

Ammonia Solution

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
SDS Ref.: Periodic review of SDS 12/14/2021
Date of issue: 2/18/2014 Revision date: 12/14/2018 Supersedes: 7/17/2015 Version: 2.0

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

1.1. Product identifier

Product name : Ammonia Solution
EC Index-No. : 007-001-01-2
EC-No. : 215-647-6
CAS-No. : 1336-21-6
Type of product : Alkali, Solution
Formula : NH_4OH
Synonyms : Ammonia liquor, Ammonium hydroxide, Aqueous ammonia,

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

1.2.1. Relevant identified uses

Industrial/Professional use spec : Industrial
For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Wessex Chemical Factors Ltd
9 Crane Way, Woolsbridge Industrial Park,
Three Legged Cross, Wimborne, Dorset
BH21 6FA - United Kingdom
T +44 (0) 1202 823 699 - F +44 (0) 1202 813 863
www.wessexchemicalfactors.co.uk
E-mail address of competent person responsible for the SDS : info@wessexchemicalfactors.co.uk

1.4. Emergency telephone number

Emergency number : +44 (0) 1202 823 699 (Office hours only 9am - 5pm Monday - Thursday, 9am - 4pm Friday.)
+44 (0) 7973629367 (Out of hours emergency number)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin corrosion/irritation, Category 1B H314
Specific target organ toxicity — Single exposure, Category 3, H335
Respiratory tract irritation
Hazardous to the aquatic environment — Acute Hazard, Category 1 H400
Full text of H statements : see section 16

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) :



Signal word (CLP) : Danger
Hazardous ingredients : ammonia%
Hazard statements (CLP) : H314 - Causes severe skin burns and eye damage.
H335 - May cause respiratory irritation.
H400 - Very toxic to aquatic life.

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Precautionary statements (CLP)	: P260 - Do not breathe vapours. P264 - Wash hands thoroughly after handling. P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment. P280 - Wear eye protection, protective gloves. P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. 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. P310 - Immediately call a doctor. P312 - Call a doctor if you feel unwell. P321 - Specific treatment (see supplemental first aid instruction on this label). P391 - Collect spillage. P403+P233 - Store in a well-ventilated place. Keep container tightly closed. P405 - Store locked up. P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
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2.3. Other hazards

PBT: not relevant – no registration required

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
ammonia% (Note B)	(CAS-No.) 1336-21-6 (EC-No.) 215-647-6 (EC Index-No.) 007-001-01-2 (REACH-no) 01-2119488876-14	25 - 35	Skin Corr. 1B, H314 STOT SE 3, H335 Aquatic Acute 1, H400

Specific concentration limits:

Name	Product identifier	Specific concentration limits
ammonia%	(CAS-No.) 1336-21-6 (EC-No.) 215-647-6 (EC Index-No.) 007-001-01-2 (REACH-no) 01-2119488876-14	(C >= 5) STOT SE 3, H335

Note B : Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid ... %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: If breathing is difficult, trained personnel should give oxygen. Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. Call a POISON CENTER/doctor if you feel unwell.
First-aid measures after skin contact	: Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER/doctor.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
First-aid measures after ingestion	: If the person is fully conscious, make him/her drink warm water (1/2 litre). Never give an unconscious person anything to drink. Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.

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

Symptoms/effects	: Causes severe skin burns and eye damage.
Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: Clothes with high content of cotton.
Symptoms/effects after eye contact	: Causes burns.
Symptoms/effects after ingestion	: MAY BE FATAL IF SWALLOWED. Possible oesophageal perforation.

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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 : Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : While not normally combustible, if water content is lost (as in a fire), material may release flammable vapours if exposed to high temperature.
Hazardous decomposition products in case of fire : Toxic fumes may be released. Nitrogen oxides. ammonia.

5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Stop leak without risks if possible.
Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapour. Do not breathe vapours. Use only outdoors or in a well-ventilated area.
Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations.
Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Heat sources. Keep container tightly closed.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight.
Special rules on packaging : Keep only in original container. Store in a closed container.
Packaging materials : Materials to avoid aluminium, copper, tin, zinc, nickel.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonia Solution (1336-21-6)

DNEL/DMEL (Workers)

Acute - systemic effects, dermal	6.8 mg/kg bodyweight/day
Acute - systemic effects, inhalation	47.6 mg/m ³
Acute - local effects, inhalation	36 mg/m ³
Long-term - systemic effects, dermal	6.8 mg/kg bodyweight/day
Long-term - local effects, inhalation	14 mg/m ³

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Ammonia Solution (1336-21-6)

PNEC (Water)

PNEC aqua (freshwater)	0.0011 mg/l
PNEC aqua (marine water)	0.0011 mg/l

8.2. Exposure controls

Personal protective equipment:

Gloves. Protective goggles. Avoid all unnecessary exposure. EN 14387. Gas mask with filter type K.

Hand protection:

Wear protective gloves. Neoprene protective gloves. EN 374

Eye protection:

Chemical goggles or face shield. Standard EN 166 - Personal eye-protection.

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Wear appropriate mask

Personal protective equipment symbol(s):



Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear, colorless liquid.
Molecular mass	: 35.05 g/mol
Colour	: Colourless.
Odour	: Pungent.
Odour threshold	: No data available
pH	: No data available
pH solution	: > 13 concentrated solution
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: -94 °C at 33.5%
Boiling point	: 23 °C at 33.5%
Flash point	: No data available
Auto-ignition temperature	: 651 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: 0.6
Relative density	: No data available
Density	: 0.884 g/ml at 33.5%
Solubility	: soluble in water. Water: 571 g/l
Log Pow	: No data available
Log Kow	: -1.14
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No direct explosion hazard.

