



**PRODUCT: AMMONIA SOLUTION**  $\geq 10\%$  -  $\leq 35\%$  (AMLI) REVISION: 13 DATED: 20/09/2023 PAGE 1 OF 8

PRODUCT SPECIFICATION		
Product Name	Ammonia Solution $\geq 10\%$ conc $\leq 35\%$	
Alternative Name	Aqueous Ammonia, Ammonia Liquor, Ammonium Hydroxide	
Specification Reference	AMLI/11 (23/05/0083200)	
SALES SPECIFICATION		
PROPERTIES	GUARANTEE CHARACTERISTICS	TYPICAL ANALYSIS
Ammonia Content	33.0% - 34.0%	33.5 % m/m
Specific Gravity at 15.5°C	0.884 to 0.887	0.885
Chloride as Cl	$\leq 2$ ppm m/m	
Turbidity	$\leq 3$ NTU	
Residue on Evaporation	$\leq 25$ ppm m/m	
Residue on Ignition	$\leq 10$ ppm m/m	
<u>GRADE</u>	<u>ASSAY</u>	<u>SPECIFIC GRAVITY</u>
890	32% +/- 1.5%	890 +/- 0.005
900	28.5% +/- 1.5%	900 +/- 0.005
910	25% +/- 1.5%	910 +/- 0.005
925	20.2% +/- 1.5%	925 +/- 0.005
928	19% +/- 1.5%	928 +/- 0.005
938	16% +/- 1.5%	938 +/- 0.005
960	10% +/- 1.7%	960 +/- 0.005

**Further information**

Ammonia loses strength with time and the greater the temperature the greater the reduction in strength. Strength and Specific Gravity quoted will apply at the time of delivery and one month from that delivery.

**NOTES**

**Exclusion of Liability**

Information contained in this publication is accurate to the best of the knowledge and belief of Tennants.

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**Health and Safety**

A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.



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## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

### 1.1 Product Identifier

Product Name Ammonia Solution  $\geq 10\%$  conc to  $\leq 35\%$ .  
Alternative names Ammonia liquor, Ammonium hydroxide, Aqueous ammonia, Aqua ammonia.  
Chemical Formula  $\text{NH}_4\text{OH}$ .  
CAS Number 1336-21-6.  
EINECS Number 215-647-6.  
REACH Registration Number 01-2119488876-14 -XXXX

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

Identified use(s) See Section:7.3  
Uses advised against The use of the substance should be limited to those specified in the CSR.

### 1.3 Details of the supplier of the safety data sheet

Tennants Distribution Limited  
Hazelbottom Road  
Cheetham  
Manchester  
M8 0GR  
Tel: 44(0)161 205 4454  
Fax: 44(0) 161 203 4298  
Email: [msds@tennantsdistribution.com](mailto:msds@tennantsdistribution.com)

### 1.4 Emergency telephone number

Tel: 44(0)844 335 0001(24 hours)

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

#### Regulation (EC) No.1272/2008 (CLP)

Skin Corr. 1B; Causes severe skin burns and eye damage.  
STOT SE 3; May cause respiratory irritation.  
Aquatic acute 1; Very toxic to aquatic life.

### 2.2 Label elements

According to Regulation (EC) No. 1272/2008 (CLP)  
Product Name Aqueous Ammonia

Hazard Pictogram   
GHS05 GHS07 GHS09

Signal Word(s) Danger.

Hazard Statements: H314:Causes severe skin burns and eye damage.  
H335:May cause respiratory irritation.  
H400:Very toxic to aquatic life.

Precautionary Statements P260,P264,P271,P273,P280,P312,P310,P321,P363  
P391,P301, + P330 + P331.P303 + P361 + P353, P304 +  
P340,P305 + P351 + P338,P403 + P233, P405,P501.

### 2.3 Other hazards

Ammonia vapour is flammable in air in the range 16% - 25%v/v.

