



SAFETY DATA SHEET

Ammonia solution 24,9%

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

Date issued 05.02.2014

1.1. Product identifier

Product name Ammonia solution 24,9%
 Chemical name Amonium hydroxide
 Synonyms Ammonia solution, ammonia water
 CAS no. 1336-21-6
 EC no. 215-647-6
 Index no. 007-001-01-2
 Article no. 15250100

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

Use of the substance/preparation Cleaning agent. Corrosion inhibitor. Water treatment material. Glue. NOx-reducing. (NOx Reduction.)

1.3. Details of the supplier of the safety data sheet

Manufacturer

Company name Fred Holmberg & Co AB
 Office address Geijersgatan 8
 Postal address Box 60056
 Postcode S-216 10
 City Limhamn
 Country Sweden
 Tel +46 (0)40 15 79 20
 Fax +46 (0)40 16 22 95
 E-mail info@holmberg.se
 Website <http://www.holmberg.se/en/>

1.4. Emergency telephone number

Emergency telephone 112 (Europe)

SECTION 2: Hazards identification

2.1. Classification of substance or mixture

Classification according to 67/548/EEC or 1999/45/EC C; R34
 Classification according to Regulation (EC) No 1272/2008 [CLP/GHS] Skin Corr 1B; H314; STOT SE3; H335;

2.2. Label elements

Hazard Pictograms (CLP)



Signal word

Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

| | |
|--------------------------|--|
| Precautionary statements | <p>H335 May cause respiratory irritation.</p> <p>P260 Do not breathe dust/fume/gas/mist/vapours/spray.</p> <p>P264 Wash thoroughly after handling.</p> <p>P271 Use only outdoors or in a well-ventilated area.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection.</p> <p>P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.</p> <p>P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P363 Wash contaminated clothing before reuse.</p> <p>P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P310 Immediately call a POISON CENTER or doctor/physician.</p> <p>P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P370 + P378 Vid brand: Släck branden med vattendimma, skum, kolsyra-släckare eller pulver-släckare.</p> <p>P403 + P233 Store in a well-ventilated place. Keep container tightly closed.</p> <p>P405 Store locked up.</p> <p>P501 Innehållet/behållaren lämnas till destruktionsanläggning</p> |
|--------------------------|--|

2.3. Other hazards

| | |
|---------------|------------|
| Other hazards | Not known. |
|---------------|------------|

SECTION 3: Composition/information on ingredients

3.2. Mixtures

| Substance | Identification | Classification | Contents |
|----------------------------|---|--|----------|
| Ammonia ...% | CAS no.: 1336-21-6 EC no.: 215-647-6 Index no.: 007-001-01-2 | C; R34 N; R50 Skin Corr. 1B; H314 Aquatic Acute 1; H400 Note : B | 24,9 % |
| Column headings | CAS no. = Chemical Abstracts Service; EU (Einecs or Elincs number) = European inventory of Existing Commercial Chemical Substances; Ingredient name = Name as specified in the substance list (substances that are not included in the substance list must be translated, if possible). Contents given in; %, %wt/wt, %vol/wt, %vol/vol, mg/m3, ppb, ppm, weight%, vol% | | |
| HH/HF/HE | T+ = Very toxic, T = Toxic, C = Corrosive, Xn = Harmful, Xi = Irritating, E = Explosive, O = Oxidizing, F+ = Extremely flammable, F = Very flammable, N = Environmental hazard | | |
| Description of the mixture | Substance specific concentration limit - self classification for main constituent: Ammonia solution > 25% should be classified Aquatic Acute 1; H400. Our solution contains ≤ 24.9% and is therefore not classified Aquatic Acute 1; H400. | | |

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|--------------|--|
| Inhalation | Move the exposed person to fresh air at once. If respiratory problems, artificial respiration/oxygen. Get medical attention if any discomfort continues. |
| Skin contact | Remove contaminated clothes and rinse skin thoroughly with water. Get medical attention immediately! |
| Eye contact | Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. To hospital or eye specialist. |
| Ingestion | NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Do NOT induce vomiting. Rinse mouth with water. Get medical attention immediately! |

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

Information for health personnel Treat Symptomatically. Do not give victim anything to drink if he is unconscious.

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

Specific details on antidotes No recommendation given.

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

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Improper extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards FLAMMABLE. Vapours are heavier than air and may spread near ground to sources of ignition. Solvent vapours may form explosive mixtures with air.

