Schichtende - Festlegung/Begründung: 11/2012 DFG 4 mg/g creatinine Parameter: Fluorid - Untersuchungsmaterial: U = Urin - Probenahmezeitpunkt: d) vor nachfolgender Schicht - Festlegung/Begründung: 11/2012 DFG |
| Germany | TRGS 903 Regulatory reference | TRGS 903 |
| Germany | TRGS 910 Acceptable concentration notes | |
| Gibraltar | Eight hours mg/m ³ | 1,5 mg/m ³ |
| Gibraltar | Eight hours ppm | 1,8 ppm |
| Gibraltar | Short term mg/m ³ | 2,5 mg/m ³ |

Single-element Standard Solution for AAS.

Molybdenum (Mo) 1000 mg/l in HNO₃ 1% HF 1%

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| hydrofluoric acid (7664-39-3) | | |
|-------------------------------|--|--|
| Gibraltar | Short-term ppm | 3 ppm |
| Gibraltar | Name of agent | Hydrogen fluoride |
| Gibraltar | Regulatory reference | Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181) |
| Greece | Local name | Υδροφθόριο |
| Greece | OEL TWA (mg/m ³) | 2,5 mg/m ³ |
| Greece | OEL TWA (ppm) | 3 ppm |
| Greece | OEL STEL (mg/m ³) | 2,5 mg/m ³ |
| Greece | OEL STEL (ppm) | 3 ppm |
| Greece | Regulatory reference | Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους |
| Ireland | Local name | Hydrogen fluoride (as F) |
| Ireland | OEL (8 hours ref) (mg/m ³) | 1,5 mg/m ³ |
| Ireland | OEL (8 hours ref) (ppm) | 1,8 ppm |
| Ireland | OEL (15 min ref) (mg/m ³) | 2,5 mg/m ³ |
| Ireland | OEL (15 min ref) (ppm) | 3 ppm |
| Ireland | Notes (IE) | Sk (Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body), IOELV (Indicative Occupational Exposure Limit Values) |
| Ireland | Regulatory reference | Chemical Agents Code of Practice 2020 |
| Italy | Local name | Acido fluoridrico |
| Italy | OEL TWA (mg/m ³) | 1,5 mg/m ³ |
| Italy | OEL TWA (ppm) | 1,8 ppm |
| Italy | OEL STEL (mg/m ³) | 2,5 mg/m ³ |
| Italy | OEL STEL (ppm) | 3 ppm |
| Italy | Regulatory reference | Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i. |
| Latvia | Local name | Fluorūdeņradis |
| Latvia | OEL TWA (mg/m ³) | 1,5 mg/m ³ |
| Latvia | OEL TWA (ppm) | 1,8 ppm |
| Latvia | OEL STEL (mg/m ³) | 2,5 mg/m ³ |
| Latvia | OEL STEL (ppm) | 3 ppm |
| Latvia | Regulatory reference | Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 |
| Lithuania | Local name | Vandenilio fluoridas |
| Lithuania | IPRV (mg/m ³) | 1,5 mg/m ³ |
| Lithuania | IPRV (ppm) | 1,8 ppm |
| Lithuania | TPRV (mg/m ³) | 2,5 mg/m ³ |
| Lithuania | TPRV (ppm) | 3 ppm |
| Lithuania | Remark (LT) | Ū (ūmus poveikis) |
| Lithuania | Regulatory reference | LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12) |
| Luxembourg | Local name | Fluorure d'hydrogène |
| Luxembourg | OEL TWA (mg/m ³) | 1,5 mg/m ³ |

Single-element Standard Solution for AAS.

