Japanese Pharmacopoeia Reagent - Ammonia-ammonium chloride buffer solution - pH 10.7

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
SDS Reference Number: JPHR139a
Issue date: 20/01/2017 Revision date: 07/01/2025 Supersedes version of: 20/01/2017 Version: 1.2

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

1.1. Product identifier

Product form : Mixture
Product name : Japanese Pharmacopoeia Reagent - Ammonia-ammonium chloride buffer solution - pH 10.7
Product code : JPHR139a

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.com
Web: 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]

Skin corrosion/irritation, Category 1, Sub-Category 1B H314
Serious eye damage/eye irritation, Category 1 H318
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation H335
Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

May cause respiratory irritation. Causes severe skin burns and eye damage. Causes serious eye damage.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS05 GHS07

Signal word (CLP) : Danger

Contains : ammonia

Hazard statements (CLP) : H314 - Causes severe skin burns and eye damage.
H335 - May cause respiratory irritation.

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

2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 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), ammonium chloride (12125-02-9)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	ammonia (1336-21-6), ammonium chloride (12125-02-9)

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]
ammonia substance with national workplace exposure limit(s) (AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GI, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, AL, IS, NO, MK, RS, CH); substance with a Community workplace exposure limit	CAS-No.: 1336-21-6 EC-No.: 215-647-6 EC Index-No.: 007-001-01-2 REACH-no: 01-2119982985-14-XXXX	5-6	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400
ammonium chloride substance with national workplace exposure limit(s) (BE, BG, CZ, DK, ES, GB, GR, HR, IE, LT, LV, PT, RO, IS, NO, CH)	CAS-No.: 12125-02-9 EC-No.: 235-186-4 EC Index-No.: 017-014-00-8 REACH-no: 01-2119489385-24	5 – 10	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.

First-aid measures after skin contact : 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 : May cause respiratory irritation.

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.

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 : Use only outdoors or in a well-ventilated area. 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 locked up. Store in a well-ventilated place. Keep container tightly closed.

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

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

Switzerland

Storage class (LK) : LK 8 - Corrosive materials

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure and biological limit values

ammonia (1336-21-6)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Ammonia, anhydrous
IOEL TWA	14 mg/m³ (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/m³ (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/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³
	20 ppm
MAK (OEL STEL)	36 mg/m³
	50 ppm
Regulatory reference	BGBl. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Ammoniac # Ammoniak
OEL TWA	14 mg/m³ (Ammoniac; Belgium; Time-weighted average exposure limit 8 h)
	20 ppm (Ammoniac; Belgium; Time-weighted average exposure limit 8 h)

ammonia (1336-21-6)	
OEL STEL	36 mg/m³ (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/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³
	20 ppm
KGVI (OEL STEL)	36 mg/m³
	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/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³
	20 ppm
NPK-P (OEL C)	36 mg/m³
	50 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty) resp. kůži.
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)

ammonia (1336-21-6)	
Denmark - Occupational Exposure Limits	
Local name	Ammoniak
OEL TWA	14 mg/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³
	20 ppm
HTP (OEL STEL)	36 mg/m³
	50 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Ammoniac anhydre
VME (OEL TWA)	7 mg/m³ (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/m³ (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)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Ammoniak
AGW (OEL TWA)	14 mg/m³
	20 ppm
Peak exposure limitation factor	2(I)

ammonia (1336-21-6)	
Remark	DFG,EU,Y
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Ammonia, anhydrous
OEL TWA	14 mg/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³
	50 ppm
OEL STEL	35 mg/m³
	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/m³
	20 ppm
CK (OEL STEL)	36 mg/m³
	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/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³

ammonia (1336-21-6)	
	20 ppm
OEL STEL	36 mg/m³
	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/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³
	20 ppm
TPRV (OEL STEL)	36 mg/m³
	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/m³
	20 ppm
OEL STEL	36 mg/m³
	50 ppm
Regulatory reference	Mémorial A Nº 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/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³ (Ammoniak; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)