**Additional information** For full text of H/P phrases see section 16.



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<b>3. COMPOSITION/INFORMATION ON INGREDIENTS</b>					
Solution of ammonia in water. A clear colourless liquid evolving ammonia vapour.					
<b>Mixture</b>					
EC Classification No. 1272/2008					
Hazardous Ingredients(s)	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard pictogram(s) and Hazard Statement(s)
Ammonia Solution	25 - 35	1336-21-6	215-647-6	01-2119488876-14-0024	GHS05, Skin Corr.1B;H314 GHS07, STOT SE 3; H335, GHS09, Aquatic Acute 1; H400.
3.2 Additional Information For full text of H/P phrases see section 16.					
<b>4. FIRST AID MEASURES</b>					
<b>4.1 Description of first aid measures</b>					
<b>Inhalation</b> IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen. If not breathing, give artificial resuscitation. Get medical attention immediately.					
<b>Skin contact</b> IF ON SKIN (or hair):Immediately remove/take off all contaminated clothing and shoes. Flush skin with water for at least 15 minutes. Get medical attention immediately. Wash contaminated clothing and shoes before reuse.					
<b>Eye contact</b> IF IN EYES: Rinse cautiously with water for several minutes keeping eyelids open .Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.					
<b>Ingestion</b> IF SWALLOWED: Rinse mouth .Drink copious quantities of water. Do NOT induce vomiting. Get medical attention immediately.					
<b>4.2 Most important symptoms and effects, both acute and delayed</b>					
Following severe exposure the patient should be kept under medical review for at least 48 hours as delayed pulmonary oedema may develop.					
<b>4.3 Indication of any immediate medical attention and special treatment needed</b>					
Administer oxygen if necessary. In the case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for at least 48 hours.					
<b>5. FIRE FIGHTING MEASURES</b>					
Vapour: Combustible but not readily ignited.					
<b>5.1 Extinguishing Media</b>					
Suitable Extinguishing Media		As appropriate for surrounding fire.			
Unsuitable Extinguishing Media		None known.			
<b>5.2 Special hazards arising from the substance or mixture</b>					
Combustion or thermal decomposition will evolve toxic and irritant vapours.					
<b>5.3 Advice for fire-fighters</b>					
Notify police and fire brigade as soon as possible. Contain fire control water for later disposal. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep fire exposed containers cool by spraying with water.					
<b>6. ACCIDENTAL RELEASE MEASURES</b>					
<b>6.1 Personal precautions, protective equipment and emergency procedures</b>					
For non-emergency personnel		Evacuate surrounding areas. Provided it is safe to do so, isolate the source of the			
		leak. Wear appropriate personal protective equipment, avoid direct contact with vapour, mist or split material. Provide adequate ventilation, and wear appropriate respirator when ventilation is inadequate.			
For emergency responders		If specialised clothing is required to deal with a release, take note of Information in section 8 on suitable materials. See 'non-emergency personnel' above.			
<b>6.2 Environmental precautions</b>					
Avoid contact of spilt material and runoff with soil waterways, drains and sewers where possible. Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.					
<b>6.3 Methods and material for containment and cleaning up</b>					



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Small release	Stop leak if without significant risk. Dilute with water and mop up, or absorb spillages onto sand, earth or any suitable adsorbent material and place in an appropriate waste container. Dispose of via licensed waste contractor.
Large release	Stop leak if without significant risk. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Use water spray to 'knock down' vapour. Wash spillages into an effluent treatment plant or proceed as follows. Contain or collect spillage with non-combustible, adsorbent material e.g. sand, earth, vermiculite or diatomaceous earth then place into container for disposal via a licensed waste disposal. Contaminated adsorbent material may pose the same hazard as the spilt product

**6.4 Reference to other sections**

See section :1 for emergency contact information.  
See section: 13 for waste disposal.  
See also section 8.

**7. HANDLING AND STORAGE**

**7.1 Precautions for safe handling**

Use only outdoors or in a well-ventilated area. Do not breathe gas. Avoid contact with skin and eyes. Wear protective Gloves/protective clothing/eye protection/face protection. Wear appropriate respirator when ventilation is inadequate.  
See also section : 8. Wash hands thoroughly after handling.

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

Store locked up. Store in a well-ventilated place protected from direct sunlight. Keep container tightly closed. Keep away from: Acids. Use appropriate containment to avoid environmental contamination.

Storage Temperature	Ambient
Storage Life	Stable under normal conditions.
Incompatible materials	Copper, copper alloy, Zinc, zinc alloy.
Appropriate packaging	Stainless steel, Mild steel, Polyethylene, Polypropylene

**7.3 Specific end use(s)**

Professional uses of anhydrous and aqueous ammonia Use as a laboratory chemical, refrigerant in cooling systems, water treatment chemical, fertiliser, coating, paint thinner or paint remover, photochemical.  
Professional uses of anhydrous and aqueous ammonia. Use as a cleaning product, pH regulatory or neutralisation agent, process aid for nutrition.  
Consumer use of aqueous ammonia. Use in coatings, paints, thinners and removers; use in fillers, putties and plasters, Use of washing and cleaning products, use in cosmetic & personal care products.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

**8.1.1 Workplace Exposure Limit (UK HSE EH40)**

Substance.	CAS Number	LTEL(8 hr TWA ppm)	LTEL(8 hr TWA mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	Note:
Ammonia	1336-21-6	25	18	35	25	EH40 WEL 10/2007

**8.1.2 Biological limit value**

Not established.

**8.1.3 PNECs and DNELs**

By analogy with similar materials: Anhydrous ammonia.

