

Safety Data Sheet
 acc. to OSHA HCS

Page 1/10

Printing date 04/20/2018
 Reviewed on 04/20/2018
 Version number: 6

1 Identification

- **Product identifier**
- **Trade name:** Ammonia - Solution 25 %
- **Article number:** 161129
- **Application of the substance / the mixture** Laboratory chemical
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 AppliChem GmbH
 Ottoweg 4
 D-64291 Darmstadt
- **Information department:** Dept. Compliance
- **Emergency telephone number:** +49(0)6151 93570 (Inside normal business hours)

Tel.: +49 (0)6151 93570
 Fax.: +49 (0)6151 935711
 msds@applichem.com

2 Hazard(s) identification

- **Classification of the substance or mixture**
 Skin Corr. 1B H314 Causes severe skin burns and eye damage.
 Eye Dam. 1 H318 Causes serious eye damage.
 STOT SE 3 H335 May cause respiratory irritation.
- **Label elements**
- **GHS label elements**
 The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05 GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**
 ammonia
- **Hazard statements**
 H314 Causes severe skin burns and eye damage.
 H335 May cause respiratory irritation.
- **Precautionary statements**
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P312 Call a poison center/doctor if you feel unwell.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 3
 Fire = 0
 Reactivity = 0

(Contd. on page 2)

Trade name: Ammonia - Solution 25 %

(Contd. of page 1)

• **HMIS-ratings (scale 0 - 4)**

HEALTH	3	Health = 3
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** aqueous solution

• **Dangerous components:**

1336-21-6	ammonia	>25-≤40%
-----------	---------	----------

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Personal protection for the First Aider.
Immediately remove any clothing soiled by the product.
Involve doctor immediately.
- **After inhalation:**
Supply fresh air.
In case of unconsciousness place patient stably in side position for transportation.
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
Call a doctor immediately.
- **After skin contact:**
Call a doctor immediately.
Immediately remove any clothing soiled by the product.
Dab with polyethylene glycol 400.
Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. Then consult a doctor.
Call a doctor immediately.
- **After swallowing:**
make victim drink water (maximum of 2 drinking glasses)
Do not attempt to neutralize.
Call a doctor immediately.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
Development of hazardous combustion gases or vapours possible in the event of fire.
In case of fire, the following can be released:

(Contd. on page 3)

Trade name: Ammonia - Solution 25 %

(Contd. of page 2)

Ammonia

Forms explosive mixtures with air on intense heating.

Nitrogen oxides (NOx)

Non-combustible.

• **Advice for firefighters**

• **Protective equipment:**

Do not inhale explosion gases or combustion gases.

Wear self-contained respiratory protective device.

• **Additional information**

Cool endangered receptacles with water spray.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Contain escaping vapours with water.

6 Accidental release measures

• **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Avoid substance contact.

• **Environmental precautions:**

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow to enter sewers/ surface or ground water.

• **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Clean up affected area.

• **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

• **Protective Action Criteria for Chemicals**

• **PAC-1:**

1336-21-6	ammonia	61 ppm
-----------	---------	--------

• **PAC-2:**

1336-21-6	ammonia	330 ppm
-----------	---------	---------

• **PAC-3:**

1336-21-6	ammonia	2,300 ppm
-----------	---------	-----------

7 Handling and storage

• **Handling:**

• **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

When diluting, always stir the product into standing water, not water to product.

• **Information about protection against explosions and fires:** The product is not flammable.

• **Conditions for safe storage, including any incompatibilities**

• **Storage:**

• **Requirements to be met by storerooms and receptacles:**

Provide alkali-resistant floor.

Prevent any seepage into the ground.

• **Information about storage in one common storage facility:**

Do not store together with acids.

Store away from metals.

Store away from oxidizing agents.

(Contd. on page 4)

Trade name: Ammonia - Solution 25 %

(Contd. of page 3)

- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Open receptacle only under localized extractor facilities.
Store under lock and key and with access restricted to technical experts or their assistants only.
- **Recommended storage temperature:** +15 - +25°C
- **Storage class:** 8 B
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
Filter K
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact gloves made of the following materials are suitable:**
Butyl rubber, BR
Recommended thickness of the material: ≥ 0.7 mm
Value for the permeation: Level ≥ 480 min
- **As protection from splashes gloves made of the following materials are suitable:**
Recommended thickness of the material: ≥ 0.4 mm
Butyl rubber, BR
Value for the permeation: Level ≥ 240 min
- **Eye protection:**



Tightly sealed goggles

(Contd. on page 5)

Trade name: Ammonia - Solution 25 %

(Contd. of page 4)

- **Body protection:**
Use protective suit.
Alkaline resistant protective clothing
Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Fluid
Color:	Colorless
· Odor:	Ammonia-like
· Odor threshold:	Not determined.