ammonia (1336-21-6)	
	20 ppm (Ammoniak; Netherlands; Time-weighted average exposure limit 8 h; Public occupational exposure limit value)
TGG-15min (OEL STEL)	36 mg/m³ (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/m³
NDSCh (OEL STEL)	28 mg/m³
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/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³
	20 ppm
OEL STEL	36 mg/m³
	50 ppm
Remark	ЕУ* – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2000/39/ЕЗ (прва листа); 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/m³
	20 ppm
NPHV (OEL STEL)	36 mg/m³

ammonia (1336-21-6)	
	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/m³
	20 ppm
OEL STEL	35 mg/m³
	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/m³
	20 ppm
VLA-EC (OEL STEL)	36 mg/m³
	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/m³
	20 ppm
KGV (OEL STEL)	36 mg/m³
	50 ppm
Remark	2 (Korttidsgränsvärde som avser 5-minutersperiod gäller för ammoniak, diisocyanater, 2,6-diisopropylfenylisocyanat, fenylisocyanat, isocyansyra 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/m³ 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)

ammonia (1336-21-6)	
WEL STEL (OEL STEL)	25 mg/m³ 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/m³
	20 ppm
OEL STEL	36 mg/m³
	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/m³
	15 ppm
Korttidsverdi (OEL STEL)	36 mg/m³
	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/m³
	20 ppm
KTV	2.5
Short time value [mg/m³]	35 mg/m³
Short time value [ppm]	50 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанци 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 најмногу 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/m3 или во ml/m3(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 супстанци („Службен весник на Република Македонија” бр.46/10)

ammonia (1336-21-6)	
Switzerland - Occupational Exposure Limits	
Local name	Ammoniak
MAK (OEL TWA)	14 mg/m³
	20 ppm
KZGW (OEL STEL)	28 mg/m³
	40 ppm
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 OEL TWA	25 ppm (Ammonia; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH OEL STEL	35 ppm (Ammonia; USA; Short time value; TLV - Adopted Value)
Remark (ACGIH)	Eye dam; URT irr
Regulatory reference	ACGIH 2024

ammonium chloride (12125-02-9)	
Belgium - Occupational Exposure Limits	
Local name	Ammonium (chlorure d') (fumées) # Ammoniumchloride (rook)
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Амониев хлорид
OEL TWA	10 mg/m³
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	Amonijev klorid
GVI (OEL TWA)	10 mg/m³
KGVI (OEL STEL)	20 mg/m³
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
Czech Republic - Occupational Exposure Limits	
Local name	Chlorid amonný
PEL (OEL TWA)	5 mg/m³ (dýmy)
NPK-P (OEL C)	10 mg/m³ (dýmy)
Remark	I - dráždí sliznice (oči, dýchací cesty) resp. kůži.

ammonium chloride (12125-02-9)	
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Ammoniumchloridrøg
OEL TWA	10 mg/m³
Regulatory reference	BEK nr 1619 af 19/12/2024
Greece - Occupational Exposure Limits	
Local name	Χλωριούχο αμμώνιο (καπνός)
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Ireland - Occupational Exposure Limits	
Local name	Ammonium chloride, fume
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Remark	Advisory OELV (Advisory Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024
Latvia - Occupational Exposure Limits	
Local name	Amonija hlorīds
OEL TWA	10 mg/m³
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	Amonio chloridas
IPRV (OEL TWA)	10 mg/m³
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Portugal - Occupational Exposure Limits	
Local name	Cloreto de amónio, fumos
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Clorură de amoniu
OEL TWA	5 mg/m³
OEL STEL	10 mg/m³
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
Spain - Occupational Exposure Limits	
Local name	Cloruro amónico