Hazardous combustion products Fire creates: Carbon monoxide (CO). Carbon dioxide (CO₂).

5.3. Advice for firefighters

Fire fighting procedures No specific fire fighting procedure given.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Personal protection measures Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area. Ventilate well. Stop leak if possible without risk. Avoid contact with skin and eyes. Do not breathe vapour. For personal protection, see section 8.

6.2. Environmental precautions

Environmental precautionary measures Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Cleaning method Dam and absorb spillages with sand, earth or other non-combustible material. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

6.4. Reference to other sections

Other instructions Information regarding exposure / personal protection and disposal, see section 8 and 13.

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

Handling Keep away from heat, sparks and open flame. Take precautionary measures against static discharges. Mechanical ventilation may be required.

Protective Safety Measures

Advice on general occupational hygiene Provide easy access to water supply and eye wash facilities.

7.2. Conditions for safe storage, including any incompatibilities

Storage Keep away from heat, sparks and open flame. Ground container and transfer equipment to eliminate static electric sparks. Store in a cool and well-ventilated place.

7.3. Specific end use(s)

Specific use(s) Not entered.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Other Information about threshold limit values

Ammoniak (CAS-nr: 7664-41-7):
 Nivågränsvärde (NGV): 20 ppm, 14 mg/m³
 Takgränsvärde (TGV): 50 ppm, 35 mg/m³
 Källa: AFS 2011-18 - Hygieniska gränsvärden
 DNEL / PNEC values represent ammonia, the major component of this mixture.

DNEL / PNEC

| Method of testing | Contents |
|-------------------|---|
| DNEL | Group: Worker Exposure route: Inhalation Exposure frequency: Short term (acute) Type of effect: Systemic effect Value: 47,6 mg/m ³ |
| DNEL | Group: Consumer Exposure route: Inhalation Exposure frequency: Short term (acute) Type of effect: Systemic effect Value: 23,8 mg/m ³ |
| DNEL | Group: Consumer Exposure route: Inhalation Exposure frequency: Long term (repeated) Type of effect: Local effect Value: 2,8 mg/m ³ |
| DNEL | Group: Consumer Exposure route: Inhalation Exposure frequency: Long term (repeated) Type of effect: Systemic effect Value: 23,8 mg/m ³ |
| DNEL | Group: Consumer Exposure route: Oral Exposure frequency: Short term (acute) Type of effect: Systemic effect Value: 6,8 mg/kg |
| DNEL | Group: Consumer Exposure route: Oral Exposure frequency: Long term (repeated) Type of effect: Systemic effect Value: 6,8 mg/kg |
| DNEL | Group: Worker Exposure route: Inhalation Exposure frequency: Short term (acute) Type of effect: Local effect Value: 36 mg/m ³ |
| DNEL | Group: Worker Exposure route: Dermal Exposure frequency: Short term (acute) Type of effect: Systemic effect Value: 68 mg/kg |
| DNEL | Group: Worker Exposure route: Dermal Exposure frequency: Long term (repeated) Type of effect: Systemic effect Value: 6,8 mg/kg |
| DNEL | Group: Consumer Exposure route: Dermal |

| | |
|------|---|
| | Exposure frequency: Short term (acute) Type of effect: Systemic effect Value: 68 mg/kg |
| DNEL | Group: Consumer Exposure route: Dermal Exposure frequency: Long term (repeated) Type of effect: Systemic effect Value: 68 mg/kg |
| DNEL | Group: Worker Exposure route: Inhalation Exposure frequency: Long term (repeated) Type of effect: Local effect Value: 14 mg/m ³ |
| DNEL | Group: Worker Exposure route: Inhalation Exposure frequency: Long term (repeated) Type of effect: Systemic effect Value: 47,6 mg/m ³ |
| DNEL | Group: Consumer Exposure route: Inhalation Exposure frequency: Short term (acute) Type of effect: Local effect Value: 7,2 mg/m ³ |
| PNEC | Exposure route: Water Value: 0,0011 mg/l Remarks: marine water |
| PNEC | Exposure route: Water Value: 0,0011 mg/l Remarks: fresh water |
| PNEC | Exposure route: Water Value: 0,0068 mg/l Remarks: Tillfälliga utsläpp (intermittent releases) |

8.2. Exposure controls

Occupational exposure limits

Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours. Protective gloves and goggles are recommended. Provide eyewash, quick drench.

