

Date of issue: 2015-06-01

Update: 2.1.2019

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

Product name: Ammonia solution
Index number: 007-001-01-2 (aqueous solution)
CAS: 1336-21-6 (aqueous solution)
Registration number: 01-2119488876-14-0083 (ammonia anhydrous)

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

Used as an intermediate in the manufacture of nitric acid, alkalis, dyes, pharmaceuticals, cosmetics, vitamins, synthetic textile fibres and plastics, an auxiliary agent in processing and non-processing aids, such as in photochemical processes, refrigerant systems, insulation products, inks and toners, coatings, thinners and paint removers and as a processing aid in chemical industries, as an extraction agent in NO_x, SO_x reduction, processing aid in nutrition, neutralising agent, textile dye, washing and cleaning products and textile treatment. Also used in pulp/paper treatment, leather treatment, wood and metal surface treatment, the treatment of rubber/latex and the manufacture of semiconductors/electronics. In a professional capacity, it is used as a laboratory chemical, as a refrigerant in cooling systems, as a water treatment chemical, as fertiliser, coating, and paint thinner or remover and as a photochemical. It is also used as a cleaning product, leather or other surface treatment product, pH regulator or neutralisation agent and as a process aid for nutrition.

Uses advised against:

All uses not introduced among identified uses.

1.3. Details of the supplier of the safety data sheet**Supplier identification:**

Trade name: VIA-REK, a.s.
Address: Ol. Blažka 145, Rájec-Jestřebí 67902, Czech Republic
Phone number: +420 516 499 945 / +420 516 499 955
E-mail: expedice@via-rek.cz

1.4. Emergency telephone number

First-aid service (CZ): 155
Fire brigade (CZ): 150
Police (CZ): 158
European helpline: 112

Phone: +420 224 919 293; +420 224 915 402
Address: Klinika pracovního lékařství 1. LF UK a VFN, Na Bojišti 1, 120 00 Praha 2,

Date of issue: 2015-06-01

Update: 2.1.2019

AMMONIA SOLUTION

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Classification of the substance according Directive 1272/2008/EC:

Danger property: Skin Corr.1B, STOT SE 3, Aquatic Acute 1

H-phrases: H314+335+400

The most important adverse physicochemical effects:

Heating can release hazardous gases (flammable gas, toxic by inhalation).

The most important adverse for human health:

Inhalation: May cause irritation by inhalation.

Ingestion: Causes burns.

Skin: Causes burns.

Eye: Causes severe burns.

Ammonia anhydrous: Acutely toxic following inhalation exposure. Causes severe burns and damage to the skin when applied to human skin. Following inhalation exposure at low concentration, coughing, irritation of the respiratory tract, eye irritation and lacrymation, wet noses and nasal discharge occur. Inhalation at higher concentration can cause burning of the nose, throat and respiratory tract and bronchiolar and alveolar oedema, dyspnoea, bronchospasm and respiratory distress may also occur. No mutagenic activity is expected. There is no evidence of carcinogenicity following exposure. No adverse reproductive effects are likely to occur following exposure. In a neurotoxicity study conducted on human volunteers investigating developmental toxicity/teratogenicity, no effect on spontaneous abortion was observed.

The most important adverse for the environment:

Very toxic to aquatic organisms.

2.2. Label elements

Classification of the substance according Directive 1272/2008/EC:

Hazard pictogram(s):



Signal word: Danger

H- phrases: H314+335+400

P- phrases: P260+264+271+273+280+310+321+363+391+405+501
P301+330+331, P 303+361+353, P 304+340, P 305+351+338,
P403+233

Full text abbreviations, P- and H-phrases mentioned in Section 16.

2.3. Other hazard

Not known.

SECTION 3. Composition/information on ingredients

3.1. Substance

Product name: Product is not substance.