ammonium chloride (12125-02-9)	
VLA-ED (OEL TWA)	10 mg/m³ humos
VLA-EC (OEL STEL)	20 mg/m³ humos
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
United Kingdom - Occupational Exposure Limits	
Local name	Ammonium chloride
WEL TWA (OEL TWA)	10 mg/m³ fume
WEL STEL (OEL STEL)	20 mg/m³ fume
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Ammóníumklóríðreykur
OEL TWA	10 mg/m³
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Ammoniumklorid
Grenseverdi (OEL TWA)	10 mg/m³
Korttidsverdi (OEL STEL)	20 mg/m³
Remark	1) Grenseverdien er fastsatt lik verdien for sjenerende støv.
Regulatory reference	FOR-2024-04-05-581
Switzerland - Occupational Exposure Limits	
Local name	Chlorure d'ammonium / Ammoniumchlorid
MAK (OEL TWA)	3 mg/m³ (a) / (a)
Regulatory reference	www.suva.ch, 01.01.2025
USA - ACGIH - Occupational Exposure Limits	
Local name	Ammonium chloride, fume
ACGIH OEL TWA	10 mg/m³
ACGIH OEL STEL	20 mg/m³
Remark (ACGIH)	TLV® Basis: Eye & 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:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

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.
Odour	:	Ammoniacal.
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	:	10.7
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
Relative vapour density at 20°C	:	Not available
Particle characteristics	:	Not applicable

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

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

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

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

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

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

SECTION 11: Toxicological information

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

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

ammonia (1336-21-6)	
LD50 oral rat	350 mg/kg bodyweight

ammonium chloride (12125-02-9)	
LD50 oral rat	1410 mg/kg bodyweight
LD50 dermal rat	> 2000 mg/kg bodyweight
LC50, intravenous, mouse	353 mg/kg bw

Skin corrosion/irritation : Causes severe skin burns.
pH: 10.7

ammonia (1336-21-6)	
pH	> 11.5

ammonium chloride (12125-02-9)	
pH	5 – 5.5 25 °C (10%)

Serious eye damage/irritation : Causes serious eye damage.
pH: 10.7

ammonia (1336-21-6)	
pH	> 11.5

ammonium chloride (12125-02-9)	
pH	5 – 5.5 25 °C (10%)

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 : May cause respiratory irritation.

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

STOT-repeated exposure : Not classified

ammonium chloride (12125-02-9)	
NOAEL (oral, rat, 90 days)	≈ 1695.7 mg/kg bodyweight

Aspiration hazard : Not classified

ammonium chloride (12125-02-9)	
Viscosity, kinematic	Not applicable

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

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 gorbuscha

ammonium chloride (12125-02-9)	
LC50 - Fish [1]	209 mg/l Cyprinus carpio (Common carp)
EC50 - Crustacea [1]	136.6 mg/l Daphnia magna (Water flea)
NOEC (chronic)	14.6 mg/l Daphnia magna (Water flea)
NOEC chronic fish	11.8 mg/l Pimephales promelas (Fathead minnow)

12.2. Persistence and degradability

Japanese Pharmacopoeia Reagent - Ammonia-ammonium chloride buffer solution - pH 10.7	
Persistence and degradability	Rapidly degradable

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

ammonium chloride (12125-02-9)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

ammonia (1336-21-6)	
Partition coefficient n-octanol/water (Log Pow)	-2.66

ammonium chloride (12125-02-9)	
Partition coefficient n-octanol/water (Log Pow)	-4.37 (estimated value)

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), ammonium chloride (12125-02-9)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	ammonia (1336-21-6), ammonium chloride (12125-02-9)

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.
European List of Waste (LoW, EC 2000/532) : 16 05 06* - laboratory chemicals consisting of or containing dangerous substances including mixtures of laboratory chemicals

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 2672	UN 2672	UN 2672	UN 2672	UN 2672
14.2. UN proper shipping name				
AMMONIA SOLUTION	AMMONIA SOLUTION	Ammonia solution	AMMONIA SOLUTION	AMMONIA SOLUTION

ADR	IMDG	IATA	ADN	RID
Transport document description				
UN 2672 AMMONIA SOLUTION, 8, III, (E)	UN 2672 AMMONIA SOLUTION, 8, III, MARINE POLLUTANT	UN 2672 Ammonia solution, 8, III	UN 2672 AMMONIA SOLUTION, 8, III	UN 2672 AMMONIA SOLUTION, 8, III
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: Yes 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)	:	C5
Limited quantities (ADR)	:	5l
Excepted quantities (ADR)	:	E1
Packing instructions (ADR)	:	P001, IBC03, LP01, R001
Mixed packing provisions (ADR)	:	MP19
Portable tank and bulk container instructions (ADR)	:	T7
Portable tank and bulk container special provisions (ADR)	:	TP1
Tank code (ADR)	:	L4BN
Vehicle for tank carriage	:	AT
Transport category (ADR)	:	3
Special provisions for carriage - Packages (ADR)	:	V12
Hazard identification number (Kemler No.)	:	80
Orange plates	:	
Tunnel restriction code (ADR)	:	E
EAC code	:	2X

