

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form : Mixture
Product name : Ammonium Molybdate TS (USP)
Product code : USPTS166

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 : Laboratory chemical
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.comWeb: www.spectracer.com**1.4. Emergency telephone number**

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

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Corrosive to metals, Category 1 H290

Skin corrosion/irritation, Category 1, Sub-Category 1B H314

Serious eye damage/eye irritation, Category 1 H318

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

Adverse physicochemical, human health and environmental effects

May be corrosive to metals. Causes severe skin burns and eye damage. Causes serious eye damage.

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2.2. Label elements

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

Hazard pictograms (CLP) :



GHS05

Signal word (CLP) :

Danger

Contains :

nitric acid; ammonia

Hazard statements (CLP) :

H290 - May be corrosive to metals.

H314 - Causes severe skin burns and eye damage.

Precautionary statements (CLP) :

P260 - Do not breathe dusts or mists.

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

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

Immediately call a POISON CENTER or doctor.

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

P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

P390 - Absorb spillage to prevent material damage.

2.3. Other hazards

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

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	nitric acid (7697-37-2), ammonia (1336-21-6), water (7732-18-5)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	nitric acid (7697-37-2), ammonia (1336-21-6), water (7732-18-5)

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]
water	CAS-No.: 7732-18-5 EC-No.: 231-791-2	80 – 90	Not classified
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	10	Ox. Liq. 3, H272 Met. Corr. 1, H290 Acute Tox. 1 (Inhalation), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318
molybdic acid	CAS-No.: 7782-91-4 EC-No.: 231-970-5	5 – 10	Not classified

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
ammonia	CAS-No.: 1336-21-6 EC-No.: 215-647-6 EC Index-No.: 007-001-01-2 REACH-no: 01-2119982985-14-XXXX	1 – 5	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400

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
ammonia	CAS-No.: 1336-21-6 EC-No.: 215-647-6 EC Index-No.: 007-001-01-2 REACH-no: 01-2119982985-14-XXXX	(5 ≤ C < 100) STOT SE 3; H335

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

SECTION 4: First aid measures

4.1. Description of first aid measures

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

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

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

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

5.2. Special hazards arising from the substance or mixture

Fire hazard	: No fire hazard.
Explosion hazard	: No direct explosion hazard.

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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 and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

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

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

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

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

Methods for cleaning up : Take up liquid spill into absorbent material.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.

Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Wear personal protective equipment.

Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.

Storage conditions : Store in corrosive resistant container with a resistant inner liner. Keep only in original container. Store locked up.

Incompatible materials : Metals.

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

Germany

Storage class (LGK, TRGS 510) : LGK 8B - Non-combustible corrosive substances

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Joint storage table

LGK 1	LGK 2A	LGK 2B	LGK 3	LGK 4.1A
LGK 4.1B	LGK 4.2	LGK 4.3	LGK 5.1A	LGK 5.1B
LGK 5.1C	LGK 5.2	LGK 6.1A	LGK 6.1B	LGK 6.1C
LGK 6.1D	LGK 6.2	LGK 7	LGK 8A	LGK 8B
LGK 10	LGK 11	LGK 12	LGK 13	LGK 10-13

Joint storage not permitted for

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

Joint storage with restrictions permitted for

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

Joint storage permitted for

: LGK 2A, LGK 2B, LGK 3, LGK 4.1B, LGK 5.1B, LGK 6.1A, LGK 6.1B, LGK 6.1C, LGK 6.1D, LGK 8A, LGK 8B, LGK 10, LGK 11, LGK 12, LGK 13, LGK 10-13

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure and biological limit values

nitric acid (7697-37-2)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Nitric acid
IOEL STEL	2.6 mg/m ³
	1 ppm
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
Albania - Occupational Exposure Limits	
Local name	Acid nitrik
OEL STEL	2.6 mg/m ³
	1 ppm
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDËTIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKË NË PUNË"
Austria - Occupational Exposure Limits	
Local name	Salpetersäure
OEL C	2.6 mg/m ³
	1 ppm
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Acide nitrique # Salpeterzuur
OEL STEL	2.6 mg/m ³
	1 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Азотна киселина
OEL STEL	2.6 mg/m ³
	1 ppm

