SAFETY DATA SHEET

in accordance with Regulation (EC) 1907/2006 (REACH) and its amendments

◘ **V13** - *amendments in this revision* ◘

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING	
1.1 Product identifier	
Trade name	Ammonia aqueous solution, technical grade
Synonyms	Aqueous Ammonia, Ammonium Hydroxide.
EC number:	215-647-6
CAS number:	1336-21-6
Index number:	007-001-01-2
NEOCHIM PLC code	15-04
10Unique Formula Identifier (UFI)	8454-00EJ-D00S-QQJ0
1.2 Relevant identified uses of the substance or mixture and uses advised against	
Relevant identified uses:	Intermediate, formulation of mixtures in the industry; surface treatment products, paints, coatings, cleaning products by professional workers and consumers. **Note:** see SECTION 16 for the list of exposure scenarios describing the identified uses ◘.
Uses advised against:	The use of this product should be limited to those specified in the Section 16.
1.3 Details of the supplier of the safety data sheet	
Manufacturer: ◘ **V13** Address: Tel.: URL website: E-mail:	NEOCHIM PLC East Industrial Zone, Himkombinatska Str. 6403 Dimitrovgrad, Bulgaria +359 391 65 205 http:/ / www.neochim.bg office@neochim.bg◘
E-mail of the competent person for safety data sheet	reach-neochim@neochim.bg
1.4 Emergency telephone number	
National Toxicology Center Hospital for Active Medical Treatment and Emergency Medicine “N.I.Pirogov”	+ 359 2 9154 233 24/24 h 7/7 d
SECTION 2: HAZARDS IDENTIFICATION	
Physical and chemical hazards	Corrosive

Potential effects on health	Ammonia solutions are corrosive to all parts of body.
Skin contact:	May cause severe skin burns.
Eye contact:	May cause serious damage to eyes.
Ingestion :	Immediately cause corrosion of and damage to the gastro-intestinal tract.
Inhalation:	Vapors are irritating to respiratory system: the intensity of irritation is dependent on NH3 concentration. Fluid build-up on the lung (pulmonary edema) may occur up to 48 hours after exposure and could prove fatal depending on exposure and concentration. Ammonia vapors: odor threshold 5-25ppm.

No mutagenic activity is expected. There is no evidence of carcinogenicity following exposure. No adverse reproductive effects are likely to occur following exposure and no effect on spontaneous abortion was observed.
Environmental hazards: Ammonia aqueous solution is very toxic to aquatic life.

Considered toxic to aquatic life.

2.1 Classification of the substance or mixture

2.1.1 Classification in accordance with Regulation 1272/2008 (CLP) and its amendments at the date of the issue of the document.
Acute toxicity (inhalation), hazard category 4 (Acute Tox 4), H332
Skin corrosion/irritation, hazard category 1B (Skin Corr. 1B), H314
Hazardous to the aquatic environment- Aquatic Acute, category 1 (Aquatic Acute 1), H400
Hazardous to the aquatic environment- Aquatic Chronic hazard 2 (Aquatic Chronic 2), H411
Specific target organ toxicity – single exposure, category 3 (STOT SE 3), H335

2.1.2 Additional information
For full text of H statement: see section 16

2.2 Label elements

Labelling in accordance with Regulation 1272/2008 (CLP) and its amendments at the date of the issue of the document

Hazard pictogram(s):		
Signal word	Danger	
Hazard statement(s):	H332	Harmful if inhaled
	H314	Causes severe skin burns and eye damage
	H335	May cause respiratory irritation.
	H410	Very toxic to aquatic life with long lasting effects

Precautionary statement(s):	P260 P264 P280 P301+P330+ P331 P303+P361+ P353 P304+P340 P305+P351+ P338 P310 P363 P273 P403+P233 P410 P501	Do not breathe aerosols. Wash hands and other body parts which are in contact with the substance thoroughly after handling. Wear chemically resistant gloves, prothective clothes and full face mask with gas filter IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing. 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 Centre or doctor/physician. Wash contaminated clothing before reuse. Avoid release to the environment. Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Dispose of contents and container in accordance with national waste regulations.

