Ammonia solution 25%

Safety Data Sheet

according to Regulation (EU) 2015/830

Date of issue: 11/12/2016

Doc No:SDS-903.016/0

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

1.1. Product identifier

Product form : Substance

Substance name : Ammonia solution 25%

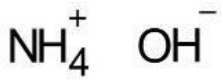
EC no : 215-647-6

CAS No : 1336-21-6

Type of product : Solution

Formula : NH4OH

Chemical structure :



Synonyms : alkaline air, conc=25% / ammonia, aqua conc=25% / ammonia, aqueous solution / / ammonia, in aqueous solution, conc=25% / ammoniawater, conc=25% / ammoniawater, stronger, conc=25% / ammonium hydrate, conc=25%

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Industrial use
Fertilizer
Laboratory chemical
Paper production: auxiliary substance

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

ISOLAB GmbH
Bahnhofstrasse 10, D-97877
Wertheim - Germany
T +49 93 42 912 355 - F +49 93 42 912 357
prodsafe@isolab.de

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Germany	Giftnotruf der Charité CBF, Haus VIII (Wirtschaftgebäude), UG	Hindenburgdamm 30 12203 Berlin	+49 (0) 30 19240	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Met. Corr. 1	H290
Skin corrosion/irritation, Category 1B	H314
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335
Hazardous to the aquatic environment — Acute Hazard, Category 1	H400

Full text of hazard classes and H-statements : see section 16

Specific concentration limits:

(C >= 5) STOT SE 3, H335

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS05 GHS07 GHS09

Signal word (CLP) : Danger

Hazard statements (CLP) : H290 – May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life

Precautionary statements (CLP) : P280 - Wear protective gloves, eye protection, face protection, protective clothing
P273 - Avoid release to the environment
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P391 - Collect spillage

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%
Ammonium hydroxide, aqueous solution, conc=25%	(CAS No) 1336-21-6 (EC no) 215-647-6 (EC index no) 007-001-01-2	99 - 100

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Take victim to an ophthalmologist. Do not apply neutralizing agents.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Call Poison Information Centre (www.big.be/antigif.htm). Immediately consult a doctor/medical service. Take the container/vomit to the doctor/hospital. Ingestion of large quantities: immediately to hospital. Doctor: gastric lavage.

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

Symptoms/injuries after inhalation : Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Nausea. Headache. EXPOSURE TO HIGH CONCENTRATIONS: Possible oedema of the upper respiratory tract. Possible inflammation of the respiratory tract. Possible laryngeal spasm/oedema. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung oedema. Risk of pneumonia. Respiratory difficulties. Possible esophageal perforation.

Symptoms/injuries after skin contact	:	Caustic burns/corrosion of the skin.
Symptoms/injuries after eye contact	:	Corrosion of the eye tissue. Permanent eye damage.
Symptoms/injuries after ingestion	:	Risk of aspiration pneumonia. Vomiting. Nausea. AFTER ABSORPTION OF HIGH QUANTITIES: Blue/grey discolouration of the skin. Blood in stool. Blood in vomit. Possible esophageal perforation. FOLLOWING SYMPTOMS MAY APPEAR LATER: Shock.
Chronic symptoms	:	ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Coughing. Irritation of the respiratory tract. Irritation of the eye tissue. Redness of the eye tissue. Possible inflammation of the respiratory tract. Respiratory difficulties. Affection of the nasal septum.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Water. Water spray. Polyvalent foam. BC powder.
Unsuitable extinguishing media	:	No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	DIRECT FIRE HAZARD. Non-flammable.
Explosion hazard	:	INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

5.3. Advice for firefighters

Firefighting instructions	:	Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	:	Gas-tight suit. Corrosion-proof suit. See "Material-Handling" to select protective clothing.
Emergency procedures	:	Keep upwind. Mark the danger area. Consider evacuation. Close doors and windows of adjacent premises. No naked flames. Keep containers closed. Wash contaminated clothes.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment	:	Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Dilute toxic gases/vapours with water spray. Take account of toxic/corrosive precipitation water.
Methods for cleaning up	:	Take up liquid spill into absorbent material, e.g.: sand/earth or powdered limestone. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep away from naked flames/heat. Observe strict hygiene. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Exhaust gas must be neutralised.

7.2. Conditions for safe storage, including any incompatibilities

Storage temperature	:	< 25 °C
Heat and ignition sources	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. (strong) bases. metals. halogens.