Registration number:

Date of issue: 2015-06-01 Update: 2.1.2019

AMMONIA SOLUTION
Other identification data of substance:

1) Index number 2) CAS number 3) EC number	Chemical name	Concentration	Classification according to Regulation (EC) No 1278/2008 (CLP)
-	-	-	-

3.2. Mixtures

Product name: Ammonia solution
Registration number: 01-2119488876-14-0083 (Ammonia anhydrous)
Other identification data of substances:

1) Index number 2) CAS number 3) EC number	Chemical name	Concentration	Classification according to Regulation (EC) No 1278/2008 (CLP)
1) 007-001-00-5 2) 7664-41-7 3) 231-635-3	Ammonia anhydrous	10 – 25 % (w/w)	Flam. Gas2 (H221), Press. Gas (H280), Acute Tox.3 (H331), Skin Corr. 1B (H314), Aquatic Acute1 (H400)

The full text of abbreviations and H-phrases see Section 16.

SECTION 4. First aid measures
4.1. Description of first aid measures
General information:

In states of endangering of life to carry out the resuscitation:

affected person is not breathing - immediately do artificial respiration
cardiac arrest - immediately initiate indirect heart massage

unconscious - it is necessary to lay the victim into the recovery position on the side

Inhalation:

Remove affected person to fresh air and keep at rest. Victim to lie down in the recovery position, cover and keep him warm. Call a doctor if necessary.

Skin contact:

Take off contaminated clothing and shoes immediately. Wash off with plenty of water. Call a doctor immediately. If necessary, apply calcium gluconate gel 2.5% and massage into the affected area using rubber gloves; continue to massage while repeatedly applying gel until 15 minutes after pain is relieved. If fingers/finger nails are touched, even if there is no pain, dip them in a bath of 5% calcium gluconate for 15 to 20 minutes.

Contact with eyes:

Remove contact lenses, rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Rinse the eyes with a calcium gluconate 1% solution in physiological serum (10 ml of calcium gluconate 10% in 90 ml of physiological serum), if necessary. In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).

Ingestion:

Rinse mouth with water (only if the person is conscious). Never give liquid to a person showing signs of being sleepy or with reduced awareness. Do NOT induce vomiting. Call a physician immediately.

Self-protection of first aiders:

According to the scope of assistance provided, it is necessary to use appropriate safety equipment - contained breathing apparatus / mask with appropriate filter and any other worker protection. Always wear protective gloves and in the case of artificial respiration resuscitation mask. After providing first aid wash

Date of issue: 2015-06-01

Update: 2.1.2019

AMMONIA SOLUTION

your hands thoroughly. In the event that, during the provision of first aid has been spilled chemical clothing, always change clothing.

Other data: Other information concerning the delivery of first aid measures, especially in serious cases of health damage, the attending physician can consult the procedure with Toxicological information centre, **phone (continually):** +420 224 919 293, 224 915 402, fax 224 914 570.

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

Eye: Causes severe burns.

Skin: Causes burns.

Inhalation: May cause irritation by inhalation.

Ingestion: Causes burns.

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

The treatment with calcium gluconate is specific for ammonia anhydrous.

SECTION 5. Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media:**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Suitable media may include water spray, dry chemical, fog or foam.

Ammonia solution is not flammable.

Unsuitable extinguishing media:

Water jet - danger of the spread of fire

5.2. Special hazards arising from the substance or mixture**Hazardous combustion products:**

Hazardous gases can release by heating. Hazardous decomposition products include ammonia and nitrogen oxides (NOx). Hydrogen can be produced by reaction ammonia with metals.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Fire fighters must wear fire resistant personnel protective equipment. Wear chemical resistant oversuit.

Cool containers / tanks with water spray. Approach from upwind. Suppress (knock down) gases/vapours/mists with a water spray jet.

SECTION 6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****6.1.1 For non-emergency personnel:****Protective equipment:**

Use personal protective equipment (wear protective clothing, gloves, respirator). Avoid contact with skin and eyes.. Prevent all leakage or spillage if safe to do so. Keep away from heat source. Ammonia vapours can be controlled with water spray. Ensure there is exhaust ventilation of the area. Use in a well-ventilated area.

Emergency procedures: All of leaks, immediately clean up. Use effective ventilation in the workplace. In case of fire evacuate the area.

6.1.2 For emergency responders:**Protective equipment:**

Use personal protective equipment (respirator with an approved filter, wear protective clothing, protective gloves). Wear self-contained breathing apparatus in confined spaces, in cases where the oxygen level is depleted, or in case of significant emissions. Ammonia vapours can be controlled with water spray.