DNEL	Oral	Inhalation	Dermal
Industry-Long Term-local effects	-	14.0 mg/m <sup>3</sup>	-
Industry-Long Term-Systemic effects	-	47.6 mg/m <sup>3</sup>	6.8mg/kgbw/day
Industry –Short Term –Local effects	-	36.0 mg/m <sup>3</sup>	-
Industry-Short Term-Systemic effects	-	47.6mg/m <sup>3</sup>	6.8mg/kgbw/day
Professional -Long Term –Local effects	-	-	-
Professional-Long Term –Systemic effects	-	-	-
Professional-Short Term –Local effects	-	-	-
Professional-Short Term – Systemic effects	-	-	-
Consumer – Long Term –Local effects	-	2.8mg/m <sup>3</sup>	-



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Consumer –Long Term – Systemic effects	6.8mg/kg bw/day	23.8mg/m <sup>3</sup>	6.8mg/kgbw/day
Consumer – Short Term – Local effects	-	7.2mg/m <sup>3</sup>	-
Consumer – Short Term-Systemic effects	6.8mg/kg bw/day	23.8mg/m <sup>3</sup>	6.5mg/kgbw/day
<b>PNEC</b>			
Aquatic Compartment (Fresh water)	0.0011 mg/l.		
Marine Compartment	0.0011 mg/l.		
Terrestrial Compartment	No Data.		
Atmospheric Compartment	No Data.		
<b>8.2 Exposure controls</b>			
<b>8.2.1 Appropriate engineering controls</b>	Use with local exhaust ventilation or breathing protection.		
<b>8.2.2 Personal protection equipment</b>			
Eye/face protection	Goggles giving complete protection to eyes.		
Skin protection (Hand protection/Other)	Impervious gloves and boots: PVC, Butyl rubber.		
Respiratory protection	A suitable respirator must always be worn. A suitable mask with Filter type K (EN141 or EN405) may be appropriate.		
Thermal hazards	Not applicable.		
<b>8.2.3 Environmental Exposure Controls</b>	Avoid release to the environment		
<b>9. PHYSICAL AND CHEMICAL PROPERTIES</b>			
9.1 Information on basic physical and chemical properties			
Appearance	Liquid		
Colour	Clear Colourless. (<5 Hazen Units).		
Odour	Pungent.		
Odour Threshold (ppm)	Detectable to most people at levels as low as 5ppm.		
pH (Value)	14.		
Freezing Point (°C)	-55°C-100°C.		
Boiling point/boiling range (°C):	38°C-20°C.		
Flash point (°C)	None found.		
Evaporation rate	Not available.		
Flammability (Solid, gas)	Flammable.		
Flammable Limits (v/v)	16% - 25%		
Vapour Pressure (Pascal)	48700 – 10000 @ 20°C.		
Vapour Density (Air=1)	Not available.		
Density (g/ml)	0.904 – 0.89 @ at 20°C.		
Bulk Density (g/ml)	Not applicable.		
Solubility (Water)	Miscible.		
Solubility (Other)	Not available.		
Partition Coefficient (n-Octanol/water)	Log Pow – 1.14.		
Auto Ignition Temperature (°C)	651°C (Vapour.)		
Decomposition Temperature (°C)	Not available.		
Viscosity (mPa.s)	1.1 @27°C.		
Explosive properties	Not explosive.		
Oxidising properties	Not oxidising.		
<b>9.2 Other information</b>	No information available.		
<b>10. STABILITY AND REACTIVITY</b>			
<b>10.1 Reactivity</b>			
Stable under normal conditions			
<b>10.2 Chemical stability</b>			
Stable under recommended storage and handling conditions			
<b>10.3 Possibility of hazardous reactions</b>			
Can react violently if in contact with acids, alkalis, halogens, reducing agents and heavy metals			
<b>10.4 Conditions to avoid</b>			
Keep away from incompatible materials			