Molybdenum (Mo) 1000 mg/l in HNO₃ 1% HF 1%

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| hydrofluoric acid (7664-39-3) | | |
|-------------------------------|--|---|
| Luxembourg | OEL TWA (ppm) | 1,8 ppm |
| Luxembourg | OEL STEL (mg/m ³) | 2,5 mg/m ³ |
| Luxembourg | OEL STEL (ppm) | 3 ppm |
| Luxembourg | Regulatory reference | Mémorial A N° 684 de 2018 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 | Local name | Hydrogen fluoride |
| Malta | OEL TWA (mg/m ³) | 1,5 mg/m ³ |
| Malta | OEL TWA (ppm) | 1,8 ppm |
| Malta | OEL STEL (mg/m ³) | 2,5 mg/m ³ |
| Malta | OEL STEL (ppm) | 3 ppm |
| Malta | Regulatory reference | S.L.424.24 - Chemical Agents at Work Regulations (L.N.57 of 2018) |
| Netherlands | Local name | Fluorwaterstof |
| Netherlands | Grenswaarde TGG 15MIN (mg/m ³) | 1 mg/m ³ (als F) |
| Netherlands | Grenswaarde TGG 15MIN (ppm) | 1,2 ppm (Fluorwaterstof (als F); Netherlands; Short time value; Public occupational exposure limit value; als F) |
| Netherlands | Regulatory reference | Arbeidsomstandighedenregeling 2020 |
| Poland | Local name | Fluorowodór |
| Poland | NDS (mg/m ³) | 0,5 mg/m ³ |
| Poland | NDSch (mg/m ³) | 2 mg/m ³ |
| Poland | Regulatory reference | Dz. U. 2018 poz. 1286 |
| Portugal | OEL - Ceilings (ppm) | 2 ppm |
| Romania | Local name | Acid fluorhidric/Fluorură de hidrogen |
| Romania | OEL TWA (mg/m ³) | 1,5 mg/m ³ |
| Romania | OEL TWA (ppm) | 1,8 ppm |
| Romania | OEL STEL (mg/m ³) | 2,5 mg/m ³ |
| Romania | OEL STEL (ppm) | 3 ppm |
| Romania | Regulatory reference | Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 157/2020) |
| Slovakia | Local name | Fluórovodík, kyselina fluorovodíková (ako F) |
| Slovakia | NPHV (priemerná) (mg/m ³) | 1,5 mg/m ³ |
| Slovakia | NPHV (priemerná) (ppm) | 1,8 ppm |
| Slovakia | OEL STEL (mg/m ³) | 2,5 mg/m ³ |
| Slovakia | OEL STEL (ppm) | 3 ppm |
| Slovakia | Regulatory reference | Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.) |
| Slovenia | Local name | vodikov fluorid |
| Slovenia | OEL TWA (mg/m ³) | 1,5 mg/m ³ |
| Slovenia | OEL TWA (ppm) | 1,8 ppm |
| Slovenia | OEL STEL (mg/m ³) | 2,25 mg/m ³ |
| Slovenia | OEL STEL (ppm) | 2,7 ppm |
| Slovenia | Remark (SI) | 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 |

Single-element Standard Solution for AAS. Molybdenum (Mo) 1000 mg/l in HNO₃ 1% HF 1%