Emergency procedures: Approach from upwind. Isolate the area. Restrict the fumes of ammonia spray water mist.

Date of issue: 2015-06-01

Update: 2.1.2019

AMMONIA SOLUTION**6.2. Environmental precaution**

Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3. Methods and material for containment and cleaning up**6.3.1 Methods of containment of leakage:**

Store in tightly closed containers. Leaking liquid repump into suitable containers.

Small leak: Seal leak - Use sealing bags, wedges, pastes. Seal the drains, prevent leakage into waterways and groundwater contamination. Prevent further spread of the leaked ammonia water - fences absorption materials or creating dams of loose sorbent. The leaked ammonia water aspirate a suitable sorption agent. Contaminated sorbent material sweep / vacuum and place in the prepared labeled containers and treat it as waste.

Large leak: Seal leak - Use sealing bags, wedges, pastes. Seal the drains, prevent leakage into waterways and groundwater contamination. Prevent further spread of the leaked ammonia water - fences absorption materials or creating dams of loose sorbent. If possible, drain out the leaked ammonia water. Contaminated sorbent material sweep / vacuum and place in the prepared labeled containers and treat it as waste. Waste management, see Section 13.

6.3.2 Methods for cleaning up:

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Product has to be disposed in accordance with law of wastes in valid version and with connecting on legal directives.

6.3.3 Other information:

Not available.

6.4. Reference to other section

See Section 8 and 13.

SECTION 7. Handling and storage**7.1. Precautions for safe handling****7.1.1. Protective measures:**

Measures to prevent fire: Avoid contact of heat. From the space in which the material is treated, remove all sources of ignition (sparks, flames). Do not smoke in the workplace. In the workplace use an effective ventilation.

Measures to prevent aerosol and dust generation: Provide efficient ventilation / ventilation.

Measures to protect the environment: Avoid release to land / waters / drains.

7.1.2. Advice on general occupational hygiene:

Do not eat, drink or smoke when using this product. Avoid all personal contact. Use personal protective equipment. Use only in well-ventilated areas. Keep away from heat source. Wearing adequate protective equipment, avoid direct contact with the substance. Prevent prolonged or repeated exposure. After work, wash your hands and face. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities**Technical measures and storage conditions:**

Store in cool (25 °C), dry and well-ventilated areas in containers closed.

Avoid contact with: aluminium, zinc, nickel, copper and copper alloys, strong bases, organic acids, peroxides, strong oxidizing agents, alkali metals, halogens, acrylic acid, silver and his salts. Keep away from food, drink, feed and incompatible materials.

Date of issue: 2015-06-01
Update: 2.1.2019
AMMONIA SOLUTION
Packaging materials:

Keep container tightly closed and labelled. Be careful to damage containers. Store in PVC, PP, PE, stainless steel, bituminized tanks.

Requirements for storage rooms and vessels:

Storage rooms must comply with applicable legislation, and storage class of substances. Containers must be closed again.

7.3. Specific end use(s)

See section 1.2.

SECTION 8. Exposure controls/personal protection
8.1. Control parameters (ammonia anhydrous: CAS 7664-41-7)

Exposure limit (CZ): PEL: 14 mg/m³
NPK-P: 36 mg/m³

Workers:

DNEL (short-term exposure – dermal - systemic effect):	68 mg/kg bw/day
DNEL (short-term exposure – inhalation - systemic effect):	47,6 mg/m ³
DNEL (short-term exposure – inhalation - local effect):	36 mg/m ³
DNEL (long-term exposure – dermal - systemic effect):	68 mg/kg bw/day
DNEL (long-term exposure – inhalation - systemic effect):	47,6 mg/m ³
DNEL (long-term exposure – inhalation - local effect):	14 mg/m ³

General population:

DNEL (short-term exposure – dermal - systemic effect):	68 mg/kg bw/day
DNEL (short-term exposure – inhalation - systemic effect):	23,8 mg/m ³
DNEL (short-term exposure – oral - systemic effect):	6,8 mg/kg bw/day
DNEL (short-term exposure – inhalation - local effect):	7,2 mg/m ³
DNEL (long-term exposure – dermal - systemic effect):	68 mg/kg bw/day
DNEL (long-term exposure – inhalation - systemic effect):	23,8 mg/m ³
DNEL (long-term exposure – oral - systemic effect):	6,8 mg/kg bw/day
DNEL (long-term exposure – inhalation - local effect):	2,8 mg/m ³

8.2. Exposure control
8.2.1 Appropriate engineering controls:
Substance/mixture related measures to prevent exposure during identified uses:

Provide appropriate exhaust ventilation at machinery. Ensure there is exhaust ventilation of the area. Use appropriate respiratory protection. Avoid all personal contact. Do not eat, drink or smoke when using this product. Wash hands after work with product, use protective cream.

