HEAD OFFICE
38 May Holman Drive
Bassendean WA 6054
T: (61 8) 6270 4500
F: (61 8) 6270 4544
E: admin@agentsales.com.au

Safety Data Sheet

1. IDENTIFICATION OF THE PRODUCT AND THE SUPPLIER

1.1 Product identifiers

Product name : AMMONIA 10% AR SOLUTION

1.2 Other means of identification

Aqua ammonia; Ammonium hydroxide solution.

1.3 Recommended use of the product and restrictions on use

Textiles, manufacture of rayon, rubber, fertilizers, refrigeration, condensation polymerization, pharmaceuticals, ammonia soaps, lubricants, ink manufacture, explosives, ceramics, detergents, food additives, household cleaners, water treatment, resin stabilisation. No restrictions.

1.4 Details of supplier of the safety data sheet

Company	: AGent Sales & Services Pty Ltd
Street address	: 38 May Holman Drive, Bassendean, Western Australia 6054
Telephone	: (+61 8) 6270 4500
Fax	: (+61 8) 6270 4544

1.5 Emergency telephone number

Telephone : 1300 883 844

2. HAZARDS IDENTIFICATION

2.1 GHS Classification

Acute toxicity, Oral (Category 4)
Skin corrosion / irritation (Category 1)
Serious eye damage / eye irritation (Category 1)
Specific target organ toxicity (single exposure) - Category 3
Acute aquatic toxicity (Category 1)

2.2 GHS Label elements, including precautionary statements

Pictogram :

Signal word : Danger

Hazard statement(s)

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

Precautionary statement(s)

Prevention

P260	Do not breathe mist / vapours / spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
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.

Response

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/shower.
P363	Wash contaminated clothing before re-use.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P305+P351+P338+P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
P391	Collect spillage.

Storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal

P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

Lachrymator.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS Number	Classification	Concentration (%)
Ammonia, aqueous solution	1336-21-6	Acute Tox. 4; Skin Corr. 1; Eye Dam.1; STOT SE 3; Aquatic Acute 4	10 – 25
Water (demineralised)	7732-18-5	Not listed	75 - 90

For the full text of the H-Statements mentioned in this section, see Section 16

4. FIRST AID MEASURES

4.1 Description of First Aid measures

General advice

Contact the Poisons Information Centre (Phone: Australia 131 126; New Zealand 0800 764 766) or consult a doctor/physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

In case of skin contact

Remove contaminated clothing and wash affected areas with soap and water. Consult a doctor/physician. Launder clothing before reuse.

In case of eye contact

In case of eye contact, check for and remove any contact lenses. Immediately rinse thoroughly with plenty of running water for at least 15 minutes, keeping eyelids open. Consult a doctor/physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek immediate medical assistance.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in Section 2.2 and/or Section 11.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Can cause corneal burns. Following severe exposure, the patient should be kept under medical supervision for at least 48 hours.

4.4 First Aid facilities
Eye wash facilities and safety shower should be available.

5. FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media
Use fine water spray, normal foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the chemical
Non-combustible material. May form flammable vapour mixtures with air. Avoid all ignition sources. Caution should be exercised when opening storage containers or vessels. Flammable concentrations of ammonia gas can accumulate in the head space. Nitrogen oxides (NOx)

5.3 Special protective equipment and precautions for fire fighters
Wear self-contained breathing apparatus and suitable protective clothing.

5.4 Hazchem code
2R

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. If contamination of sewers or waterways has occurred, advise local emergency services. Observe all local and national regulations.

6.3 Methods and materials for containment and cleaning up
Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Neutralise with dilute acid. Collect and seal in properly labelled containers or drums for disposal. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep out of reach of children. For precautions see Section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place and out of direct sunlight. Store away from foodstuffs. Store away from sources of heat or ignition. Store away from incompatible materials described in Section 10. Keep containers closed when not in use – check regularly for leaks. Store upright to prevent leakage.

This material is classified as a Dangerous Goods Class 8 Corrosive Substance by the criteria of the ADG Code and must be stored and handled in accordance with the relevant regulations.