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| hydrofluoric acid (7664-39-3) | | |
|-------------------------------|---|--|
| Slovenia | Regulatory reference | Uradni list RS, št. 78/2019 z dne 20.12.2019 |
| Spain | Local name | Fluoruro de hidrógeno |
| Spain | VLA-ED (mg/m ³) | 1,5 mg/m ³ |
| Spain | VLA-ED (ppm) | 1,8 ppm |
| Spain | VLA-EC (mg/m ³) | 2,5 mg/m ³ |
| Spain | VLA-EC (ppm) | 3 ppm |
| Spain | Notes | 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). |
| Spain | | 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) |
| Spain | Regulatory reference | Límites de Exposición Profesional para Agentes Químicos en España 2019. INSHT |
| Sweden | Local name | Vätefluorid (Fluorväte) |
| Sweden | nivågränsvärde (NVG) (mg/m ³) | 1,5 mg/m ³ |
| Sweden | nivågränsvärde (NVG) (ppm) | 1,8 ppm |
| Sweden | kortidsvärde (KTV) (mg/m ³) | 1,7 mg/m ³ |
| Sweden | kortidsvärde (KTV) (ppm) | 2 ppm |
| Sweden | Anmärkning (SE) | 31 (Vid exponering för blandningar av fluorider och vätefluorid ska nivågränsvärdet för fluorider tillämpas) |
| Sweden | Regulatory reference | Hygieniska gränsvärden (AFS 2018:1) |
| United Kingdom | Local name | Hydrogen fluoride |
| United Kingdom | WEL TWA (mg/m ³) | 1,5 mg/m ³ (as F) |
| United Kingdom | WEL TWA (ppm) | 1,8 ppm (as F) |
| United Kingdom | WEL STEL (mg/m ³) | 2,5 mg/m ³ (as F) |
| United Kingdom | WEL STEL (OEL STEL) [ppm] | 3 ppm (as F) |
| United Kingdom | Regulatory reference | EH40/2005 (Fourth edition, 2020). HSE |
| Iceland | Local name | Vetnisflúoríð (flúorvetni) |
| Iceland | OEL (8 hours ref) (mg/m ³) | 0,6 mg/m ³ |
| Iceland | OEL (8 hours ref) (ppm) | 0,7 ppm |
| Iceland | OEL (15 min ref) (mg/m ³) | 2,5 mg/m ³ Þakgildið er miðað við fimm mínútna tímabil |
| Iceland | OEL (15 min ref) (ppm) | 3 ppm Þakgildið er miðað við fimm mínútna tímabil |
| Iceland | Regulatory reference | Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009) |

Single-element Standard Solution for AAS.

Molybdenum (Mo) 1000 mg/l in HNO₃ 1% HF 1%

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| hydrofluoric acid (7664-39-3) | | |
|-------------------------------|--|--|
| Norway | Local name | Hydrogenfluorid (Fluss-syre) |
| Norway | Grenseverdier (AN) (mg/m ³) | 0,5 mg/m ³ |
| Norway | Grenseverdier (Korttidsverdi) (mg/m ³) | 1,5 mg/m ³ |
| Norway | Grenseverdier (Korttidsverdi) (ppm) | 1,8 ppm |
| Norway | Merknader (NO) | H: Kjemikalier som kan tas opp gjennom huden; E: EU har en veiledende grenseverdi for stoffet. |
| Norway | Regulatory reference | FOR-2020-04-06-695 |
| Switzerland | Local name | Acide fluorhydrique / Fluorwasserstoff |
| Switzerland | MAK (mg/m ³) | 0,83 mg/m ³ |
| Switzerland | MAK (ppm) | 1 ppm |
| Switzerland | KZGW (mg/m ³) | 1,66 mg/m ³ |
| Switzerland | KZGW (ppm) | 2 ppm |
| Switzerland | Critical toxicity | VR, Os, Peau, Yeux / AW, Knochen, Haut, Auge |
| Switzerland | Notation | SS _C , B / SS _C , B |
| Switzerland | Remark | HSE, NIOSH, OSHA |
| Switzerland | Regulatory reference | www.suva.ch, 01.01.2021 |
| USA - ACGIH | Local name | Hydrogen fluoride, as F |
| USA - ACGIH | ACGIH TWA (ppm) | 0,5 ppm |
| USA - ACGIH | ACGIH Ceiling (ppm) | 2 ppm |
| USA - ACGIH | Remark (ACGIH) | TLV® Basis: URT, LRT, skin, & eye irr; fluorosis. Notations: Skin; BEI |
| USA - ACGIH | Regulatory reference | ACGIH 2020 |

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

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.

Hand protection:

Protective gloves

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. [In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):



Environmental exposure controls:

Avoid release to the environment.

Single-element Standard Solution for AAS.