Technical measures to prevent exposure:

Ensure effective ventilation / exhaustion at the workplace.

8.2.2 Individual protection measures, such as personal protective equipment:

8.2.2.1 **Eye and face protection:** Face-shield. Chemical resistant goggles.

8.2.2.2 **Skin protection:**

Hand protection: Protective gloves - impervious chemical resistant: Suitable material: butyl-rubber.

If ammonia is released, use gas tight chemical resistant suit.

Other skin protection: Chemical resistant apron; butyl rubber apron; butyl rubber boots.

8.2.2.3 **Respiratory protection:** In the case of aerosol or vapours of ammonia use respirator with an approved filter. Self-contained breathing apparatus in medium confinement/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.

Date of issue: 2015-06-01 Update: 2.1.2019
AMMONIA SOLUTION

8.2.2.4 **Thermal hazards:** Heating can release hazardous gases. Hazardous decomposition products include ammonia and nitrogen oxides (NOx). Hydrogen can be produced by reaction of ammonia with metals.

8.2.3 Environmental exposure controls:

Avoid release to the environment.

SECTION 9. Physical and chemical properties
9.1. Information on basic physical and chemical properties

The data refer on a 25% aqueous ammonia solution

Appearance:	liquid
Color:	colourless
Odour:	strong odour like ammonia
Odour treshold:	not available.
pH:	11,6
Melting point/ freezing point:	-57,5 °C (25% water solution) -14,0 °C (10% water solution)
Initial boiling point and boiling range:	100 °C
Flash point:	Not available.
Evaporation rate:	Not available.
Flammability (solid, gas):	Not available.
Upper/lower flammability or explosive limits:	Not available.
Vapour pressure:	Not available.
Vapour density:	Not available.
Relative density:	0,910 g/cm ³
Solubility (in water):	Not available.
Partition coefficient: n-octanol/water:	Not available.
Auto-ignition temperature:	Not available.
Decomposition temperature:	Not available.
Viscosity:	Not available.
Explosive properties:	Not available.
Oxidising properties:	Not available.

9.2. Other information

Not available.

SECTION 10. Stability and reactivity
10.1. Reactivity

Reaction with acids.

10.2. Chemical stability

Stable under appropriate conditions.

10.3. Possibility of hazardous reactions

Reaction with acids under heat release.

10.4. Conditions to avoid

Keep away from heat source, gaseous ammonia can be released.

10.5. Incompatible materials

Avoid contact with: aluminium, zinc, nickel, copper and copper alloys, strong bases, organic acids, peroxides, strong oxidizing agents, alkali metals, halogens, acrylic acid, silver and his salts.

10.6. Hazardous decomposition products

Hazardous gases can be released by heating. Hazardous decomposition products include ammonia and

Date of issue: 2015-06-01 Update: 2.1.2019

AMMONIA SOLUTION

nitrogen oxides (NOx). Hydrogen can be produced by reaction of ammonia with metals.

SECTION 11. Toxicological information
11.1. Information on toxicological effects

Acute toxicity:	Not determined.
Skin corrosion / irritation:	Category 1B ..
Serious eye damage / irritation:	Not determined.
Respiratory or skin sensitisation:	Not determined.
Germ cell mutagenicity:	Not determined.
Carcinogenicity:	Not determined.
Reproductive toxicity:	Not determined.
Toxicity for specific target organs (STOT) - single exposure:	Category 3 - respiratory irritation.
Toxicity for specific target organs (STOT) - repeated exposure:	Not determined.
Aspiration hazard:	Not determined.
Information on likely routes of exposure:	Not determined.
Symptoms related to the physical, chemical and toxicological characteristics:	Not determined.
Delayed and immediate effects and also chronic effects from short and long term exposure:	Not determined.

