

SAFETY DATA SHEET

according to 1907/2006/EC, Article 31

Page 1/7

Ammonia, anhydrous

Revision 1
Revision date

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

1.1. Product identifier

Product name	Ammonia, anhydrous
REACH Registration Number	01-2119488876-14
CAS No.	7664-41-7
EC No.	231-635-3
Index No.	007-001-00-5

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

Description	Restricted to professional users. The use of the substance should be limited to those specified in the CSR.
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1.3. Details of the supplier of the safety data sheet

Company	A-Gas UK Limited
Address	Banyard Road Portbury West Bristol BS20 7XH United Kingdom
Telephone	[+44] (0) 1275 376600
Fax	[+44] (0) 1275 376601
Email address of the competent person	info.uk@agas.com

1.4. Emergency telephone number


Emergency telephone number	[+44] (0) 1275 376600 24 hr
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification - 67/548/EEC	R10 ? T; R23 C; R34 N; R50 Symbols: T: Toxic. N: Dangerous for the environment.
Main hazards	Flammable. Toxic by inhalation. Causes burns. Very toxic to aquatic organisms.
2.1.2. Classification - EC 1272/2008	Flam. Gas 2: H221; Acute Tox. 3: H331; Skin Corr. 1B: H314; Aquatic Acute 1: H400;

2.2. Label elements

Hazard pictograms	
Signal Word	Danger
Hazard Statement	Flam. Gas 2: H221 - Flammable gas. Skin Corr. 1B: H314 - Causes severe skin burns and eye damage.

Ammonia, anhydrous

Revision 1
Revision date

2.2. Label elements

Precautionary Statement: Prevention	Acute Tox. 3: H331 - Toxic if inhaled. Aquatic Acute 1: H400 - Very toxic to aquatic life.
	P221 - Take any precaution to avoid mixing with combustibles P260 - Do not breathe dust/fume/gas/mist/vapours/spray. P261 - Avoid breathing dust/fume/gas/mist/vapours/spray. P264 - Wash thoroughly after handling. P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment. P280 - Wear protective gloves/protective clothing/eye protection/face protection.
Precautionary Statement: Response	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. P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position 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 POISON CENTER or doctor/physician. P320 - Specific treatment is urgent (see on this label). P321 - Specific treatment (see on this label). P363 - Wash contaminated clothing before reuse. P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 - Eliminate all ignition sources if safe to do so. P391 - Collect spillage.
Precautionary Statement: Storage	P403+P233 - Store in a well-ventilated place. Keep container tightly closed. P403 - Store in a well-ventilated place. P405 - Store locked up.
Precautionary Statement: Disposal	P501 - Dispose of contents/container to supplier

2.3. Other hazards

Other hazards	Rapid evaporation of the liquid may cause frostbite.
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SECTION 3: Composition/information on ingredients

3.1. Substances

67/548/EEC / 1999/45/EC

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification
Ammonia, anhydrous	007-001-00-5	7664-41-7	231-635-3	01-2119488876-14	90 - 100%	R10 ? T; R23 C; R34 N; R50

EC 1272/2008

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification
Ammonia, anhydrous	007-001-00-5	7664-41-7	231-635-3	01-2119488876-14	90 - 100%	Flam. Gas 2: H221; Acute Tox. 3: H331; Skin Corr. 1B: H314; Aquatic Acute 1: H400;

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Remove casualty from exposure ensuring one's own safety whilst doing so. Keep the affected person warm and at rest. If unconscious, check for breathing and apply artificial respiration if necessary. Immediate medical attention is required.
Eye contact	May cause severe irritation to eyes and skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin contact	May cause severe irritation to eyes and skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Seek medical attention.

Ammonia, anhydrous

Revision 1
Revision date

4.1. Description of first aid measures

Ingestion	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. If swallowed, rinse mouth with water (only if the person is conscious).
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4.2. Most important symptoms and effects, both acute and delayed

Inhalation	Immediate medical attention is required.
Eye contact	Immediate medical attention is required.
Ingestion	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

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

	Ingestion causes burns to the respiratory tract.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

	Use extinguishing media appropriate to the surrounding fire conditions.
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5.2. Special hazards arising from the substance or mixture

	Cylinder may vent rapidly or rupture violently from pressure when involved in a fire situation. Burning produces irritating, toxic and obnoxious fumes.
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5.3. Advice for firefighters

	In case of fire and/or explosion do not breathe fumes. Wear suitable respiratory equipment when necessary.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

	Evacuate the area immediately. Wear self contained breathing apparatus and protective clothing. Ensure adequate ventilation of the working area. Eliminate all sources of ignition.
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6.2. Environmental precautions

	Prevent further spillage if safe.
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6.3. Methods and material for containment and cleaning up

	Keep personnel away from spill. Clean spillage area thoroughly with plenty of water.
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6.4. Reference to other sections

	SECTION 8: Exposure controls/personal protection. SECTION 13: Disposal considerations.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

	Use only equipment and materials which are compatible with the product. Keep away from sources of ignition - No smoking. Ensure adequate ventilation of the working area. In case of insufficient ventilation, wear suitable respiratory equipment. Take precautionary measures against static discharges.
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7.2. Conditions for safe storage, including any incompatibilities