This material is a Scheduled Poison S6 and must be stored, maintained and used in accordance with the relevant regulations.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Control parameters
Not value assigned for this specific material by SWA. However, Workplace Exposure Standard(s) for constituents(s) provided below:

Occupational Exposure Limits

Chemical Name	Reference	TWA – Peak Limitation		STEL		Carcinogen Category	Notices
		ppm	mg/m^3	ppm	mg/m^3		
Ammonia (7664-41-7)	ASCC	25	17	35	24	-	-

As published in "*Workplace Exposure Standards for Airborne Contaminants, December 2011"* by SWA.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Biological Limits
None allocated for this product.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Ensure ventilation is adequate to maintain air concentrations below Exposure Standards. If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements

Personal protective equipment (PPE)

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods and environmental factors.

Eye/face protection
Face shield and safety glasses or goggles. See Australian Standards (AS/NZS 1336 & 1337).

Skin protection
Wear protective gloves (long) and protective clothing (splash apron or equivalent chemical impervious outer garment and rubber boots) appropriate for the risk of exposure. See Australian Standards (AS 2161 & 2919 and AS/NZS 2210). Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use. Wash and dry hands.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination or type ABEK respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. See Australian Standards (AS/NZS 1715 & 1716).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Form : Liquid
	Colour : Colourless
Odour:	Sharp, pungent
Odour Threshold:	0.6 – 53 ppm (detection); 0.7 – 55 ppm (recognition)
pH:	11.7 @ 1% aqueous solution
Freezing Point:	approx. -14ºC
Boiling Point/Range:	approx. 69ºC @ 101.3kPa
Decomposition Temperature:	No data available
Evaporation Rate:	No data available
Flash Point:	Not applicable
Flammability Limits:	No data available
Specific Gravity:	0.96 @ 20ºC
Vapour Density (air=1):	0.6
Vapour Pressure:	1.9 psi @ 20ºC
% Volatiles:	100

Solubility in water: Miscible in water

10. STABILITY AND REACTIVITY

10.1 Reactivity
Reacts violently with acids. Reacts exothermically with strong mineral acids. Corrosive to copper, nickel, tin, zinc, aluminium and their alloys

10.2 Chemical stability
Product is stable under normal conditions of use, storage and temperature.

10.3 Possibility of hazardous reactions
Aqua ammonia will react with many organic and inorganic acids to form ammonium salts and compounds; with certain metals to form complexion salts; with halogens to form haloamines (such as its reaction with sodium hypochlorite [bleach] to form toxic chloramines); and under extreme circumstances with silver and mercury to form explosive azides.

10.4 Conditions to avoid
Avoid exposure to heat. Avoid exposure to light.

10.5 Incompatible materials
Incompatible with peroxides, metal salts, acids and reducing agents.

10.6 Hazardous decomposition products
Nitrogen oxides (NOx) and ammonia (NH_3).

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral, rat is 350 mg/kg
LC50 Inhalation, rat, mouse ranges from 2940 - 13770 mg total NH_3/m^3, 10-60 minutes

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No indication of mutagenicity when tested in vitro in the Bacterial Reverse Mutation Assay and in vivo using the Micronucleus Assay

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
No indication of reprotoxicity.

Specific target organ toxicity (STOT) - single exposure
STOT SE 3 (Conc >5%)

Specific target organ toxicity (STOT) - repeated exposure
No data available

Aspiration hazard
No definitive information available

Health Effects
No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Eye contact : A severe eye irritant. Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury.

Skin contact : Contact with skin will result in severe irritation. Corrosive to skin - may cause skin burns.

Ingestion : Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract..

Inhalation : Breathing in mists or aerosols will produce respiratory irritation. Inhalation of high concentrations may result in shortness of breath, chest pain, severe headache and lung damage including pulmonary oedema. Effects may be delayed.

11.2 Information on possible routes of exposure
The substance can be absorbed into the body by inhalation of its vapour or aerosol and by inhalation.