Information in tables is for ammonia anhydrous: CAS 7664-41-7

	Effect dose	Species	Method	Remark
Acute oral toxicity	LD50 350 mg/kg bw	Male Wistar rats	Acute Oral Toxicity	Probit Analysis
Acute dermal toxicity	LD50			Waived due to toxicity of the substance.
Acute inhalative toxicity	LC50 28130 - 13770 mg/m	Male and female Wistar rats	Assessment of acute inhalation toxicity in the rat following various exposure periods.	Results are the range from 10 minutes exposure to 60 minutes exposure.

Irritation: Causes severe burns.

	Exposure time	Species	Evaluation	Method	Remark
Primary irritation to the skin:	n/a	Human	Corrosive	n/a	Skin pH was determined to be 10.
Irritation to eyes	n/a	n/a	Highly irritating	n/a	No study conducted, however, based on the results of the skin irritation, it can be assumed that eye irritation will occur.

Corrosivity: Corrosive to skin and eyes.

Sensitisation: Not sensitising.

Repeated dose toxicity:

	Effect dose	Value	Exposure time period	Species	Method	Evaluation
Sub-acute oral	68 mg/kg bw/d	NOAE L	35 days	Crj: CD(SD) male and female rats	Combined Repeated dose Toxicity Study with the Reproduction/Developmental Toxicity Study	No marked toxicity
Sub-chronic inhalative	35 or 63 mg/m	NOAE C	50 days	Male Wistar rats	Subchronic inhalative toxicity of ammonia in the rat.	No systemic toxicity, however, the primary effect is local irritation of the respiratory tract.

Date of issue: 2015-06-01

Update: 2.1.2019

AMMONIA SOLUTION
SECTION 12. Ecological information
12.1. Toxicity

Information in tables is for ammonia anhydrous: CAS 7664-41-7

Aquatic toxicity	Effect dose	Exposure time	Species	Method	Evaluation	Remark
Acute fish toxicity	LC50	96 h	<i>Oncorhynchus mykiss</i>		0.89 mg/L unionised ammonia.	Result is pH and temperature adjusted.
Acute daphnia toxicity	EC50	48 h	<i>Daphnia magna</i>	Freshwater static, equivalent to ASTM E729-80.	101 mg/L	Results based on mortality.
Acute algae toxicity	EC50	18 days	<i>Chlorella vulgaris</i>	Freshwater, static	7200 mg/L	Result based on cell number
Chronic fish toxicity	LOEC	73 days	<i>Oncorhynchus mykiss</i>		0.022 mg/L	Result based on mortality
Chronic daphnia toxicity	NOEC	96 h	<i>Daphnia magna</i>	Freshwater flow-through equivalent or similar to EPA OPPTS 850.1300 (Daphnid Chronic Toxicity Test)	0.79 mg/L unionised ammonia	Result based on mortality.

12.2. Persistence and degradability

Not considered to be persistent and is rapidly biodegradable in aquatic systems.

12.3. Bioaccumulative potential

Not considered.

12.4. Mobility in soil

There is limited mobility in soil.

12.5. Results of PBT and vPvB assessment

This substance is not identified as a PBT substance

12.6. Other adverse effects

No further details

SECTION 13. Disposal considerations
13.1. Waste treatment methods
13.1.1 Product/Packaging disposal

Substance treatment methods: Product has to be disposed in accordance with law of wastes in valid version and with connecting on legal directives.

Contaminated container treatment methods: Contaminated container has to be disposed in accordance with law of wastes in valid version and with connecting on legal directives.

Other information: Disposal has to be in accordance with law of wastes in valid version and with connecting on legal directives.

13.1.2 Waste treatment-relevant information

This is a hazardous waste. The substance is highly toxic to aquatic organisms.

Date of issue: 2015-06-01

Update: 2.1.2019

AMMONIA SOLUTION

SECTION 14. Transport information

14.1. **UN number**

2672

Labelling ADR/RID, IMDG, ITA-DGR:



14.2. **UN propper shipping name**

Ammonia solution

14.3. **Transport hazard class(es)**

8

14.4. **Packing group**

III

14.5. **Environmental hazards**

Environmentally Hazardous Substance.