2.3 Other hazards

PBT/vPvB criteria:	This mixture does not contain any substances that are assessed as persistent, bioaccumilative and toxic (PBT) or very persistent and very bioaccumulative (vPvB)
Endocrine disrupting properties	Data lacking

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

3.2 Mixtures – Ammonia aqueous solution

CAS No	EC No	Index No	REACH Registration No.	Concentration,% [w/w]	Name	Classification according to Regulation (EC) No1278/2008 (CLP).	M-factor	Type
7664-41-7	231-635-3	007-001-00-5	01-2119488876-14-0004	25.0-27.0	Ammonia, Anhydrous	Flam. Gas 2., H221 Press. Gas., H280 Acute Tox 3., H331 Skin Corr. 1B, H314 Aquatic Acute 1., H400 Aquatic Chronic 2, H411 EUH071	M(acute)=1	[1] [2]

For full H and EU statements: see section 16

Type [1] Substance classified with a physical, health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern.

SECTION 4: FIRST- AID MEASURES

4.1 Description of first aid measures

- general notes	Speed is essential. If unconscious, place casualty in a recovery position with head sideways to avoid choking. Provide shower and eye wash station near the workplace.

- following inhalation	Move patient immediately to fresh air and keep at rest in a half upright position. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for respiratory tract irritation, bronchitis, or pneumonitis. **If trained to do so** administer supplemental oxygen with assisted ventilation. Get medical attention immediately.
- following skin contact	Take off all contaminated clothing immediately. Immediately flush exposed area with copious amounts of water under a shower or stream for at least 15 minutes followed by washing area thoroughly with soap and water. The patient should be seen in a health care facility if irritation or pain persists
- following eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If appears irritation, pain, swelling, excessive tearing or sensitivity to light continues, the patient should be examined in the hospital.
- following ingestion	Call a physician immediately. If victim is conscious, rinse the mouth and give water to drink immediately. Do NOT induce vomiting.
- self-protection of the first aider	First aiders should be protected adequately – gloves, protective goggles and gas filter

4.2 Most important symptoms and effects

Acute effects	Cause suffocation, coughing, sore eyes, redness of the skin with the appearance of red spots and blisters, dizziness, stomach pain and vomiting.
Delayed effects	Pulmonary oedema may occur up to 48 hours after exposure and could prove fatal depending on exposure and concentration.

4.3 Indication of any immediate medical attention and special treatment needed

Stop contact with ammonia immediately. Apply oxygen respiration, if necessary - tracheotomy and assisted respiration if needed. Glicocorticoide - aqueous solution 50-100 mg intravenously - in case of vocal cords oedema, in other cases - apply small doses orally. Treat symptomatically - antitussive detergents, analgesics and others.

SECTION 5: FIRE - FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:	Use extinguishing media that are suitable for fire and surrounding environment. (eg. foam, water or CO_2).
Unsuitable extinguishing media:	Not known

5.2 Special hazards arising from the substance or mixture

The solution is not combustible. In the open air, the ammonia-air mixture is generally outside the flammability limits. In confined spaces, the situation is different and there may be a risk of explosion if there is an ignition source.
Hazardous thermal decomposition and combustion products: Ammonia and NOx

5.3 Advice for firefighters
Wear self-contained breathing apparatus and fire resistant personnel protective equipment.
Keep containers cooled by spraying with large amounts of water from a safe distance. Use water spray to control vapour.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Approach from upwind. Isolate the area. Wear self-contained breathing apparatus in confined spaces, in cases where the oxygen level is depleted, or in case of significant emissions. Prevent further leakage or spillage if safe to do so. Ammonia vapours can be controlled with water spray. Keep from any possible contact with contaminated water. Keep away from incompatible materials/products.

6.1.1 For non-emergency personnel

Wear personal protective equipment (PPE) - impervious chemical resistant protective gloves, apron and boots, protective goggles and gas filter.

6.1.2 For emergency responders

Chemical resistant personal protective equipment, gloves, boots and self-contained breathing apparatus

6.2 Environmental precautions

Contain spillage where possible and if safe to do so. Take care to avoid the contamination of sanitary sewer system. Inform authorities in case of accidental contamination of some environmental components.

6.3 Methods and material for containment and cleaning up

Pump in properly labeled containers. Pour plenty of water or neutralize the spill with dilute mineral acid, eg. sulphuric before disposal. Dispose of contaminated material in accordance with the regulations.