Transport by sea

Limited quantities (IMDG)	:	5 L
Excepted quantities (IMDG)	:	E1
Packing instructions (IMDG)	:	P001, LP01
IBC packing instructions (IMDG)	:	IBC03
IBC special provisions (IMDG)	:	B11
Tank instructions (IMDG)	:	T7
Tank special provisions (IMDG)	:	TP2
Stowage category (IMDG)	:	A
Stowage and handling (IMDG)	:	SW2, SW5

Segregation (IMDG)	:	SGG18, SG35
Properties and observations (IMDG)	:	Colourless liquid with a pungent odour. Corrosive to copper, nickel, zinc and tin and their alloys such as brass. Not significantly corrosive to iron and steel. Reacts violently with acids. Liquid and vapour cause burns to skin, eyes and mucous membranes.

Air transport

PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y841
PCA limited quantity max net quantity (IATA)	:	1L
PCA packing instructions (IATA)	:	852
PCA max net quantity (IATA)	:	5L
CAO packing instructions (IATA)	:	856
CAO max net quantity (IATA)	:	60L
Special provisions (IATA)	:	A64, A803
ERG code (IATA)	:	8L

Inland waterway transport

Classification code (ADN)	:	C5
Limited quantities (ADN)	:	5 L
Excepted quantities (ADN)	:	E1
Carriage permitted (ADN)	:	T
Equipment required (ADN)	:	PP, EP
Number of blue cones/lights (ADN)	:	0

Rail transport

Classification code (RID)	:	C5
Limited quantities (RID)	:	5L
Excepted quantities (RID)	:	E1
Packing instructions (RID)	:	P001, IBC03, LP01, R001
Mixed packing provisions (RID)	:	MP19
Portable tank and bulk container instructions (RID)	:	T7
Portable tank and bulk container special provisions (RID)	:	TP1
Tank codes for RID tanks (RID)	:	L4BN
Transport category (RID)	:	3
Special provisions for carriage – Packages (RID)	:	W12
Colis express (express parcels) (RID)	:	CE8
Hazard identification number (RID)	:	80

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

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)	Japanese Pharmacopoeia Reagent - Ammonia-ammonium chloride buffer solution - pH 10.7 ; 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

EU restriction list (REACH Annex XVII)		
Reference code	**Applicable on**	**Entry title or description**
65.	ammonium chloride	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 (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

Austria

Toxic Substances Ordinance 2000 : Is not subject to the Toxic Substances Ordinance 2000.

Germany

Water hazard class (WGK) : WGK 2, Significantly 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

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
2.2	Precautionary statements (CLP)	**Modified**
4.1	First-aid measures for first aider	**Added**
4.2	Symptoms/effects after ingestion	**Added**
5.1	Unsuitable extinguishing media	**Added**
5.2	Fire hazard	**Added**
5.2	Explosion 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**
7.1	Hygiene measures	**Modified**
7.2	Technical measures	**Added**

Indication of changes		
Section	**Changed item**	**Comments**
7.2	Packaging materials	**Added**
7.2	Storage conditions	**Modified**
8.2	Appropriate engineering controls	**Modified**
8.2	Personal protective equipment	**Modified**
9	Flammability	**Modified**
13.1	Sewage disposal recommendations	**Added**
13.1	Additional information	**Added**
13.1	Regional waste regulation	**Added**
13.1	Product/Packaging disposal recommendations	**Modified**
15.1	REACH Annex XVII	**Modified**
16	Abbreviations and acronyms	**Added**

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

Abbreviations and acronyms:	
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 (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
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
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
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Skin Corr. 1B	H314	Calculation method
Eye Dam. 1	H318	Calculation method
STOT SE 3	H335	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.