11.3 Additional Information
RTECS: BQ9625000

12. ECOGICAL INFORMATION

12.1 Ecotoxicity
Avoid contaminating waterways.

Toxicity to fish:
LC_{50} (Cyprinus carpio) = 1.60 - 196 mg/L unionised NH_3, 48h

Toxicity to daphnia & other aquatic invertebrates
EC_{50} (Daphnia magna) = 101 mg/L, 48h

12.2 Persistence and degradability
In the soil, ammonia is quickly oxidized by microorganisms to nitrate ion (nitrification).In fresh water it may be nitrified by microorganisms or adsorbed on sediment particles and colloids. Substantially biodegradable in water. In the atmosphere, it may be degraded by photolysis or neutralised by acid pollutants of the air.

12.3 Bioaccumulative potential
The accumulation of ammonia in biota is not considered of importance in the environment as it does not accumulate in lipid-rich tissues in the same manner as organic chemicals. Ammonia is ubiquitous in the aquatic environment due to the breakdown of plant and animal material and due to animal excretory processes. As a product of normal metabolism, Ammonia is not expected to bio accumulate

12.4 Mobility in soil
There is limited mobility in soil expected due to the strong adsorption of ammonium ions to clay minerals and the bacterial oxidation to nitrate. Ammonia in soil is in dynamic equilibrium with nitrate and other substrates in the nitrate cycle.

12.5 Other adverse effects
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods and containers
Ensure waste disposal conforms to relevant local, state and federal authority waste disposal regulations. All empty packaging should be disposed of as unused product. Empty containers can contain vapour; do not drill cut, grind or weld.

13.3 Special precautions for landfill or incineration
Contact a specialist disposal company or the local waste regulator for advice. Processing, use or contamination of this product may change the waste management options.

14. TRANSPORT INFORMATION

Classified as a Dangerous Goods by the criteria of the ADG Code for transport by road or rail.

14.1	**UN number**	2672
14.2	**Proper shipping name**	AMMONIA SOLUTION
14.3	**Transport hazard class**	8 Corrosive
14.4	**Packing group**	III
14.5	**Environmental hazards**	Yes
14.6	**Special precautions for users**	No data

14.7 Hazchem code 2R

14.8 Dangerous goods initial emergency response guide (SAA/SNZ HB76:2010) 37

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)
Poisons Schedule : 6

Carcinogen classification under WHS Regulations 2011, Schedule 10
Not listed

Notification status
AICS On the inventory, or in compliance with the inventory.

16. OTHER INFORMATION

Key / legend to abbreviations and acronyms used in the MSDS

ADG	Australian Dangerous Goods
ASCC	Australian Safety and Compensation Council
DEC	Department of Environment and Conservation
GHS	Globally Harmonised System of Classification & Labelling of Chemicals
NOHSC	National Occupational Health and Safety Commission
RTECS	Registry of Toxic Effects of Chemical Substances.
SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons
Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Eye Dam.	Serious eye damage
STOT SE3	Specific target organ toxicity (single exposure) - Category 3
Skin Corr.	Skin corrosion
TWA	Time weighted average
STEL	Short term exposure level
SWA	Safe Work Australia
Peak Limitations	A ceiling concentration that should not be exceeded over a measurement period, which should be as short as possible, but not exceeding 15 minutes
LD_{50}	Lethal dose 50. The single dose of a substance that causes the death of 50% of an animal population from exposure to the substance by any route other than inhalation
LC_{50}	Lethal concentration that kills 50% of an animal population within a specified time
TD Lo	The lowest dose of a substance known to have produced signs of toxicity
RTECS	Registry of Toxic Effects of Chemical Substances
g/L	Grams per litre
g/cm^3	Grams per cubic centimetre
mg/m^3	Milligrams per cubic metre
mg/kg	Milligrams per kilogram
pH	Relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline
WHS	Work Health and Safety

Literature references

"Workplace Exposure Standards for Airborne Contaminants, December 2011" by SWA Work Health and Safety Regulations 2011

"Registry of Toxic Effects of Chemical Substances". Ed. D. Sweet, US Dept. of Health & Human Services: Cincinatti, 2012.

Reason(s) for Issue:

Revised primary SDS
Alignment to GHS requirements

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