6.4 Reference to other sections

See section 8 for personal protective equipment and section 13 for waste disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid skin and eyes contact and inhalation of vapours.
Provide adequate ventilation.
Wear eye and hand protection when handling small quantities.
Wear full protective equipment where there is a risk of leaks or splashes.
Use caution in opening sealed containers (due to possible pressure build-up).
Do not smoke, eat and drink in the ammonia handling area.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool, well ventilated area, away from heat, ignition sources and direct sunlight.
Keep away from incompatible substances. (See Section 10)
Do not permit smoking in the storage area.
Protect containers from corrosion and physical damage.
Suitable materials for containers are: stainless steel, polyethylene, polypropylene.
Storage class: 8B

7.3 Specific end uses	Information on special risk management measures is indicated in the exposure scenarios

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Regulated occupational exposure limit values:	**Ammonia** **EH40/2005 - United Kingdom** 8 hours exposure: 18 mg/m^3 or 25ppm Short-term exposure (15 min.): 25 mg/m^3 or 35ppm **European Union** 8 hours exposure: 14 mg/m^3 or 20ppm Short-term exposure (15 min.): 36 mg/m^3 or 50 ppm

DNEL - derived no-effect level following from the performed chemical safety assessment (CSA)

Substance: Ammonia, Anhydrous

	DN(M)ELs for workers				DN(M)ELs for consumers			
Route of exposure	Acute effects local	Acute effects systemic	Chronic effects local	Chronic effects systemic	Acute effects local	Acute effects systemic	Chronic effects local	Chronic effects systemic
Oral	Not required					6.8 mg/kg bw/d		6.8 mg/kg bw/d
Inhalation	36 mg/m³	47.6 mg/m³	14 mg/m³	47.6 mg/m³	7.2 mg/m³	23.8 mg/m³	2.8 mg/m³	23.8 mg/m³
Dermal	medium hazard (no threshold derived)	medium hazard (no threshold derived)	6.8 mg/kg bw/d	6.8 mg/kg bw/d	medium hazard (no threshold derived)	68 mg/kg bw/d	medium hazard (no threshold derived)	68 mg/kg bw/d
Eyes	Local effects		medium hazard (no threshold derived)		Local effects		medium hazard (no threshold derived)	

Predicted No Effect Concentration (**PNEC**):

Components	**PNEC**
freshwater	0.0011 mg/l (for free Ammonia)
marine water	0.0011 mg/l (for free Ammonia)
intermittent releases	0.089 mg/l (for free Ammonia)
sediments (freshwater)	no hazard identified
sediments (marine water)	no hazard identified
sewage treatment plant	no hazard identified
soil	0.0221mg/kg soil dw
air	no hazard identifiedн
secondary poisoning	no potential for bioaccumulation

8.2 Exposure controls

8.2.1 Appropriate engineering controls:

Ensure there is exhaust ventilation of the area. Provide safety showers and eye washing facility at any location where skin or eye contact can occur.

8.2.2 Personal protection equipment:

8.2.2.1 Eye and face protection	Full-face mask. Chemical goggles with side protection should be worn
8.2.2.2 Skin protection Hand protection	Chemical resistant gloves according to standards. Please follow the supplier's instructions about conditions of use and expiration date
Other skin protection	Chemically protective clothing. Depending on the risk and on the work performed, adequate protective equipment such as long-sleeved overall and shoes should be selected and approved by a specialist**.**
8.2.2.3 Respiratory protection	In case of ammonia vapors or aerosols, use a full-face multi-purpose respirator with an approved filter. Use only respiratory protection that meets international/national standards. Use

	respiratory protection equipment approved by the EC.
8.2.2.4 Thermal hazards	Use appropriate thermal resistant clothing, if necessary.

