

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
SDS Reference Number: BPB621
Issue date: 30/04/2025 Revision date: 30/04/2025 Version: 1.1

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

1.1. Product identifier

Product form : Substance
Substance name : Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)
Product code : BPB621

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

No additional information available

1.3. Details of the supplier of the safety data sheet

Spectracer UK Ltd.

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

Tel: +44 (0) 207 193 9114

Fax: +44 (0) 203 432 4686

Email: contact@spectracer.com

Web: www.spectracer.com

1.4. Emergency telephone number

Country/Area	Organisation	Emergency number
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]

Skin corrosion/irritation, Category 2 H315

Serious eye damage/eye irritation, Category 1 H318

Specific target organ toxicity (repeated exposure) Not classified

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

Adverse physicochemical, human health and environmental effects

Causes skin irritation. Causes serious eye damage.

2.2. Label elements

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

Hazard pictograms (CLP) :



Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

Signal word (CLP)	: GHS05 GHS07 Danger
Hazard statements (CLP)	: H315 - Causes skin irritation. H318 - Causes serious eye damage.
Precautionary statements (CLP)	: P264 - Wash hands, forearms and face thoroughly after handling. P280 - Wear protective gloves/protective clothing/eye protection/face protection. 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.

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	ammonia (1336-21-6), water (7732-18-5), tetraammonium ethylenediaminetetraacetate (22473-78-5), triammonium orthophosphate (10361-65-6)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	ammonia (1336-21-6), water (7732-18-5), tetraammonium ethylenediaminetetraacetate (22473-78-5), triammonium orthophosphate (10361-65-6)

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
water	CAS-No.: 7732-18-5 EC-No.: 231-791-2	50 – 80	Not classified
tetraammonium ethylenediaminetetraacetate	CAS-No.: 22473-78-5 EC-No.: 245-022-3	15 – 20	Acute Tox. Not classified (Oral) Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319 STOT RE 2, H373
triammonium citrate	CAS-No.: 3458-72-8 EC-No.: 222-394-5	10 – 15	Eye Irrit. 2, H319
triammonium orthophosphate	CAS-No.: 10361-65-6 EC-No.: 233-793-9	5 – 10	Not classified
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 (%)
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

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
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	: Call a poison center or a doctor if you feel unwell.
Self protection of the 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	: Irritation.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: None under normal conditions.

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

5.3. Advice for firefighters

Firefighting instructions	: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Ventilate spillage area. Avoid contact with skin and eyes.

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.

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

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. 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	: Keep cool. Protect from sunlight.
Packaging materials	: Always store product in container of same material as original container.

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

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

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

ammonia (1336-21-6)	
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNETIT 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	BGBI. II Nr. 330/2024
Belgium - Occupational Exposure Limits	
Local name	Ammoniac # Ammoniak
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

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

ammonia (1336-21-6)	
	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. kůže.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 20/2025 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Ammoniak
8-timers grænseværdi (OEL TWA)	14 mg/m ³
	20 ppm
Korttidsgrænseværdi (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 2025 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Ammoniac anhydre
VLEP 8h (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)

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

ammonia (1336-21-6)	
VLEP CT (OEL 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 règlementaires 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; Décret n° 2024-307)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Ammoniak
AGW (OEL TWA)	14 mg/m ³
	20 ppm
Peak exposure limitation factor	2(I)
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 mindhámat); 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

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

ammonia (1336-21-6)	
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
OEL STEL	36 mg/m ³
	50 ppm
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i. (D.Lgs. 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 (bevandenis)
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

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

ammonia (1336-21-6)	
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)
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

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

ammonia (1336-21-6)	
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.)
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. 26/2025 z dne 18.4.2025 - 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 2025. 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	23 (Ämnet har ett indikativt EU-gränsvärde)

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

ammonia (1336-21-6)	
Regulatory reference	Arbetsmiljöverkets föreskrifter och allmänna råd (AFS 2023:14) om gränsvärden för luftvägsexponering i arbetsmiljön
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)
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
OEL STEL*	35 mg/m ³
	50 ppm

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

ammonia (1336-21-6)	
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
Notation	SS _c / SS _c
Remark	SS _c - Auge ^{KT HU} & OAW ^{KT HU} - NIOSH, OSHA
Regulatory reference	www.suva.ch, 18.06.2025
USA - ACGIH® - Threshold Limit Values	
Local name	Ammonia
ACGIH® TLV® TWA	17 mg/m ³ 25 ppm (Ammonia; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH® TLV® STEL	24 mg/m ³ 35 ppm (Ammonia; USA; Short time value; TLV - Adopted Value)
Remark (ACGIH®)	Eye dam; URT irr
Regulatory reference	ACGIH 2025

*STEL value is calculated based on the TWA limit

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):



Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

Eye and face protection

Eye protection:

Safety glasses

Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Not available
Odour	: Not available
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: ≈ 0 °C
Boiling point	: ≈ 100 °C
Flammability	: Non flammable
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: 7.5
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	: ≈ 1.1
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.