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nitric acid (7697-37-2)	
Remark	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 28 от 2024 г., в сила от 05.04.2024 г.)
Croatia - Occupational Exposure Limits	
Local name	Dušična kiselina
KGVI (OEL STEL)	2.6 mg/m ³ 1 ppm
Remark	Direktiva: 2006/15/EZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
Cyprus - Occupational Exposure Limits	
Local name	Νιτρικό οξύ
OEL STEL	2.6 mg/m ³ 1 ppm
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
Czech Republic - Occupational Exposure Limits	
Local name	Kyselina dusičná
PEL (OEL TWA)	1 mg/m ³ 0.38 ppm
NPK-P (OEL C)	2.5 mg/m ³ 0.95 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty) resp. kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Salpetersyre
OEL STEL	2.6 mg/m ³ 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 ³ 1 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
Finland - Occupational Exposure Limits	
Local name	Typpihappo
HTP (OEL TWA)	1.3 mg/m ³ 0.5 ppm

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nitric acid (7697-37-2)	
HTP (OEL STEL)	2.6 mg/m ³
	1 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
France - Occupational Exposure Limits	
Local name	Acide nitrique
VLE (OEL C/STEL)	2.6 mg/m ³
	1 ppm
Remark	Valeurs réglementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 6443, 2022; Outil65; Arrêté du 26 octobre 2007)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Salpetersäure
AGW (OEL TWA)	2.6 mg/m ³
	1 ppm
Remark	EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); 13 - Eine Begründung für die Ableitung eines gesundheitsbasierten AGW liegt nicht vor; 16 - Der Arbeitsplatzgrenzwert ist nur als Kurzzeitwert festgelegt. Die betriebliche Überwachung soll durch messtechnische Mittelwertbildung über 15 Minuten erfolgen, z.B. durch eine 15-minütige Probenahme
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Nitric acid
OEL STEL	2.6 mg/m ³
	1 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Νιτρικό οξύ
OEL STEL	2.6 mg/m ³
	1 ppm
Regulatory reference	Π.Δ. 162/2007 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	SALÉTROMSAV
CK (OEL STEL)	2.6 mg/m ³
	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

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nitric acid (7697-37-2)	
OEL STEL	2.6 mg/m ³
	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 ³
	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 ³
	0.78 ppm
OEL STEL	2.6 mg/m ³
	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 ³
	1 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Acide nitrique
OEL STEL	2.6 mg/m ³
	1 ppm
Regulatory reference	Mémorial A N° 226 de 2021 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
Malta - Occupational Exposure Limits	
Local name	Nitric acid
OEL STEL	2.6 mg/m ³
	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 ³
	0.5 ppm (Salpeterzuur; Netherlands; Short time value; Public occupational exposure limit value)
Regulatory reference	Arbeidsomstandighedenregeling 2024

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nitric acid (7697-37-2)	
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 ³ 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 ³ 1 ppm
Remark	ЕУ** – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2006/15/ЕЗ (друга листа)
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
Slovakia - Occupational Exposure Limits	
Local name	Kyselina dusičná
NPHV (OEL STEL)	2.6 mg/m ³ 1 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	dušikova kislina
OEL TWA	2.6 mg/m ³ 1 ppm
OEL STEL	2.6 mg/m ³ 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 ³ 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

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nitric acid (7697-37-2)	
NGV (OEL TWA)	1.3 mg/m ³
	0.5 ppm
KGV (OEL STEL)	2.6 mg/m ³
	1 ppm
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Nitric acid
WEL STEL (OEL STEL)	2.6 mg/m ³
	1 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Saltpéturssýra
OEL STEL	2.6 mg/m ³
	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 ³
	2 ppm
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2024-04-05-581
North Macedonia - Occupational Exposure Limits	
Local name	азотна киселина
OEL TWA	2.6 mg/m ³
	1 ppm
KTV	1
Short time value [mg/m ³]	2.6 mg/m ³
Short time value [ppm]	1 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m ³ или во ml/m ³ (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (EU) European Union – гранична вредност, определена на ниво на Европската унија; (*) дополнување на граничната вредност заради донесената Директива на Комисијата 2006/15ES од 7 февруари 2006 за создавање на втора листа на индикативни гранични вредности за професионална изложеност според директивата 98/24/ЕС и за измените на директивата 91/322/ЕЕС и директивата 2000/39/ ЕС (Сл. весник бр. 38 од ден 9.2.2006, стр. 36)