8.2.3 Environmental exposure control

See annex of this safety data sheet (exposure scenarios)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Physical state	Liqiud at 20°C and 101.3 kPa
b) Colour	Colorless
c) Odour	Characteristic, pungent, suffocating. Odour threshold 5-25 ppm
d) Melting/Freezing point	-56°C (25% NH_3)
e) Boiling point;	35°C at 101.3 kPa (25% NH_3)
f) Flammability	Solution is incombustible. Some aqueous solutions of ammonia, e.g. 26% w/w NH3, have a vapour pressure such that the equilibrium composition in the air can be within the flammability limits.
g) Lower and upper exposure limit	Flammability of ammonia vapours in air 16-26% v/v (at ambient temperature and pressure).
h) Flash-point	Not applicable
i) Auto-ignition temperature	651°C (NH_3 vapours).
j) Decomposion temperature	No data available
k) pH 1% aqueous solution	11.7
l) Viscosity	1.1mPa.s (dynamic) at 26.7°C (26%)
m) Solubility	Miscible in all proportions.
n) Partition coefficient n-octanol/water:	Not applicable
o) Vapour pressure:	48 kPa at 20°C (25% NH3)
p) Density at 20°C:	0.91 g/cm3 (25 % NH3)
q) Relative vapour density	No data available
r) Particle characteristics	Not applicable

9.2 Other information

9.2.1.Information with regards to physical hazard classes	
a) Explosives	Not explosive solution
b) Oxidizing	Not oxidiser

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

The product is stable under the recommended conditions in Section 7.

10.2 Chemical stability

No hazardous reaction when handled and stored according to provisions.

10.3 Possibility of hazardous reactions

Can react violently in contact with acid, strong oxidants, halogens, acrylic acid, dimethyl sulphate, silver nitrate, silver oxide, hypochlorite, mercury, etc.
Ammonia solutions are corrosive to copper, zinc, aluminum and their alloys.

10.4 Conditions to avoid

Heat, direct sunlight and physical damage of container.

10.5 Incompatible materials

Can react violently in contact with acid, strong oxidants, halogens, acrylic acid, dimethyl sulphate, silver nitrate, silver oxide, hypochlorite, mercury, etc.

10.6 Hazardous decomposition products

When heated, solution will release ammonia vapours.
For fire situations see Section 5.

SECTION 11: TOXICOLOGICAL INFORMATION

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

Substance name: Ammonia, Anhydrous

Acute Toxicity
¤**V12** Acute toxicity, hazard category 4 - Toxic if inhaled¤

Metod	Species	Route of exposure	Effective dose	Exposure time	Results
Equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)	rat (Wistar) male	oral: gavage	LD_{50} 350 mg/kg bw (male) (Probit analysis)	14 days	
		dermal	LD_{50}		No data are available. A waiver is proposed as the substance is classified as corrosive. Dermal exposure to anhydrous ammonia will be dominated by local effects at the site of contact and significant systemic toxicity is unlikely.
Assessment of acute inhalation toxicity in the rat/mouse following various exposure periods	rat (Wistar) male/female	inhalation (whole body)	¤**V13** LC_{50} 28130 mg/m³ LC_{50}13770 mg/m³ LC_{50}9850mg/m³air¤	10 min – 60 мин.	Results range from 10 minute exposure to 60 minute exposure.

¤**V13** Skin corrosion/irritation:	Causes severe skin burns OECD Test Guigeline 404 (rabbit, ammonia anhydrous)
Serious eye damage/ irritation:	Causes serious eye damage
Respiratory or skin sensitisation:	Based on available data, the classification criteria are not met. There is no evidence that ammonia causes skin or respiratory sensitization; effects will be mediated locally due to the corrosive/irritant properties of the substance.
Germ cell mutagenicity:	Based on available data, the classification criteria are not met.

	No indication of mutagenicity when tested *in vitro* in the Bacterial Reverse Mutation Assay and *in vivo* using the Micronucleus Assay.
Carcinogenicity:	Based on available data, the classification criteria are not met. No evidence of carcinogenicity was seen in a study with read-across substance ammonium sulphate. An investigative study suggests that long-term exposure to drinking water containing ammonia (aqueous ammonia) may cause irritant gastritis which in turn may promote gastric carcinogenesis initiated by MNNG (N-methyl-N'-nitro-N-nitrosoguanidine). However there is no evidence that ammonia is carcinogenic. Method: OECD Guideline 452 Species: rat (common rodent) Road of exposure: oral Exposure time: 52 weeks chronic Result: NOAEL: 350 mg/kg/day
Reproductive toxicity:	Based on available data, the classification criteria are not met. No evidence of reproductive effects was observed in reproductive screening and 2-generation reproductive toxicity studies with the ammonium salts diammonium phosphate and ammonium perchlorate, respectively. The physiological role of ammonia indicates that it is unlikely to be a reproductive toxin at relevant exposure levels Effect on fertility Method: OECD Guideline 422 Species: rat (common rodent) Road of exposure: oral Exposure time: 35 days Result: NOAEL: 387mg/kg/day Test substance: diammonoum phosphate (read-across)
STOT – single exposure	May cause respiratory irritation
STOT – repeated exposure	Based on available data, the classification criteria are not met. Method: OECD Guideline 422 Species: rat (male/female) Road of exposure: oral Exposure time: 35 days Result: NOAEL: 250 mg/kg/day Test substance: diammonoum phosphate (read-across) ◘
Aspiration hazard Based on available data, the classification criteria are not met.	
11.2 Information on other hazards Endocrine disrupting properties - Data lacking	