Storage area	:	Keep container in a well-ventilated place. Keep locked up. Provide for a tub to collect spills. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	:	SUITABLE MATERIAL: synthetic material. glass. MATERIAL TO AVOID: aluminium. copper. tin. zinc. nickel. bronze.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonium hydroxide, aqueous solution, conc=25% (1336-21-6)		
Finland	Local name	Ammoniakkiliuos
Finland	HTP-arvo (8h) (mg/m³)	14 mg/m³
Finland	HTP-arvo (8h) (ppm)	20 ppm
Finland	HTP-arvo (15 min)	36 mg/m³
Finland	HTP-arvo (15 min) (ppm)	50 ppm

8.2. Exposure controls

Materials for protective clothing:

GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: butyl rubber. nitrile rubber. tetrafluoroethylene. viton. GIVE LESS RESISTANCE: polyethylene. PVA. PVC. GIVE POOR RESISTANCE: No data available

Hand protection:

Gloves

Eye protection:

Safety glasses

Skin and body protection:

Head/neck protection. Corrosion-proof clothing

Respiratory protection:

Gas mask with filter type K. High vapour/gas concentration: self-contained respirator

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Liquid.
Molecular mass	:	35.05 g/mol
Colour	:	Colourless.
Odour	:	Irritating/pungent odour.
Odour threshold	:	1 - 50 ppm
pH	:	11.7 (1%)
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	-57.5 °C
Freezing point	:	No data available
Boiling point	:	37.7 °C (1013 hPa)
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	483 hPa (20 °C)
Relative vapour density at 20 °C	:	No data available
Relative density	:	0.9
Solubility	:	Water: Complete

Log Pow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	15.4 - 33.6 %(V)

9.2. Other information

Minimum ignition energy	:	Not applicable
VOC content	:	No data available
Other properties	:	Volatile. Substance has basic reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

On heating: release of toxic/corrosive/combustible gases/vapours (ammonia). On burning: release of toxic and corrosive gases/vapours (nitrous vapours). Concentrated solution violent to explosive reaction with many compounds e.g.: with (some) halogens compounds, with (strong) oxidizers and with (some) acids. May be corrosive to metals.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	Not classified
Skin corrosion/irritation	:	Causes severe skin burns and eye damage. pH: 11.7
Serious eye damage/irritation	:	Serious eye damage, category 1, implicit pH: 11.7
Respiratory or skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	May cause respiratory irritation.
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	Dangerous for the environment.
Ecology - air	:	Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EC) No 842/2006).
Ecology - water	:	Affects the self-cleaning capacity of surface water. Ground water pollutant. Maximum concentration in drinking water: 0.50 mg/l (ammonium) (Directive 98/83/EC). Highly toxic to fishes. Toxic to invertebrates (Daphnia). May cause eutrophication. Highly toxic to plankton. pH shift. Inhibition of activated sludge.

12.2. Persistence and degradability

Ammonium hydroxide, aqueous solution, conc=25% (1336-21-6)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. No (test)data on mobility of the components available. Ozonation in the air.

12.3. Bioaccumulative potential

Ammonium hydroxide, aqueous solution, conc=25% (1336-21-6)	
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

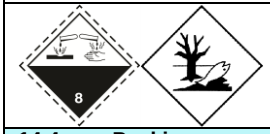
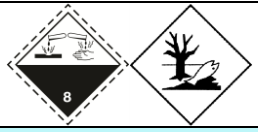
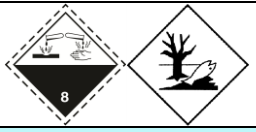
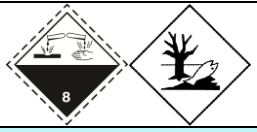
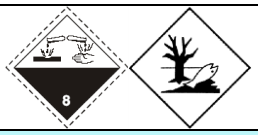
Product/Packaging disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an authorized plant for the destruction, neutralization and elimination of hazardous waste. Recycle/reuse. Remove for physico-chemical/biological treatment. Use appropriate containment to avoid environmental contamination.

Additional information : LWCA (the Netherlands): KGA category 02. Hazardous waste according to Directive 2008/98/EC.