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nitric acid (7697-37-2)	
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија“ бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	Acide nitrique / Salpetersäure
MAK (OEL TWA)	5 mg/m ³ 2 ppm
KZGW (OEL STEL)	5 mg/m ³ 2 ppm
Remark	NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2025
USA - ACGIH - Occupational Exposure Limits	
Local name	Nitric acid
ACGIH® TLV® TWA	2 ppm
ACGIH® TLV® STEL	4 ppm
Remark (ACGIH)	TLV® Basis: URT & eye irr; dental erosion
Regulatory reference	ACGIH 2024
molybdic acid (7782-91-4)	
Austria - Occupational Exposure Limits	
Local name	Molybdän und Molybdänverbindungen, unlösliche
MAK (OEL TWA)	10 mg/m ³ (als Mo berechnet, E)
MAK (OEL STEL)	20 mg/m ³ (als Mo berechnet, E, 2x 60(Miw) min)
Regulatory reference	BGBl. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Molybdène (en Mo) # Molybdeenverbindungen (als Mo)
OEL TWA	10 mg/m ³ (composés insolubles) # (onoplosbaar) 0.5 mg/m ³ (composés solubles) (fraction alvéolaire) # (oplosbaar) (inadembare fractie)
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Молибден
OEL TWA	10 mg/m ³ (и негови съединения (като молибден)) 5 mg/m ³ (разтворими съединения (като молибден))
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 28 от 2024 г., в сила от 05.04.2024 г.)
Czech Republic - Occupational Exposure Limits	
Local name	Molybden
PEL (OEL TWA)	5 mg/m ³
NPK-P (OEL C)	25 mg/m ³
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)

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molybdic acid (7782-91-4)	
Ireland - Occupational Exposure Limits	
Local name	Molybdenum compounds (as Mo)
OEL TWA	0.5 mg/m ³ R (Respirable Fraction) 10 mg/m ³ soluble compounds, I (Inhalable Fraction) 3 mg/m ³ insoluble compounds, R (Respirable Fraction)
Remark	Advisory OELV (Advisory Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024
Poland - Occupational Exposure Limits	
Local name	Molibden i jego związki
NDS (OEL TWA)	4 mg/m ³ w przeliczeniu na Mo
NDSch (OEL STEL)	10 mg/m ³ w przeliczeniu na Mo
Regulatory reference	Dz. U. 2024 poz. 1017 wraz z późn. zm.
Slovakia - Occupational Exposure Limits	
Local name	Molybdén
NPHV (OEL TWA)	5 mg/m ³ a jeho zlúčeniny rozpustné (ako Mo) 10 mg/m ³ a jeho zlúčeniny nerozpustné (ako Mo) inhalovateľná frakcia 5 mg/m ³ a jeho zlúčeniny nerozpustné (ako Mo) respirabilná frakcia
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
Spain - Occupational Exposure Limits	
Local name	Molibdeno elemental
VLA-ED (OEL TWA)	10 mg/m ³ Fracción inhalable 3 mg/m ³ Fracción respirable
Remark	d (Véase UNE EN 481: Atmósferas en los puestos de trabajo. Definición de las fracciones por el tamaño de las partículas para la medición de aerosoles).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Molybden, metall och svårlösliga. föreningar (som Mo)
NGV (OEL TWA)	10 mg/m ³ totaldamm 5 mg/m ³ respirabel fraktion
Remark	3 (Den respirabla fraktionen är de inhalerbara partiklar som når längst ner i luftvägarna, till alveolerna i lungorna. Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagning av totaldamm och respirabelt damm, Metod nr 1010, Arbetskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provtas inte den totala mängden luftburna partiklar med denna metod)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Molybdenum
WEL TWA (OEL TWA)	10 mg/m ³ insoluble compounds (as Mo) 5 mg/m ³ soluble compounds (as Mo)
WEL STEL (OEL STEL)	20 mg/m ³ insoluble compounds (as Mo) 10 mg/m ³ soluble compounds (as Mo)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