Safety signs



Respiratory protection

Respiratory protection

Respiratory protection must be used if air contamination exceeds acceptable level. Use respiratory equipment with gas filter, type K.

Hand protection

Hand protection

Use protective gloves. Chemical resistant gloves required for prolonged or repeated contact. Gloves of nitrile rubber, PVA or Viton are recommended.

Eye / face protection

Eye protection

Use safety goggles or face shield in case of splash risk.

Skin protection

Skin protection (except hands)

Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene / Environmental

Specific hygiene measures

Wash hands after contact.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|---|
| Physical state | Fluid. |
| Colour | Colourless. |
| Odour | Ammonia. Slightly pungent odour. |
| Comments, pH (as supplied) | Basisk. (Alkaline.) |
| Comments, Melting point / melting range | Not known. |
| Boiling point / boiling range | Value: 38 °C |
| Comments, Flash point | Ej tillämpligt. (Not applicable.) |
| Explosion limit | Value: 15-28 % |
| Vapour pressure | Value: 48 kPa Test temperature: 20 °C |
| Vapour density | Value: 2,55 |
| Specific gravity | Value: 907 kg/m ³ Test temperature: 20 °C |
| Solubility in water | Löslig i vatten. (Soluble in water). |
| Partition coefficient: n-octanol/water | Value: -1,14 |
| Spontaneous combustability | Value: 650 °C |
| Viscosity | Value: 3,102 mPas Test temperature: 20 °C |

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

| | |
|------------|---|
| Reactivity | In reaction with certain substances (see Section 10.3) a risk of explosion occurs. Evaporate at room temperature. The gas is chemically active. |
|------------|---|

10.2. Chemical stability

| | |
|-----------|---|
| Stability | Stable under the prescribed storage conditions. The solution, however, is a perishable where the concentration of ammonia decreases over time as ammonia gas departs. |
|-----------|---|

10.3. Possibility of hazardous reactions

| | |
|------------------------------------|--|
| Possibility of hazardous reactions | Solvent vapors may form unstable or explosive compounds with: acetaldehyde, chlorosilicane, ethylene oxide, fluorine, hydrogen bromide, hypochlorites, iodine, nitric acid, nitrozil chloride, phosphorus, hydrogen phosphate picric acid, arsenic hydrogen, antimony hydride, sodium, sulphuric oxide, silver, Mercury, lead. Can react violently if in Contact with strong acids or nitrogen oxides. |
|------------------------------------|--|

10.4. Conditions to avoid

| | |
|---------------------|---|
| Conditions to avoid | Avoid heat, flames and other sources of ignition. |
|---------------------|---|

10.5. Incompatible materials

| | |
|--------------------|---|
| Materials to avoid | Avoid contact with oxidising agents (e.g. nitric acid, peroxides and chromates). Strong acids. Will corrode copper, zinc, aluminium and their alloys. |
|--------------------|---|

10.6. Hazardous decomposition products

| | |
|----------------------------------|---|
| Hazardous decomposition products | Fire creates: Nitrous gases (NO _x). |
|----------------------------------|---|

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological Information:

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|--------------------------|--|
| Other toxicological data | Acute Toxicity (Oral LD50): mg/kg (oral rat) 350 |
|--------------------------|--|

Acute Toxicity (Inhalation LC50): Rat 10 min 28130 mg/m³
 Acute Toxicity (Inhalation LC50): Rat 60 min 13770 mg/m³

Potential acute effects

| | |
|--------------|---|
| Inhalation | Gas or vapour may irritate respiratory system. High concentrations may cause severe lung damage. Icke klassificerad som aspirationstoxisk (Not classified as asp. tox.) |
| Skin contact | Corrosive. Prolonged contact causes serious tissue damage. |
| Eye contact | Strongly corrosive. Causes severe burns and serious eye damage. Immediate first aid is imperative. |
| Ingestion | Highly Corrosive. May cause burns in mucous membranes, throat, oesophagus and stomach. |

Delayed effects / repeated exposure

| | |
|-----------------|------------|
| Sensitisation | Not known. |
| Chronic effects | Not known. |

Carcinogenic, Mutagenic or Reprotoxic

| | |
|------------------------|------------|
| Carcinogenicity | Not known. |
| Mutagenicity | Not known. |
| Teratogenic properties | Not known. |
| Reproductive toxicity | Not known. |