SECTION 12: ECOLOGICAL INFORMATION

◘**V13 12.1 Toxicity**

Substance name: Ammonia, Anhydrous

Acute (short-term) toxicity:	
Fish:	LC_{50} for freshwater fish (rainbow trout ,96h, ammonium chroride): 0.89 mg/L un-ionised ammonia
Invertebrates:	EC_{50}/LC_{50} for freshwater invertebrates (daphnia magna, 48h): 101 mg/L
Acute (long- term) toxicity:	

Fish:	The lowest concentration of un-ionised ammonia at which long-term effects were found is 0.022 mg/L (NH3), 73 days, rainbow trout, ammonium chroride
Invertebrates:	EC_{10}/LC_{10} or NOEC for freshwater invertebrates (daphnia magna) : 0.79 mg/L EPA OPPTS 850.1300, read-across (analogy)
Other organisms:	
Algae/aquatic plants:	EC_{50}/LC_{50} for freshwater algae: 2700 mg/L◘
Sediment organisms:	Ammonia does not accumulate in sediments.

12.2 Persistence and degradability

Not considered to be persistent and is rapidly biodegradable in aquatic systems. In abiotic environments, Ammonia is assimilated by aquatic algae and macrophytes for use as a nitrogen source.

12.3 Bioaccumulative potential

The accumulation of ammonia in biota is not considered of importance in the environment as it does not accumulate in lipid-rich tissues in the same manner as organic chemicals. Ammonia is ubiquitous in the aquatic environment due to the breakdown of plant and animal material and due to animal excretory processes. As a product of normal metabolism, Ammonia is not expected to bioaccumulate.

12.4 Mobility in soil

There is limited mobility in soil expected due to the strong adsorption of ammonium ions to clay minerals and the bacterial oxidation to nitrate. Ammonia in soil is in dynamic equilibrium with nitrate and other substrates in the nitrate cycle.

12.5 Results of PBT and vPvB assessment

The mixture does not contain substances assessed as persistent, bioaccumulative or toxic (PBT) or very persistent and very bioaccumulative (vPvT).

12.6 Endocrine disrupting properties - Data lacking

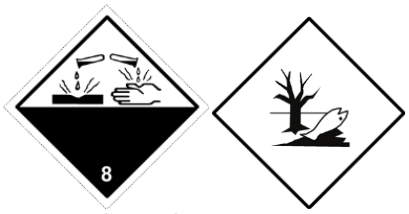
12.7 Other adverse effects - Very toxic to aquatic life with long lasting effects.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:	Disposal should be in accordance with local or national legislation.
13.1.1 Product/package disposal:	Empty containers can contain vapours, do not drill cut, grind or weld. Use only approved transporters, recyclers, and treatment, storage or disposal facilities. This material and/or its container must be disposed of as hazardous waste. **Please follow all local, national and international laws.**
13.1.2 Waste treatment - relevant information:	Waste from packaging to be collected and stored separately at specific and appropriate sites, until it transfer to authorized companies for treatment.
13.1.3 Sewage disposal - relevant information:	Contaminated water should not be disposed of by discharge into sewage systems, water sources, soil or groundwater.