Molybdenum (Mo) 1000 mg/l in HNO₃ 1% HF 1%

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|---------------------|
| Physical state | : Liquid |
| Colour | : No data available |
| Odour | : No data available |
| Odour threshold | : No data available |
| pH | : < 2 |
| Relative evaporation rate (butylacetate=1) | : No data available |
| Melting point | : Not applicable |
| Freezing point | : No data available |
| Boiling point | : No data available |
| Flash point | : No data available |
| Auto-ignition temperature | : No data available |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : Not applicable |
| Vapour pressure | : No data available |
| Relative vapour density at 20 °C | : No data available |
| Relative density | : 1,01 |
| Solubility | : No data available |
| Partition coefficient n-octanol/water (Log Pow) | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosive properties | : No data available |
| Oxidising properties | : No data available |
| Explosive limits | : No data available |

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

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 toxicological effects

| | |
|-----------------------------|---|
| Acute toxicity (oral) | : Harmful if swallowed or in contact with skin. |
| Acute toxicity (dermal) | : Toxic in contact with skin. |
| Acute toxicity (inhalation) | : Harmful if inhaled. |

| | |
|---------------------|----------------------|
| ATE CLP (oral) | 500 mg/kg bodyweight |
| ATE CLP (dermal) | 500 mg/kg bodyweight |
| ATE CLP (dust,mist) | 4,545 mg/l/4h |

nitric acid (7697-37-2)

| | |
|---------------------------|--|
| LC50 Inhalation - Rat | > 2,65 mg/l |
| Skin corrosion/irritation | : Causes severe skin burns. pH: < 2 |

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Molybdenum (Mo) 1000 mg/l in HNO₃ 1% HF 1%

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| | |
|-----------------------------------|---|
| Serious eye damage/irritation | : Causes serious eye damage. pH: < 2 |
| 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 |
| Aspiration hazard | : Not classified |

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 |

nitric acid (7697-37-2)

| | |
|-------------------------|-----------|
| LC50 fish 1 | 72 mg/l |
| EC50 Daphnia 1 | 180 mg/l |
| Threshold limit algae 1 | > 19 mg/l |

hydrofluoric acid (7664-39-3)

| | |
|----------------|------------|
| LC50 fish 1 | 107,5 mg/l |
| EC50 Daphnia 1 | 270 mg/l |

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

nitric acid (7697-37-2)

| | |
|---|------|
| BCF fish 1 | ≤ 1 |
| Partition coefficient n-octanol/water (Log Pow) | -2,3 |

hydrofluoric acid (7664-39-3)

| | |
|---|------|
| Partition coefficient n-octanol/water (Log Pow) | -1,4 |
|---|------|

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Component

| | |
|-------------------------------|---|
| hydrofluoric acid (7664-39-3) | This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII |
|-------------------------------|---|

12.6. 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. |
| European List of Waste (LoW) code | : 16 05 06* - laboratory chemicals consisting of or containing dangerous substances including mixtures of laboratory chemicals |

SECTION 14: Transport information

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

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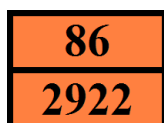
| ADR | IMDG | IATA | ADN | RID |
|---|--|--|--|--|
| 14.1. UN number | | | | |
| UN 2922 | UN 2922 | UN 2922 | UN 2922 | UN 2922 |
| 14.2. UN proper shipping name | | | | |
| CORROSIVE LIQUID, TOXIC, N.O.S. (hydrofluoric acid ; nitric acid) | CORROSIVE LIQUID, TOXIC, N.O.S. (hydrofluoric acid ; nitric 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) |
| Transport document description | | | | |
| 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 |
| 14.3. Transport hazard class(es) | | | | |
| 8 (6.1) | 8 (6.1) | 8 (6.1) | 8 (6.1) | 8 (6.1) |
| | | | | |
| 14.4. Packing group | | | | |
| II | II | II | II | II |
| 14.5. Environmental hazards | | | | |
| Dangerous for the environment : No | Dangerous for the environment : No Marine pollutant : No | Dangerous for the environment : No | Dangerous for the environment : No | Dangerous for the environment : No |
| No supplementary information available | | | | |