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molybdic acid (7782-91-4)	
Switzerland - Occupational Exposure Limits	
Local name	Molybdène, composés solubles / Molybdänverbindungen, löslich
MAK (OEL TWA)	5 mg/m ³ (i) / (e)
Remark	NIOSH. Exprimé en Mo / NIOSH. Als Mo berechnet
Regulatory reference	www.suva.ch, 01.01.2025
USA - ACGIH - Occupational Exposure Limits	
Local name	Molybdenum, metal and insoluble compounds, as Mo
ACGIH® TLV® TWA	10 mg/m ³ (I - Inhalable particulate matter) 3 mg/m ³ (R - Respirable particulate matter)
Remark (ACGIH)	TLV® Basis: LRT irr
Regulatory reference	ACGIH 2024
ammonia (1336-21-6)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Ammonia, anhydrous
IOEL TWA	14 mg/m ³ (Ammonia, anhydrous; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value) 20 ppm (Ammonia, anhydrous; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value)
IOEL STEL	36 mg/m ³ (Ammonia, anhydrous; EU; Short time value; Indicative occupational exposure limit value) 50 ppm (Ammonia, anhydrous; EU; Short time value; Indicative occupational exposure limit value)
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Albania - Occupational Exposure Limits	
Local name	Amoniak, anhidër
OEL TWA	14 mg/m ³ 20 ppm
OEL STEL	36 mg/m ³ 50 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	Ammoniak
MAK (OEL TWA)	14 mg/m ³ 20 ppm
MAK (OEL STEL)	36 mg/m ³ 50 ppm
Regulatory reference	BGBl. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Ammoniac # Ammoniak

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ammonia (1336-21-6)	
OEL TWA	14 mg/m ³ (Ammoniac; Belgium; Time-weighted average exposure limit 8 h)
	20 ppm (Ammoniac; Belgium; Time-weighted average exposure limit 8 h)
OEL STEL	36 mg/m ³ (Ammoniac; Belgium; Short time value)
	50 ppm (Ammoniac; Belgium; Short time value)
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Амоняк
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 ppm
Remark	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 28 от 2024 г., в сила от 05.04.2024 г.)
Croatia - Occupational Exposure Limits	
Local name	Amonijak, bezvodni
GVI (OEL TWA)	14 mg/m ³
	20 ppm
KGVI (OEL STEL)	36 mg/m ³
	50 ppm
Remark	K (Skin): (naznaka da tvar može štetno djelovati kroz kožu); T (otrovno); N (opasno za okoliš); EU* (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2000/39/ EC (prva lista))
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
Cyprus - Occupational Exposure Limits	
Local name	Αμμωνία, άνυδρη
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 ppm
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
Czech Republic - Occupational Exposure Limits	
Local name	Amoniak bezvodý
PEL (OEL TWA)	14 mg/m ³
	20 ppm
NPK-P (OEL C)	36 mg/m ³
	50 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty) resp. kůži.

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ammonia (1336-21-6)	
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Ammoniak
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 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	Ammoniaak
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
Finland - Occupational Exposure Limits	
Local name	Vedetön ammoniakki
HTP (OEL TWA)	14 mg/m ³
	20 ppm
HTP (OEL STEL)	36 mg/m ³
	50 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Ammoniac anhydre
VME (OEL TWA)	7 mg/m ³ (Ammoniac anhydre; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante)
	10 ppm (Ammoniac anhydre; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante)
VLE (OEL C/STEL)	14 mg/m ³ (Ammoniac anhydre; France; Short time value; VRC: Valeur réglementaire contraignante)
	20 ppm (Ammoniac anhydre; France; Short time value; VRC: Valeur réglementaire contraignante)
Remark	Valeurs réglementaires contraignantes
Regulatory reference	Article R4412-149 du Code du travail (réf.: INRS ED 6443, 2022; Outil65; Décret n° 2019-1487; Décret n° 2020-1546; Décret n° 2021-434; Décret n° 2021-1849)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Ammoniak
AGW (OEL TWA)	14 mg/m ³
	20 ppm
Peak exposure limitation factor	2(l)