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Oxidising properties : No data available

Explosive limits : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapours.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions may occur on contact with certain chemicals. (Refer to the list of incompatible materials section 10: "Stability-Reactivity").

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Sodium hypochlorite. Copper. zinc. Reducing agents. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Thermal decomposition generates : Nitrogen oxides. Ammonia. fume. Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Oral: Not classified.

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

ammonia ...% (1336-21-6)

LD50 oral rat	350 mg/kg bodyweight
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LC50 inhalation rat (ppm)	2000 ppm/4h
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Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Serious eye damage, category 1, implicit

Respiratory or skin sensitisation : Not classified

Additional information : Based on available data, the classification criteria are not met

Germ cell mutagenicity : Not classified

Additional information : Based on available data, the classification criteria are not met

Carcinogenicity : Not classified

Additional information : Based on available data, the classification criteria are not met

Reproductive toxicity : Not classified

Additional information : Based on available data, the classification criteria are not met

STOT-single exposure : May cause respiratory irritation.

STOT-repeated exposure : Not classified

Additional information : Based on available data, the classification criteria are not met

Aspiration hazard : Not classified

Additional information : Based on available data, the classification criteria are not met

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life.

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Not classified

ammonia ...% (1336-21-6)

LC50 fish 1	0.53 mg/l Rainbow trout (Onchorynchus mykiss)
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EC50 Daphnia 1	0.66 mg/l
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12.2. Persistence and degradability

Ammonia Solution (1336-21-6)

Persistence and degradability	Biodegradable.
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12.3. Bioaccumulative potential

Ammonia Solution (1336-21-6)	
Log Kow	-1.14
Bioaccumulative potential	No bioaccumulation.

12.4. Mobility in soil

Ammonia Solution (1336-21-6)	
Ecology - soil	Soluble material/quickly disperses in water.

12.5. Results of PBT and vPvB assessment

Ammonia Solution (1336-21-6)	
PBT: not relevant – no registration required	

12.6. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. Do not pierce or burn, even after use.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

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

14.1. UN number

UN-No. (ADR) : 2672
UN-No. (IMDG) : 2672
UN-No. (IATA) : 2672
UN-No. (ADN) : 2672
UN-No. (RID) : 2672

14.2. UN proper shipping name

Proper Shipping Name (ADR) : AMMONIA SOLUTION
Proper Shipping Name (IMDG) : AMMONIA SOLUTION
Proper Shipping Name (IATA) : Ammonia solution
Proper Shipping Name (ADN) : AMMONIA SOLUTION
Proper Shipping Name (RID) : AMMONIA SOLUTION
Transport document description (ADR) : UN 2672 AMMONIA SOLUTION, 8, III, (E), ENVIRONMENTALLY HAZARDOUS
Transport document description (IMDG) : UN 2672 AMMONIA SOLUTION, 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
Transport document description (IATA) : UN 2672 Ammonia solution, 8, III, ENVIRONMENTALLY HAZARDOUS
Transport document description (ADN) : UN 2672 AMMONIA SOLUTION, 8, III, ENVIRONMENTALLY HAZARDOUS
Transport document description (RID) : UN 2672 AMMONIA SOLUTION, 8, III, ENVIRONMENTALLY HAZARDOUS

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 8
Danger labels (ADR) : 8



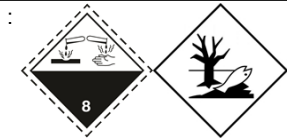
IMDG

Transport hazard class(es) (IMDG) : 8
Danger labels (IMDG) : 8

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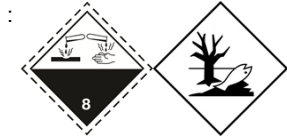
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830



IATA

Transport hazard class(es) (IATA) : 8

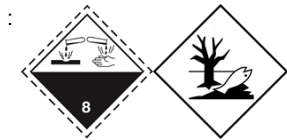
Hazard labels (IATA) : 8



ADN

Transport hazard class(es) (ADN) : 8

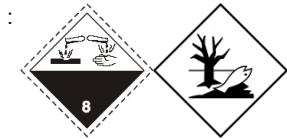
Danger labels (ADN) : 8



RID

Transport hazard class(es) (RID) : 8

Danger labels (RID) : 8



14.4. Packing group

Packing group (ADR) : III

Packing group (IMDG) : III

Packing group (IATA) : III

Packing group (ADN) : III

Packing group (RID) : III

Packing group (RID) : III

14.5. Environmental hazards

Dangerous for the environment : Yes

Marine pollutant : Yes

Other information : No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR) : C5

Special provisions (ADR) : 543

Limited quantities (ADR) : 5I

Excepted quantities (ADR) : E1

Packing instructions (ADR) : P001, IBC03, LP01, R001

Mixed packing provisions (ADR) : MP19

Portable tank and bulk container instructions (ADR) : T7

Portable tank and bulk container special provisions (ADR) : TP1

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

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Orange plates



Tunnel restriction code (ADR)

: E

EAC code

: 2R

Transport by sea

Packing instructions (IMDG)

: P001, LP01

IBC packing instructions (IMDG)

: IBC03

IBC special provisions (IMDG)

: B11

Tank instructions (IMDG)

: T7

Tank special provisions (IMDG)

: TP2

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.

Air transport

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, A803

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

Classification code (RID)

: C5

Special provisions (RID)

: 543

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

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SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

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
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
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
PNEC	Predicted No-Effect Concentration
SDS	Safety Data Sheet
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
STP	Sewage treatment plant
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.

Other information : None.

Full text of H- and EUH-statements:

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.

SDS EU (REACH Annex II)

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