European List of Waste (LoW) code : 06 02 03* - ammonium hydroxide

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
2672	2672	2672	2672	2672
14.2. UN proper shipping name				
AMMONIA SOLUTION (CONTAINS ; Ammonium hydroxide, aqueous solution, conc=25%)	AMMONIA SOLUTION (CONTAINS ; Ammonium hydroxide, aqueous solution, conc=25%)	Ammonia solution (CONTAINS ; Ammonium hydroxide, aqueous solution, conc=25%)	AMMONIA SOLUTION (CONTAINS ; Ammonium hydroxide, aqueous solution, conc=25%)	AMMONIA SOLUTION (CONTAINS ; Ammonium hydroxide, aqueous solution, conc=25%)
Transport document description				
UN 2672 AMMONIA SOLUTION (CONTAINS ; Ammonium hydroxide, aqueous solution, conc=25%), 8, III, (E), ENVIRONMENTALLY HAZARDOUS	UN 2672 AMMONIA SOLUTION (CONTAINS ; Ammonium hydroxide, aqueous solution, conc=25%), 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 2672 Ammonia solution (CONTAINS ; Ammonium hydroxide, aqueous solution, conc=25%), 8, III, ENVIRONMENTALLY HAZARDOUS	UN 2672 AMMONIA SOLUTION (CONTAINS ; Ammonium hydroxide, aqueous solution, conc=25%), 8, III, ENVIRONMENTALLY HAZARDOUS	UN 2672 AMMONIA SOLUTION (CONTAINS ; Ammonium hydroxide, aqueous solution, conc=25%), 8, III, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes
No supplementary information available				

14.6. Special precautions for user

- Overland transport

Classification code (ADR)	:	C5
Special provisions (ADR)	:	543
Limited quantities (ADR)	:	5l
Excepted quantities (ADR)	:	E1
Packing instructions (ADR)	:	P001, IBC03, LP01, R001
Special packing provisions (ADR)	:	B4
Mixed packing provisions (ADR)	:	MP19
Portable tank and bulk container instructions (ADR)	:	T7
Portable tank and bulk container special provisions (ADR)	:	TP1
Tank code (ADR)	:	L4BN
Vehicle for tank carriage	:	AT
Transport category (ADR)	:	3
Special provisions for carriage - Packages (ADR)	:	V12
Hazard identification number (Kemler No.)	:	80
Orange plates	:	
Tunnel restriction code (ADR)	:	E
EAC code	:	2R

- Transport by sea

Transport regulations (IMDG)	:	Subject
Limited quantities (IMDG)	:	5 L
Excepted quantities (IMDG)	:	E1
Packing instructions (IMDG)	:	P001, LP01
IBC packing instructions (IMDG)	:	IBC03
IBC special provisions (IMDG)	:	B11
Tank instructions (IMDG)	:	T7
Tank special provisions (IMDG)	:	TP1
EmS-No. (Fire)	:	F-A
EmS-No. (Spillage)	:	S-B
Stowage category (IMDG)	:	A
Stowage and handling (IMDG)	:	SW2, SW5
Segregation (IMDG)	:	SG35
Properties and observations (IMDG)	:	Colourless liquid with a pungent odour.Corrosive to copper, nickel, zinc and tin and their alloys such as brass. Not significantly corrosive to iron and steel. Reacts violently with acids. Liquid and vapour cause burns to skin, eyes and mucous membranes.
MFAG-No	:	154

- Air transport

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

- Inland waterway transport

Classification code (ADN)	:	C5
Special provisions (ADN)	:	543
Limited quantities (ADN)	:	5 L
Excepted quantities (ADN)	:	E1
Carriage permitted (ADN)	:	T
Equipment required (ADN)	:	PP, EP
Number of blue cones/lights (ADN)	:	0

- Rail transport

Transport regulations (RID)	:	Subject
Classification code (RID)	:	C5
Special provisions (RID)	:	543
Limited quantities (RID)	:	5L
Excepted quantities (RID)	:	E1
Packing instructions (RID)	:	P001, IBC03, LP01, R001
Mixed packing provisions (RID)	:	MP19
Portable tank and bulk container instructions (RID)	:	T7
Portable tank and bulk container special provisions (RID)	:	TP1
Tank codes for RID tanks (RID)	:	L4BN
Transport category (RID)	:	3
Special provisions for carriage – Packages (RID)	:	W12
Colis express (express parcels) (RID)	:	CE8
Hazard identification number (RID)	:	80

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Ammonium hydroxide, aqueous solution, conc=25% is not on the REACH Candidate List

Ammonium hydroxide, aqueous solution, conc=25% is not on the REACH Annex XIV List

VOC content : No data available

15.1.2. National regulations

Germany

VwVwS Annex reference	:	Water hazard class (WGK) 2, hazard to waters (Classification according to VwVwS, Annex 1 or 2; ID No. 211)
WGK remark	:	Classification water polluting based on the components in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 4)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV	:	Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

Waterbezwaarlijkheid	:	5 - Very toxic to aquatic organisms
SZW-lijst van kankerverwekkende stoffen	:	The substance is not listed
SZW-lijst van mutagene stoffen	:	The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding	:	The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid	:	The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
EC50	Median effective concentration
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
PBT	Persistent Bioaccumulative Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative

Data sources : 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.

Full text of H- and EUH-statements:	
Met. Corr. 1	Corrosive to metals, Category 1
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H290	May be corrosive to metals

SDS ISOLAB

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product