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ammonia (1336-21-6)	
Remark	DFG,EU,Y
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Ammonia, anhydrous
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Αμμωνία
OEL TWA	35 mg/m ³
	50 ppm
OEL STEL	35 mg/m ³
	50 ppm
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	AMMÓNIA
AK (OEL TWA)	14 mg/m ³
	20 ppm
CK (OEL STEL)	36 mg/m ³
	50 ppm
Remark	m (maró hatású anyag, amely felmarja a bőrt, nyálkahártyát, szemet vagy mindhármat); EU1 (2000/39/EK irányelvben közölt érték); N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)
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	Ammonia, anhydrous
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024
Italy - Occupational Exposure Limits	
Local name	Ammoniaca anidra
OEL TWA	14 mg/m ³
	20 ppm

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ammonia (1336-21-6)	
OEL STEL	36 mg/m ³
	50 ppm
Regulatory reference	Allegato XXXVIII del Decreto Legislativo 4 settembre 2024, n. 135
Latvia - Occupational Exposure Limits	
Local name	Amonjaks
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 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	Amoniakas (bevdanenis)
IPRV (OEL TWA)	14 mg/m ³
	20 ppm
TPRV (OEL STEL)	36 mg/m ³
	50 ppm
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Ammoniac anhydre
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 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	Ammonia, anhydrous # Ammonia, anidru
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 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	Ammoniak
TGG-8u (OEL TWA)	14 mg/m ³ (Ammoniak; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)
	20 ppm (Ammoniak; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)

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ammonia (1336-21-6)	
TGG-15min (OEL STEL)	36 mg/m ³ (Ammoniak; Netherlands; Short time value; Public occupational exposure limit value)
	51 ppm (Ammoniak; Netherlands; Short time value; Public occupational exposure limit value)
Regulatory reference	Arbeidsomstandighedenregeling 2024
Poland - Occupational Exposure Limits	
Local name	Amoniak
NDS (OEL TWA)	14 mg/m ³
NDSCh (OEL STEL)	28 mg/m ³
Regulatory reference	Dz. U. 2024 poz. 1017 wraz z późn. zm.
Portugal - Occupational Exposure Limits	
Local name	Amoníaco
OEL TWA	25 ppm
OEL STEL	35 ppm
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Amoniac
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
Serbia - Occupational Exposure Limits	
Local name	амонијак, анхидровани
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 ppm
Remark	EУ* – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2000/39/ЕЗ (прва листа); К – напомена да хемијска материја може штетно деловати на кожу
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	Amoniak
NPHV (OEL TWA)	14 mg/m ³
	20 ppm
NPHV (OEL STEL)	36 mg/m ³
	50 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)

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ammonia (1336-21-6)	
Slovenia - Occupational Exposure Limits	
Local name	amonijak, brezvodni
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	35 mg/m ³
	50 ppm
Remark	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), 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	Amoníaco
VLA-ED (OEL TWA)	14 mg/m ³
	20 ppm
VLA-EC (OEL STEL)	36 mg/m ³
	50 ppm
Remark	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Ammoniak
NGV (OEL TWA)	14 mg/m ³
	20 ppm
KGV (OEL STEL)	36 mg/m ³
	50 ppm
Remark	2 (Korttidsgränsvärde som avser 5-minutersperiod gäller för ammoniak, diisocyanater, 2,6-diisopropylfenylisocyanat, fenylisocyanat, isocyanasyra och metylisocyanat. Korttidsgränsvärde som avser 1-minuters-period gäller för akrylsyra)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
United Kingdom - Occupational Exposure Limits	
Local name	Ammonia, anhydrous
WEL TWA (OEL TWA)	18 mg/m ³ Ammonia, anhydrous; United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005)
	25 ppm Ammonia, anhydrous; United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005)
WEL STEL (OEL STEL)	25 mg/m ³ Ammonia, anhydrous; United Kingdom; Short time value; Workplace exposure limit (EH40/2005)
	35 ppm Ammonia, anhydrous; United Kingdom; Short time value; Workplace exposure limit (EH40/2005)