	Protect containers from physical damage. Store in cool, dry, well-ventilated area away from busy areas, emergency exits, flammables, combustibles, and other incompatible materials. Do not allow the temperature where cylinders are stored to exceed 50°C. Containers should be stored upright, firmly secured to prevent falling or being knocked over. Do not drag, slide or roll cylinders. Use suitable equipment for cylinder movement even for short distances. Use a "first in-first out" inventory system to prevent containers from being stored for excessive periods of time. A leak can result in a fire, explosion, asphyxiation or a toxic exposure. Avoid contact with: Oxidants.
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7.3. Specific end use(s)

	None.
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Ammonia, anhydrous

Revision 1
Revision date**SECTION 8: Exposure controls/personal protection**

8.1. Control parameters

8.1.1. Exposure Limit Values

Ammonia, anhydrous	WEL 8-hr limit ppm: 25	WEL 8-hr limit mg/m3: 18
	WEL 15 min limit ppm: 35	WEL 15 min limit mg/m3: 25

8.2. Exposure controls

8.2.1. Appropriate engineering controls	Ensure adequate ventilation of the working area.
8.2.2. Individual protection measures	In case of splashing, wear: Chemical resistant clothing. Face shield. Chemical resistant gloves.
Eye / face protection	Wear: Approved safety goggles.
Skin protection - Handprotection	Wear: Chemical resistant gloves.
Skin protection - Other	Wear suitable protective clothing.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquified Gas.
Colour	Colourless
Odour	Ammoniacal
pH	> 12
Melting point	= -77.7 °C
Freezing Point	No data available
Initial boiling point	= -33 °C
Flash point	No data available
Evaporation rate	No data available
Flammability limits	15%-30% v/v
Vapour pressure	= 8.6 bar @ 20°C
Vapour density	No data available
Relative density	= 0.7 (Water = 1 @ 20 °C)
Fat Solubility	No data available
Partition coefficient	< 1 log P
Autoignition temperature	= 630 °C
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	Not applicable.
Solubility	Soluble in water

9.2. Other information

Conductivity	No data available
Surface tension	No data available
Gas group	No data available
Benzene Content	No data available
Lead content	No data available
VOC (Volatile organic compounds)	No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

H280 - Contains gas under pressure; may explode if heated.

Ammonia, anhydrous

Revision 1
Revision date

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

R18 - In use, may form flammable/explosive vapour-air mixture.

10.4. Conditions to avoid

Keep away from sources of ignition - No smoking.

10.5. Incompatible materials

Copper and its alloys. Oxidising agents. Acids. Zinc.

10.6. Hazardous decomposition products

Will not decompose if stored and used as recommended. In case of fire: Burning produces irritating, toxic and obnoxious fumes. Nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxic by inhalation.

11.1.4. Toxicological Information

Ammonia, anhydrous

Inhalation Rat LC50/4 h: 2000ppm

Oral Rat LD50: 350 mg/kg

SECTION 12: Ecological information

12.1. Toxicity

Ammonia, anhydrous

Daphnia EC50/48h: 25.4 mg/l

Fish LC50/96h: 0.89 mg/l

12.2. Persistence and degradability

The substance is biodegradable. Unlikely to persist.

12.3. Bioaccumulative potential

The substance has no potential for bioaccumulation.

12.4. Mobility in soil

The substance has low mobility in soil. The substance is soluble in water.

12.5. Results of PBT and vPvB assessment

Not classified as PBT or vPvB.

12.6. Other adverse effects

May cause pH changes in aqueous ecological systems.

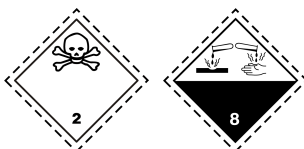
SECTION 13: Disposal considerations

13.1. Waste treatment methods

Avoid release to the environment. Refer to manufacturer/supplier for information on recovery/recycling.

SECTION 14: Transport information

Hazard pictograms



14.1. UN number

UN1005

14.2. UN proper shipping name

Ammonia, anhydrous

Revision 1
Revision date

14.2. UN proper shipping name

	AMMONIA, ANHYDROUS
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14.3. Transport hazard class(es)

ADR/RID	2
Subsidiary risk	8
IMDG	2.3
Subsidiary risk	8
IATA	2.3
Subsidiary risk	8

14.4. Packing group

Packing group	-
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14.5. Environmental hazards

Environmental hazards	No
Marine pollutant	No

14.6. Special precautions for user

	No data available.
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14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

	Not applicable.
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ADR/RID

Hazard ID	268
Tunnel Category	(C/D)

IMDG

EmS Code	F-C S-U
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IATA

Packing Instruction (Cargo)	FORBIDDEN
Maximum quantity	FORBIDDEN
Packing Instruction (Passenger)	FORBIDDEN
Maximum quantity	FORBIDDEN

SECTION 15: Regulatory information

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

Regulations	Local and national regulations. COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC. REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.
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15.2. Chemical safety assessment

	CSA has been carried out.
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SECTION 16: Other information

Other information	
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Ammonia, anhydrous

Revision 1
Revision date**Other information****Text of risk phrases in Section 3**

R10 - Flammable
R23 - Toxic by inhalation.
R34 - Causes burns.
R50 - Very toxic to aquatic organisms.

Text of Hazard Statements in Section 3

Flam. Gas 2: H221 - Flammable gas.
Skin Corr. 1B: H314 - Causes severe skin burns and eye damage.
Acute Tox. 3: H331 - Toxic if inhaled.
Aquatic Acute 1: H400 - Very toxic to aquatic life.

Further information

The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.