SECTION 14: TRANSPORT INFORMATION

UN number ADR/RID	UN 2672
14.2 UN proper shipping name ADR/RID	AMMONIA SOLUTION, relative density between 0.880 and 0.957 at 15 °C in water, with at least 10% but not more than 35% ammonia

14.3 Transport hazard class ADR/RID Label Class Classification code Hazard identification number	 8 Corrosive substances Environmentally hazardous substances 8 C5 80
14.4 Packing group	III
14.5 Environmental hazard ADR/RID	hazardous
14.6 Special precautions for users	The person transporting the product must be trained and know how to respond to an accident or spillage
14.7 Maritime transport in bulk according to IMO instruments	Not applicable

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulation/ legislation specific for the substance or mixture:	Regulation EC 1907/2006 (REACH), Regulation EC 1272/2008 (CLP), Directive 98/24 EC Directive 2012/18/EU (SevesoIII), Quantity 1) 100 t; Quantity 2) - 200 t * Regulations / legislation and amendments to the date of issue of the document are indicated
15.2 Chemical safety assessment:	In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for ammonia, anhydrous.

SECTION 16: OTHER INFORMATION

Indication of changes: Changes since the last version are highlighted with ◘ **V13 ...**◘ . This version replaces all previous versions.

List of exposure scenarios (ES)*:

ES 14: Distribution and formulation of ammonia aqueous
ES 18: Industrial use as intermediate
ES 36: Industrial end-use (chemical/process nutrient, e.g., pharmaceuticals, food, biofuel)
ES 37: Industrial end-use (flue gas NOx and SOx reduction)
ES 38: Industrial end-use (part of specialist chemicals/other products, (e.g., photochemical)
ES 39: : Industrial end-use of anhydrous and aqueous ammonia (processing, non-processing aids, auxiliary agent)
ES 40: Industrial end-use of anhydrous and aqueous ammonia (reactive agent/processing aid and for general chemical applications, e.g., extraction, water treatment/septicity control, pH/neutralising agent)
ES 41: Industrial end-use of anhydrous and aqueous ammonia (surface/article treatment, e.g., metal, leather/textiles, plastics, wood, electronics/semiconductors, insulation, hardening, etchant)
ES 42: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (formulation of mixtures)
ES 43: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (laboratory/research chemical)
ES 44: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (part of specialist chemicals/other products, (e.g., biocides, cleaning products, coatings/paints)
ES 45: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (reactive agent/processing aid, general chemical applications, e.g., pH/neutralising agent, water treatment)
ES 46: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (surface/article treatment, e.g., metal, textiles/leather, plastics, wood, etching concrete)
ES 47: Up to 4% aqueous: Wide dispersive consumer use of aqueous ammonia (cosmetic products, e.g., hair)
ES 21: Up to 0.05% aqueous: Wide dispersive consumer use of aqueous ammonia (part of specialist products, e.g. coatings/paintsthinners/paint rempaint removers)
ES 22: Up to 0.125% aqueous: Wide dispersive consumer use of aqueous ammonia (cleaning products)

* Depending on your identified use, the relevant CE will be provided

Classification in accordance with Regulation 1272/2008 (CLP)

H221 Flammable gas.
H280 Contains gas under pressure; may explode if heated.
H331 Toxic if inhaled.
H314 Causes severe skin burns and eye damage.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects
H411 Toxic to aquatic life with long lasting effects
H335 May cause respiratory irritation.
EUH 07 Corrosive to the respiratory tract

Flam. Gas 2. - Flammable gas, hazard category 2
Press. Gas. - Gas under pressure
Acute Tox 3.- Acute toxicity (inhalation), hazard category 3
Skin Corr. 1B - Skin corrosion/irritation, hazard category 1B
Aquatic Acute 1. - Hazardous to the aquatic environment- Aquatic Acute, category 1

List of abbreviations

PBT – persistent, bioaccumulative and toxic
vPvB - very persistent and very bioaccumulative
NOAEL - no observed adverse effect level
NOAEC - no observed adverse effect concentration
DNEL - derived no-effect level
PNEC - predicted no-effect concentration

PEC - predicted environmental concentration
LOEC - lowest observed effect concentration
NOEC - no observed effect concentration
OECD - Organisation for Economic Cooperation and Development
LC_X - lethal concentration
EC_X - effective concentration
LD_X - lethal dose

▫V13 Key sources of data
Chemical safety report 2023, Anhydrous Ammonia, FARM REACH Consortium▫

The information above is on the basis of our knowledge about the product and represents the data currently available to us t the moment of safety data sheet issue. This document is intended as guidance for the appropriate precautionary handling with the product by a properly trained person using this product, and does not legally bind in no way manufacturer with guarantee for specific properties, qualities and applications.
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