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ammonia (1336-21-6)	
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Ammóníak
OEL TWA	14 mg/m ³
	20 ppm
OEL STEL	36 mg/m ³
	50 ppm
Remark	H
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Ammoniakk
Grenseverdi (OEL TWA)	11 mg/m ³
	15 ppm
Korttidsverdi (OEL STEL)	36 mg/m ³
	50 ppm
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2024-04-05-581
North Macedonia - Occupational Exposure Limits	
Local name	Амонијак, безводен
OEL TWA	14 mg/m ³
	20 ppm
KTV	2.5
Short time value [mg/m ³]	35 mg/m ³
Short time value [ppm]	50 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m ³ или во ml/m ³ (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (EU) European Union – гранична вредност, определена на ниво на Европската унија
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	Ammoniak
MAK (OEL TWA)	14 mg/m ³
	20 ppm
KZGW (OEL STEL)	28 mg/m ³
	40 ppm

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ammonia (1336-21-6)	
Notation	SS _C / SS _C
Remark	SS _C - Auge ^{KT HU} & OAW ^{KT HU} - NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2025
USA - ACGIH - Occupational Exposure Limits	
Local name	Ammonia
ACGIH® TLV® TWA	25 ppm (Ammonia; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH® TLV® STEL	35 ppm (Ammonia; USA; Short time value; TLV - Adopted Value)
Remark (ACGIH)	Eye dam; URT irr
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	: Colourless. light yellow. light green.
Odour	: characteristic.
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: ≈ 0 °C

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Boiling point	: ≈ 100 °C
Flammability	: Non flammable.
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: < 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	: ≈ 1.7
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

metals.

10.6. Hazardous decomposition products

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

SECTION 11: Toxicological information

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

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

nitric acid (7697-37-2)

LC50 Inhalation - Rat	> 2.65 mg/L air
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molybdic acid (7782-91-4)

LD50 dermal rat	> 2000 mg/kg bodyweight
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ammonia (1336-21-6)

LD50 oral rat 350 mg/kg bodyweight

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

ammonia (1336-21-6)

pH > 11.5

water (7732-18-5)

pH 7 20 °C

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

ammonia (1336-21-6)

pH > 11.5

water (7732-18-5)

pH 7 20 °C

Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

ammonia (1336-21-6)

NOAEL (chronic, oral, animal/male, 2 years) 256 mg/kg bodyweight rat

NOAEL (chronic, oral, animal/female, 2 years) 284 mg/kg bodyweight rat

Reproductive toxicity : Not classified
STOT-single exposure : Not classified

ammonia (1336-21-6)

STOT-single exposure May cause respiratory irritation.

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

molybdic acid (7782-91-4)

NOAEC (inhalation, rat, dust/mist/fume, 90 days) > 0.1 mg/L air

Aspiration hazard : Not classified

nitric acid (7697-37-2)

Viscosity, kinematic 0.595 mm²/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

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nitric acid (7697-37-2)	
EC50 - Crustacea [1]	180 mg/l Daphnia magna (Water flea)
Threshold limit - Algae [1]	> 19 mg/l
ammonia (1336-21-6)	
LC50 - Fish [1]	0.75 – 3.4 mg/l Pimephales promelas (Fathead minnow)
EC50 - Crustacea [1]	101 mg/l Daphnia magna (Water flea)
LOEC (chronic)	1.3 mg/l Daphnia magna (Water flea)
NOEC (chronic)	0.79 mg/l Daphnia magna (Water flea)
NOEC chronic fish	1.2 mg/l Oncorhynchus gorboscha

12.2. Persistence and degradability

Ammonium Molybdate TS (USP)	
Persistence and degradability	Rapidly degradable
nitric acid (7697-37-2)	
Persistence and degradability	Rapidly degradable
molybdic acid (7782-91-4)	
Persistence and degradability	Rapidly degradable
ammonia (1336-21-6)	
Persistence and degradability	Rapidly degradable
water (7732-18-5)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

nitric acid (7697-37-2)	
Partition coefficient n-octanol/water (Log Pow)	-2.3
molybdic acid (7782-91-4)	
Partition coefficient n-octanol/water (Log Pow)	1.93
ammonia (1336-21-6)	
Partition coefficient n-octanol/water (Log Pow)	-2.66
water (7732-18-5)	
Partition coefficient n-octanol/water (Log Pow)	-1.38

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	nitric acid (7697-37-2), ammonia (1336-21-6), water (7732-18-5)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	nitric acid (7697-37-2), ammonia (1336-21-6), water (7732-18-5)

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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	: Disposal must be done according to official regulations.
Additional information	: Do not re-use empty containers.
Ecological waste information	: Avoid release to the environment.