SECTION 12: Ecological information

12.1. Toxicity

| | |
|---|--|
| Acute aquatic, fish | Value: 0,89 mg/l Method of testing: LC50 Fish, species: Onchorynchus mykiss Duration: 96h |
| Acute aquatic, algae | Value: 7200 mg/l Method of testing: EC50 Algae, species: Chlorella vulgaris Duration: 18 d Test reference: Freshwater, static |
| Acute aquatic, Daphnia | Value: 101 mg/l Method of testing: EC50 Daphnia, species: Daphnia magna Duration: 48h Test reference: Freshwater static, equivalent to ASTM E729-80. |
| Other ecotoxicological information, fish | Chronic fish toxicity, Onchorynchus mykiss, 73 d, LOEC: 0,022 mg/l |
| Other ecotoxicological information, crustaceans | Chronic daphnia toxicity, Daphnia magna, 96 h, NOEC: 0,79 mg/l. Freshwater flow-through equivalent or similar to EPA OPPTS 850.1300 (Daphnid Chronic Toxicity Test) |

12.2. Persistence and degradability

| | |
|-----------------------|--|
| Degradation half life | Lätt biologiskt nedbrytbar. (Readily biodegradable.) |
|-----------------------|--|

12.3. Bioaccumulative potential

| | |
|---------------------------|--------------------------|
| Bioaccumulative potential | Will not bio-accumulate. |
|---------------------------|--------------------------|

12.4. Mobility in soil

| | |
|----------|---|
| Mobility | The product is water soluble and may spread in water systems. |
|----------|---|

12.5. Results of PBT and vPvB assessment

| | |
|------------------------|--|
| PBT assessment results | This substance is not classified as PBT or vPvB. |
|------------------------|--|

12.6. Other adverse effects

| | |
|---------------------------------|-------------|
| Other adverse effects / Remarks | None known. |
|---------------------------------|-------------|

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|---|--|
| Specify the appropriate methods of disposal | Confirm disposal procedures with environmental engineer and local regulations. Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point. |
| Product classified as hazardous waste | Yes |
| Packaging classified as hazardous waste | Yes |

SECTION 14: Transport information

14.1. UN number

| | |
|-----------|------|
| ADR | 2672 |
| RID | 2672 |
| IMDG | 2672 |
| ICAO/IATA | 2672 |

14.2. UN proper shipping name

| | |
|-----------|------------------|
| ADR | AMMONIA SOLUTION |
| RID | AMMONIA SOLUTION |
| IMDG | AMMONIA SOLUTION |
| ICAO/IATA | AMMONIA SOLUTION |

14.3. Transport hazard class(es)

| | |
|------------|---------|
| ADR | 8 |
| Hazard no. | 80 |
| RID | 8 |
| ADN | 33 |
| IMDG | 8 |
| ICAO/IATA | 8 |
| Comment | 3 (D/E) |

14.4. Packing group

| | |
|-----------|-----|
| ADR | III |
| RID | III |
| IMDG | III |
| ICAO/IATA | III |

14.5. Environmental hazards

| | |
|---------|---------------|
| Comment | Not relevant. |
|---------|---------------|

14.6. Special precautions for user

| | |
|-----|----------|
| EmS | F-A, S-B |
|-----|----------|

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

SECTION 15: Regulatory information

| | |
|--------|-----------|
| EC no. | 215-647-6 |
|--------|-----------|

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

| | |
|-----------------------------|---|
| Other Label Information | 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, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments. |
| Legislation and regulations | Dangerous Substance Directive 67/548/EEC. The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (S.I 2009 No. 716). |

The List of Wastes (England) (Amendment) Regulations 2005. (SI 2005 No. 895). Avfallsförordningen (2011:927).

15.2. Chemical safety assessment

SECTION 16: Other information

Hazard symbol



Corrosive

R-phrases

S-phrases

Classification according to
Regulation (EC) No 1272/2008
[CLP/GHS]

List of relevant R-phrases (under
headings 2 and 3).

List of relevant H-phrases (Section
2 and 3).

Responsible for safety data sheet

R34 Causes burns.

S2 Keep out of the reach of children.

S7 Keep container tightly closed.

S9 Keep container in a well-ventilated place.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S46 If swallowed, seek medical advice immediately and show this container or label.

Skin Corr 1B; H314;

STOT SE3; H335;

R34 Causes burns.

R50 Very toxic to aquatic organisms.

H400 Very toxic to aquatic life.

H335 May cause respiratory irritation.

H314 Causes severe skin burns and eye damage.

Fred Holmberg & Co AB