· pH-value at 20 °C (68 °F): >12

· Change in condition

Melting point/Melting range:	-91.5 °C (-132.7 °F)
Boiling point/Boiling range:	Undetermined.

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 651 °C (1,203.8 °F)

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower:	15 Vol %
Upper:	28 Vol %

· Vapor pressure at 20 °C (68 °F): 483 hPa (362.3 mm Hg)

· Density at 20 °C (68 °F): ~0.903 g/cm³ (~7.536 lbs/gal)

· Relative density: Not determined.

· Vapor density: Not determined.

· Evaporation rate: Not determined.

· Solubility in / Miscibility with

Water: Fully miscible.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined.

· Solvent content:

Water:	68.0 %
VOC content:	0.00 %
	~0.0 g/l / ~0.00 lb/gl

Solids content: 0.0 %

· Other information: No further relevant information available.

—US—

(Contd. on page 6)

Trade name: Ammonia - Solution 25 %

(Contd. of page 5)

10 Stability and reactivity

- **Reactivity**
Reacts with acids.
Reacts with oxidizing agents.
Reacts with alkali (lyes).
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** Strong heating
- **Possibility of hazardous reactions**
Can form explosive vapor-air mixture if stored in large receptacles at temperatures > 35°C.
acids
alkalis
oxidizing agent
Corrosive action on metals.
- **Conditions to avoid** Reacts with impurities.
- **Incompatible materials:**
nitrates, nitrites, peroxi compounds, strong oxidizing agents
halogen-halogen compounds
acids
metals
silver
mercury
- **Hazardous decomposition products:** In the event of fire: See chapter 5

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- **Carcinogenic categories**

• IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

• NTP (National Toxicology Program)

None of the ingredients is listed.

• OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** The product is not easily biodegradable.

(Contd. on page 7)

US

Trade name: Ammonia - Solution 25 %


(Contd. of page 6)

- **Behavior in environmental systems:**
- **Bioaccumulative potential**
Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.
- **Mobility in soil** No further relevant information available.
- **Ecotoxical effects:**
- **Remark:** Very toxic for fish
- **Additional ecological information:**
- **General notes:**
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms
Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

* 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Chemicals must be disposed of in compliance with the respective national regulations.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.
Packagings that cannot be cleansed are to be disposed of in the same manner as the product.

* 14 Transport information

- | | |
|---|---|
| • UN-Number | UN2672 |
| • DOT, ADR, IMDG, IATA | |
| • UN proper shipping name | Ammonia solution |
| • DOT | Ammonia solution, ENVIRONMENTALLY HAZARDOUS |
| • ADR | AMMONIA SOLUTION, MARINE POLLUTANT |
| • IMDG | AMMONIA SOLUTION |
| • IATA | |
| • Transport hazard class(es) | |
| • DOT | |
|  | |
| • Class | 8 Corrosive substances |

(Contd. on page 8)

Trade name: Ammonia - Solution 25 %

(Contd. of page 7)

· **Label** 8

· **ADR**



· **Class** 8 (C5) Corrosive substances

· **Label** 8

· **IMDG**



· **Class** 8 Corrosive substances

· **Label** 8

· **IATA**



· **Class** 8 Corrosive substances

· **Label** 8

· **Packing group**

· **DOT, ADR, IMDG, IATA** III

· **Environmental hazards:** Product contains environmentally hazardous substances: ammonia

· **Marine pollutant:** No

· **Special marking (ADR):** Symbol (fish and tree)

Symbol (fish and tree)

· **Special precautions for user** Warning: Corrosive substances

· **Danger code (Kemler):** 80

· **EMS Number:** F-A,S-B

· **Segregation groups** Alkalis

· **Stowage Category** A

· **Stowage Code** SW2 Clear of living quarters.
SW3 Shall be transported under temperature control.

· **Segregation Code** SG35 Stow "separated from" acids.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **ADR**

· **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

· **IMDG**

· **Limited quantities (LQ)** 5L

· **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

(Contd. on page 9)

Trade name: Ammonia - Solution 25 %

(Contd. of page 8)

- | | |
|--------------------------|--|
| · UN "Model Regulation": | UN 2672 AMMONIA SOLUTION, 8, III,
ENVIRONMENTALLY HAZARDOUS |
|--------------------------|--|

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

1336-21-6 ammonia

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



GHS05 GHS07

· Signal word Danger

· Hazard-determining components of labeling:

ammonia

· Hazard statements

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

· Precautionary statements

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

(Contd. on page 10)

Trade name: Ammonia - Solution 25 %

(Contd. of page 9)

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 Call a poison center/doctor if you feel unwell.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Dept. Compliance
- **Date of preparation / last revision** 04/20/2018 / 5

- **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

- *** Data compared to the previous version altered.**

US