14.6. **Special precautions for user**

No information available.

14.7. **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable to packaged goods.

SECTION 15. Regulatory information

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

REGULATION (EC) No 1907/2006 of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

REGULATION (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures

COMMISSION REGULATION (EU) No 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

15.2. **Chemical safety assessment**

Chemical safety assesment and elaboration of Chemical Safety Report (CSR) has been elaborated by company TSGE / Knaresborough / United Kingdom for consorcium FARM.

SECTION 16. Other information

16. 1. **Indication of changes:**

Changes in this edition of SDS were conducted in section 1.3

Date of issue: 2015-06-01
Update: 2.1.2019
AMMONIA SOLUTION
16.2. Classification and procedure used to derive the classification for mixtures according to Regulation (EC)
1272/2008 [CLP]: Classification of the substance was taken from the Annex to Regulation (EC) 1272/2008 and ECHA database.

List of relevant H- and P-phrases (Sections 2. and 3.):

H221	Flammable gas.
H280	Contains gas under pressure; may explode if heated.
H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P310	Immediately call a POISON CENTER or doctor/physician.
P321	Specific treatment.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/container to national regulations.
P301+330+331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+361+353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+233	Store in a well-ventilated place. Keep container tightly closed.

16.3. Advices for training:

Give information of this Safety Data Sheet and good industrial hygiene and safety practice of handling with chemical substances and mixtures to the employers.

16.4. Information sources:

Safety data sheet Ammonia water, 30. 7. 2013 state enterprise Diamo Stráž pod Ralskem, a branch of Mining and processing of uranium and Stráž pod Ralskem
 Registration documentation approved by ECHA for FARM consortium. Documentation was elaborated by TSGE / Knaresborough / United Kingdom company for ammonia anhydrous with specifications for ammonia aqueous.
 Database registered chemical substances by ECHA (updated 20.1.2012)
 Database registered substances ECHA - 30. 7. 2015
 Legislation in force

16.5. Abbreviations:

PBT	Persistent, bioaccumulative and toxic
vPvB	Very persistent and very bioaccumulative
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
CSR	Chemical Safety Report
ECHA	European Chemical Agency
PEL	Permissible exposure limit
NPK-P	Maximum available concentration
CAS	Chemical Abstracts Service
DNEL	Derived No Effect Level

Date of issue: 2015-06-01 Update: 2.1.2019
AMMONIA SOLUTION

Acute Tox. 3	Acute toxicity, Category 3
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Category 1
EC ₅₀	The effective concentration of compound which causes a 50% change in response.
Flam Gas 2	Flammable gases, category 2
LD ₅₀	Lethal dose at which 50% die individuals tested
LC ₅₀	The lethal concentration at which 50% die individuals tested
LOEC	Lowest Observed Effect Concentration is the lowest concentration tested, at which a certain study, a statistically significant effect in the exposed population compared with an appropriate control group.
NOAEC	Concentrations of no observed adverse effect level is the highest tested concentration at which it was not statistically significant increase in the frequency or severity of adverse effects between the exposed group and an appropriate control group, certain effects can at this concentration there, but they are not considered adverse or precursors adverse effects.
NOAEL	No observed adverse effect level is the highest tested dose or exposure level at which it was not statistically significant increase in the frequency or severity of adverse effects between the exposed group and an appropriate control group, certain effects can at this level occur, but they are not considered adverse or precursors of adverse effects.
NOEC	Concentration with the effects observed is the highest concentration tested at which the particular study there were no significant effects in the treated group compared with a suitable control group.
Skin Corr. 1B	Corrosion / irritation of skin, Category 1B
STOT SE 3	Toxicity for specific target organs - single exposure, category 3

16.6. Further information:

The details in this safety data sheet are based on our status of knowledge and experience at the time of date issue. They are not a contractual assurance of quality properties of the product, and they apply only in conjunction with correct and proper handling of the product under normal conditions, and according to the details of specified use on the packing and/or in the technical instructions. The user himself is fully responsible for every other use of the product such as in combination with other products or with other processes.