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<b>10.5 Incompatible materials</b> Copper, copper alloys, zinc, zinc alloy
<b>10.6 Hazardous decomposition products</b> Nitrogen oxides
<b>11. TOXICOLOGICAL INFORMATION</b>
<b>11.1 Information on toxicological effects</b> <b>Mixture</b>
<b>Acute Toxicity</b> <b>Ingestion:</b> By analogy with similar materials: Ammonium Hydroxide: LD50 Rat: 350 mg/kg bw. Will cause corrosion of and damage to the gastrointestinal tract <b>Inhalation:</b> Fluid build up on the lung (pulmonary oedema) may occur up to 48 hours after exposure and could prove fatal <b>Skin Contact:</b> Causes severe skin burns <b>Eye Contact:</b> Severe irritant to the eye
<b>Skin Corrosion/Irritation</b> Skin Corr. 1B; Causes severe skin burns and eye damage
<b>Serious eye damage/eye irritation</b> Severe irritant to the eye
<b>Respiratory or skin sensitisation</b> It is not a skin sensitiser
<b>Mutagenicity</b> There is no evidence of mutagenic potential
<b>Carcinogenicity</b> No evidence of carcinogenicity. NOAEL (Oral): 67 mg/kg bw/d
<b>Reproductive toxicity</b> Not classified Effects on fertility: NOAEL: 408 mg/kg bw/d Developmental toxicity: NOAEL: 100 mg/kg bw/d. NOAEC: 25 mg/m <sup>3</sup>
<b>STOT – Single exposure:</b> STOT SE 3; May cause respiratory irritation <b>STOT – Repeated exposure</b> Not classified. NOAEL (Oral): 68 mg/kg bw/d. NOAEL
<b>Further information</b> Aspiration Hazard: Not classified
<b>12. ECOLOGICAL INFORMATION</b>
<b>12.1 Toxicity</b> Aquatic Acute 1: Very toxic to aquatic life. By analogy with similar materials: Un-ionised ammonia Fish (fresh water): LC50 0.80 mg/l Fish (fresh water): NOEC: 1.2 mg/l Aquatic invertebrates: LC50 (Daphnia magna): 101 mg/l Aquatic invertebrates: NOEC (Daphnia magna): 0.79 mg/l Algae (fresh water): 2700 mg/l
<b>12.2 Persistence and degradability</b> The product is biodegradable. Unlikely to persist
<b>12.3 Bio accumulative potential</b> The product has no potential for bioaccumulation
<b>12.4 Mobility in soil</b> The product is soluble in water
<b>12.5 Results of PBT and vPvB assessment</b> Not classified as PBT or vPvB
<b>12.6 Other adverse effects</b> None anticipated



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<b>13. DISPOSAL CONSIDERATIONS</b>	
<b>13.1 Waste treatment methods</b> Re-use/recycling of waste highly recommended. Dispose of contents/container to: Licensed recycler, reclaimer or incinerator. Disposal should be in accordance with local, state or national regulations	
<b>13.2 Additional information</b> WGK class 2 (official)	
<b>14. TRANSPORT INFORMATION</b>	
<b>14.1 UN Number</b>	UN2672
<b>14.2 Proper Shipping Name</b>	AMMONIA SOLUTION
<b>14.3 Transport hazard class</b>	8
<b>14.4 Packing group</b>	III
<b>14.5 Environmental</b>	Yes. Environmentally Hazardous (Aquatic Environment)
<b>14.6 Special precautions for users</b>	No data available
<b>14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b> No information available	
<b>Additional Information</b> Emergency Action Code: 2R ADR Hazard Identification Number: 80 Limited Quantity: LQ7 Special Provisions: 543 Tunnel Code (E)	
<b>15. REGULATORY INFORMATION</b>	
<b>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture</b> <b>Control of Explosive Precursors and Poisons Regulations 2023:</b> This product is classified as a reportable poison.	
<b>15.2 Chemical safety assessment</b> Not available	
<b>16. OTHER INFORMATION</b>	
<b>Legend</b> LTEL – Long term exposure limit STEL – Short Term Exposure Limit STOT – Specific Target Organ Toxicity DNEL – Derived No Effect Level PNEL – Predicted NO Effect Concentration PBT – PBT: Persistent, Bioaccumulative and Toxic CSR – Chemical Safety Report NOAEL – No Observable Adverse Effect Level NOEC – No Observable Effect Concentration Skin Corr. 1B – Skin corrosion/irritation Category 1B STOT SE 3 – Specific target organ toxicity – Single exposure Category 3 Aquatic Acute 1 – Hazardous to the aquatic environment. Acute Category 1	
<b>Hazard Statement(s) and Precautionary statement(s)</b> H314 Causes severe skin burns and eye damage H335 May cause respiratory irritation H400 Very toxic to aquatic life P260 Do not breathe gas P264 Wash hands thoroughly after handling P271 Use only outdoors in a well ventilated area P273 Avoid release to the environment P280 Wear protective clothing/eye protection/face protection P312 Call a POISON CENTRE or doctor if you feel unwell P321 Specific treatment (see on the label) P363 Wash contaminated clothing before reuse P391 Collect spillage P304 + P340 If INHALED: Remove victim to fresh air and keep at rest in a position comfortable for	



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P403 + P233	Breathing Store in a well ventilated place. Keep container tightly closed
P301 + P330 + P331	If SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353	IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower
P305 + P351 + P338	IF IN EYES: Rinse cautiously for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P405	Store locked up
P501	Dispose of contents/containers to: Send to a licensed recycler, reclaimer or incinerator
<b>Source of key data used to compile the data sheet</b> Supplier information	
<b>Modifications from last revision</b> Section 15 of this datasheet has been updated. <b>Date:</b> 20/09/2023 <b>Copyright © Tennants Distribution Limited (2023)</b>	