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

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

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

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

SECTION 11: Toxicological information

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

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

ammonia (1336-21-6)

LD50 oral rat	350 mg/kg bodyweight
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tetraammonium ethylenediaminetetraacetate (22473-78-5)

LD50 oral rat	1913 mg/kg
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LC50 Inhalation - Rat	30 mg/m ³
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triammonium citrate (3458-72-8)

LD50 oral rat	4250 mg/kg bodyweight
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Skin corrosion/irritation : Causes skin irritation.
pH: 7.5

ammonia (1336-21-6)

pH	> 11.5
----	--------

water (7732-18-5)

pH	7 20 °C
----	---------

Serious eye damage/irritation : Causes serious eye damage.
pH: 7.5

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
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NOAEL (chronic, oral, animal/female, 2 years)	284 mg/kg bodyweight rat
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Reproductive toxicity : Not classified
STOT-single exposure : Not classified

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

ammonia (1336-21-6)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Not classified.

tetraammonium ethylenediaminetetraacetate (22473-78-5)	
LOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.015 mg/L air
NOAEL (oral, rat, 90 days)	≥ 500 mg/kg bodyweight
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

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

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

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

tetraammonium ethylenediaminetetraacetate (22473-78-5)	
EC50 - Crustacea [1]	140 mg/l Daphnia magna (Water flea)
EC50 72h - Algae [1]	> 60 mg/l Pseudokirchneriella subcapitata
LOEC (chronic)	50 mg/l Daphnia magna (Water flea)
NOEC (chronic)	25 mg/l Daphnia magna (Water flea)
NOEC chronic fish	≥ 25.7 mg/l Brachydanio rerio (zebra-fish)

12.2. Persistence and degradability

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Persistence and degradability	Rapidly degradable
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ammonia (1336-21-6)

Persistence and degradability	Rapidly degradable
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water (7732-18-5)

Persistence and degradability	Rapidly degradable
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tetraammonium ethylenediaminetetraacetate (22473-78-5)

Persistence and degradability	Rapidly degradable
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Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

triammonium citrate (3458-72-8)

Persistence and degradability	Rapidly degradable
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triammonium orthophosphate (10361-65-6)

Persistence and degradability	Rapidly degradable
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12.3. Bioaccumulative potential

ammonia (1336-21-6)

Partition coefficient n-octanol/water (Log Pow)	-2.66
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tetraammonium ethylenediaminetetraacetate (22473-78-5)

Partition coefficient n-octanol/water (Log Pow)	0.13
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triammonium citrate (3458-72-8)

Partition coefficient n-octanol/water (Log Pow)	-1.43
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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Component

Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	ammonia (1336-21-6), water (7732-18-5), tetraammonium ethylenediaminetetraacetate (22473-78-5), triammonium orthophosphate (10361-65-6)
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Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	ammonia (1336-21-6), water (7732-18-5), tetraammonium ethylenediaminetetraacetate (22473-78-5), triammonium orthophosphate (10361-65-6)
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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.

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not dangerous goods in terms of transport regulations				
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

ADR	IMDG	IATA	ADN	RID
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

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(b)	Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia) ; 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

REACH Annex XIV (Authorisation List)

Not 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)

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

Ozone Regulation (2024/590)

Not listed on the Ozone Depletion list (Regulation EU 2024/590)

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

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

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 it.
If an employee is pregnant or breastfeeding and the person in question uses or is exposed to this product at work, the employer must always carry out a risk assessment of the work. The assessment must both deal with the dangerousness of the impact and its strength and duration. The employer's decision that a pregnant or lactating woman can perform a specific work task must therefore be made in the context of her specific working conditions. See also WEA-Guideline A.1.8-7 on the working environment of pregnant and breastfeeding workers.

Germany

Water hazard class (WGK) : WGK 3, Highly hazardous to water (Classification according to AwSV).

Netherlands

ABM category : A(4) - low hazard for aquatic organisms, may have longterm hazardous effects in aquatic environment
SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
SZW-lijst van reprotoxische stoffen – Borstvoeding : The substance is not listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : The substance is not listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling : The substance is not listed

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

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)
Regulation of the Minister of Health of 25 August 2015 on the method of marking places, pipelines, and containers and tanks used for storing or containing hazardous substances or hazardous mixtures (J.o.L. 2015, item 1368 as amended)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

ACGIH	American Conference of Governmental 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 Abstracts 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

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

Abbreviations and acronyms:	
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
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. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Acute Tox. Not classified (Oral)	Acute toxicity (oral) Not classified

Total Ionic Strength Adjustment Buffer R1 (British Pharmacopoeia)

Safety Data Sheet

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

Full text of H- and EUH-statements:	
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
STOT RE Not classified	Specific target organ toxicity (repeated exposure) Not classified
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

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.