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 2031	UN 2031	UN 2031	UN 2031	UN 2031
14.2. UN proper shipping name				
NITRIC ACID	NITRIC ACID	Nitric acid	NITRIC ACID	NITRIC ACID
Transport document description				
UN 2031 NITRIC ACID, 8, II, (E)	UN 2031 NITRIC ACID, 8, II	UN 2031 Nitric acid, 8, II	UN 2031 NITRIC ACID, 8, II	UN 2031 NITRIC ACID, 8, II
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No EmS-No. (Fire): F-A EmS-No. (Spillage): S-B	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR)	: C1
Limited quantities (ADR)	: 1I
Excepted quantities (ADR)	: E2
Packing instructions (ADR)	: P001, IBC02

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Special packing provisions (ADR)	: PP81, B15
Mixed packing provisions (ADR)	: MP15
Portable tank and bulk container instructions (ADR)	: T8
Portable tank and bulk container special provisions (ADR)	: TP2
Tank code (ADR)	: L4BN
Tank special provisions (ADR)	: TU42
Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
Hazard identification number (Kemler No.)	: 80
Orange plates	:



Tunnel restriction code (ADR)	: E
EAC code	: 2R

Transport by sea

Limited quantities (IMDG)	: 1 L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
Special packing provisions (IMDG)	: PP81
IBC packing instructions (IMDG)	: IBC02
IBC special provisions (IMDG)	: B15, B20
Tank instructions (IMDG)	: T8
Tank special provisions (IMDG)	: TP2
Stowage category (IMDG)	: D
Segregation (IMDG)	: SGG1A, SG36, SG49
Properties and observations (IMDG)	: Colourless liquid. Oxidant; may cause fire in contact with organic materials such as wood, cotton or straw, evolving highly toxic gases (brown fumes). Highly corrosive to most metals. Causes severe burns to skin, eyes and mucous membranes.

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
ERG code (IATA)	: 8L

Inland waterway transport

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

Rail transport

Classification code (RID)	: C1
Limited quantities (RID)	: 1L
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P001, IBC02
Special packing provisions (RID)	: PP81, B15
Mixed packing provisions (RID)	: MP15
Portable tank and bulk container instructions (RID)	: T8
Portable tank and bulk container special provisions (RID)	: TP2
Tank codes for RID tanks (RID)	: L4BN
Special provisions for RID tanks (RID)	: TU42

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Transport category (RID) : 2
Colis express (express parcels) (RID) : CE6
Hazard identification number (RID) : 80

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
3(a)	nitric acid	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F
3(b)	Ammonium Molybdate TS (USP) ; nitric acid ; ammonia	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10
3(c)	ammonia	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1
65.	Ammonium Molybdate TS (USP)	Inorganic ammonium salts

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 no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

Explosives Precursors Regulation (EU 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

Germany

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

Netherlands

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

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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	Added
4.2	Symptoms/effects after inhalation	Added
5.1	Unsuitable extinguishing media	Added
5.2	Explosion hazard	Added
5.2	Fire hazard	Added
5.3	Firefighting instructions	Added
6.1	Emergency procedures	Added
6.1	Protective equipment	Added
6.1	General measures	Added
6.3	For containment	Added
7.1	Additional hazards when processed	Added
7.2	Technical measures	Added
7.2	Packaging materials	Added
7.2	Storage conditions	Modified
9	Flammability	Modified

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Indication of changes		
Section	Changed item	Comments
13.1	Product/Packaging disposal recommendations	Added
13.1	Sewage disposal recommendations	Added
13.1	Additional information	Added
13.1	Regional waste regulation	Added
16	Abbreviations and acronyms	Modified

Abbreviations and acronyms:	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration

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Abbreviations and acronyms:	
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 (Inhalation)	Acute toxicity (inhal.), Category 1
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
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
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

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

Met. Corr. 1	H290	On basis of test data
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.