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
 Orange plates :



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

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Transport by sea

| | |
|------------------------------------|--|
| Special provisions (IMDG) | : 274 |
| Packing instructions (IMDG) | : P001 |
| IBC packing instructions (IMDG) | : IBC02 |
| Tank instructions (IMDG) | : T7 |
| Tank special provisions (IMDG) | : TP2 |
| EmS-No. (Fire) | : F-A |
| EmS-No. (Spillage) | : S-B |
| 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, A803 |
| 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 |
| 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 |

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

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| | |
|--|---|
| 3(a) 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 | nitric acid |
| 3(b) 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 | Single-element Standard Solution for AAS. Molybdenum (Mo) 1000 mg/l in HNO ₃ 1% HF 1% ; nitric acid ; hydrofluoric acid |

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

Germany

| | |
|--|---|
| Regulatory reference | : WGK 1, Slightly hazardous to water (Classification according to AwSV, Annex 1) |
| Storage class (LGK) | : LGK 6.1B - Non-combustible substances of acute toxicity, categories 1 and 2 / very toxic substances |
| Employment restrictions | : Observe restrictions according Act on the Protection of Working Mothers (MuSchG) Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG) |
| Hazardous Incident Ordinance (12. BImSchV) | : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance) |

Netherlands

| | |
|---|-------------------------------------|
| SZW-lijst van kankerverwekkende stoffen | : None of the components are listed |
| SZW-lijst van mutagene stoffen | : None of the components are listed |
| NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding | : None of the components are listed |
| NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid | : None of the components are listed |
| NIET-limitatieve lijst van voor de voortplanting giftige 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 The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal |
|-----------------------------|--|

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

| 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 |
| BLV | Biological limit value |
| CAS-No. | Chemical Abstract Service number |
| CLP | Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008 |
| DMEL | Derived Minimal Effect level |

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| | |
|--------|---|
| DNEL | Derived-No Effect Level |
| EC50 | Median effective concentration |
| EC-No. | European Community number |
| EN | European Standard |
| 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 |
| OEL | Occupational Exposure Limit |
| PBT | Persistent Bioaccumulative Toxic |
| PNEC | Predicted No-Effect Concentration |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006 |
| RID | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS | Safety Data Sheet |
| vPvB | Very Persistent and Very Bioaccumulative |
| WGK | Water Hazard Class |

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

| | |
|-------------------------------------|------|
| Met. Corr. 1 | H290 |
| Acute Tox. 4 (Oral) | H302 |
| Acute Tox. 3 (Dermal) | H311 |
| Acute Tox. 4 (Inhalation:dust,mist) | H332 |
| Skin Corr. 1B | H314 |
| Eye Dam. 1 | H318 |

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 (Dermal) | Acute toxicity (dermal), Category 3 |
| Acute Tox. 3 (Inhalation:dust,mist) | Acute toxicity (inhalation:dust,mist) Category 3 |
| Acute Tox. 4 (Inhalation:dust,mist) | Acute toxicity (inhalation:dust,mist) 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 |

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| | |
|------|--|
| H272 | May intensify fire; oxidiser. |
| H290 | May be corrosive to metals. |
| H300 | Fatal if swallowed. |
| H302 | Harmful if swallowed. |
| H310 | Fatal in contact with skin. |
| H311 | Toxic in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |
| H330 | Fatal if inhaled. |
| H331 | Toxic if inhaled. |
| H332 | Harmful if inhaled. |

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 |
| Acute Tox. 4 (Oral) | H302 | Calculation method |
| Acute Tox. 3 (Dermal) | H311 | Calculation method |
| Acute Tox. 4 (Inhalation:dust,mist) | H332 | Calculation method |
| Skin Corr. 1B | H314 | Calculation method |
| Eye Dam. 1 | H318 | Calculation method |

SDS EU Mod H F (REACH ANNEX II)

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.