

# Safety Data Sheet

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product Name:** **AMMONIA - AQUEOUS SOLUTIONS (10% - 35%)**

**Other name(s):** Aqua ammonia; Ammonium hydroxide solution; Ammonium hydrate; Aqua ammonia 12.5%; Aqua ammonia 25%; Aqua ammonia 32%; Ammonia aqueous solution 32%.

**Recommended use of the chemical 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.

**Supplier:** Orica Australia Pty Ltd  
**ABN:** 99 004 117 828  
**Street Address:** 1 Nicholson Street,  
Melbourne 3000  
Australia

**Telephone Number:** +61 3 9665 7111  
**Facsimile:** +61 3 9665 7937  
**Emergency Telephone:** **1 800 033 111 (ALL HOURS)**

## 2. HAZARDS IDENTIFICATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

This material is hazardous according to Safe Work Australia; HAZARDOUS SUBSTANCE.

**Classification of the substance or mixture:**

Skin Corrosion - Sub-category 1C

Specific target organ toxicity (single exposure) - Category 3

Acute Aquatic Toxicity - Category 1

**SIGNAL WORD:** POISON



**Hazard Statement(s):**

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 dust/fume/gas/mist/vapours/spray.

P264 Wash hands 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.

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## 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.  
P310 Immediately call a POISON CENTER or doctor/physician.  
P321 Specific treatment (see First Aid Measures on Safety Data Sheet).  
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.

## Storage:

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

## Disposal:

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Poisons Schedule (SUSMP):** S6 Poison.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion	Hazard Codes
Water	7732-18-5	65-90%	-
Ammonia	7664-41-7	10-35%	H221 H331 H314 H400

## 4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

### Inhalation:

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.

### Skin Contact:

If spilt on large areas of skin or hair, immediately drench with running water and remove clothing. Continue to wash skin and hair with plenty of water (and soap if material is insoluble) until advised to stop by the Poisons Information Centre or a doctor.

### Eye Contact:

If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes.

### Ingestion:

Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.

### Indication of 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.

## 5. FIRE FIGHTING MEASURES

Product Name: AMMONIA - AQUEOUS SOLUTIONS (10% - 35%)

Substance No: 000031026101

Issued: 02/01/2013

Version: 4

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## 5. FIRE FIGHTING MEASURES

### Suitable Extinguishing Media:

Not combustible, however, if material is involved in a fire use: Fine water spray, normal foam, dry agent (carbon dioxide, dry chemical powder).

**Hazchem or Emergency Action Code:** 2R

### Specific hazards arising from the substance or mixture:

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.

### Special protective equipment and precautions for fire-fighters:

If safe to do so, remove containers from path of fire. Keep containers cool with water spray. Ammonia: The main products of combustion in air, at or above 780 °C, are nitrogen and water with small amounts of nitrogen dioxide and ammonium nitrate. Ammonia decomposes into flammable hydrogen gas at approximately 450 °C. May form flammable mixtures in air. The presence of oil or other combustible material will increase the fire hazard. Fatalities have occurred as a result of the explosive nature of the ammonia gas. If involved in a fire, keep containers cool with water spray. If safe to do so, remove containers from path of fire. Fire-fighters to wear full body protective clothing and self-contained breathing apparatus. Consider evacuation.

## 6. ACCIDENTAL RELEASE MEASURES

### Emergency procedures/Environmental precautions:

Clear area of all unprotected personnel. If contamination of sewers or waterways has occurred advise local emergency services.

### Personal precautions/Protective equipment/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.

## 7. HANDLING AND STORAGE

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

### Precautions for safe handling:

Avoid skin and eye contact and breathing in vapour, mists and aerosols. Keep out of reach of children.

### 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.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters:** No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for constituent(s):

Ammonia: 8hr TWA = 17 mg/m<sup>3</sup> (25 ppm), 15 min STEL = 24 mg/m<sup>3</sup> (35 ppm)

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As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

STEL (Short Term Exposure Limit) - the airborne concentration of a particular substance calculated as a time-weighted average over 15 minutes, which should not be exceeded at any time during a normal eight hour work day. According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers.

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.

## Appropriate engineering controls:

Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Workplace Exposure Standards. If inhalation risk exists: Use with local exhaust ventilation or while wearing air supplied mask. Keep containers closed when not in use.

## Individual protection measures, such as Personal Protective Equipment (PPE):

The selection of PPE is dependant 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.

Orica Personal Protection Guide No. 1, 1998: J - OVERALLS, CHEMICAL GOGGLES, RUBBER BOOTS, AIR MASK , GLOVES (Long), APRON.

\* Not required if wearing air supplied mask.



Wear overalls, chemical goggles, full face shield, elbow-length impervious gloves, splash apron or equivalent chemical impervious outer garment, and rubber boots. Use with adequate ventilation. If inhalation risk exists, wear air-supplied mask meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b>	Liquid
<b>Colour:</b>	Colourless
<b>Odour:</b>	Sharp , Irritating
<b>Odour Threshold:</b>	0.6-53 ppm (detection); 0.7-55 ppm (recognition).
<b>Solubility:</b>	Miscible in water.
<b>Specific Gravity:</b>	0.88-0.92 @20°C
<b>Relative Vapour Density (air=1):</b>	0.6
<b>Vapour Pressure (20 °C):</b>	6.9-10.5 psi
<b>Flash Point (°C):</b>	Not applicable
<b>Flammability Limits (%):</b>	16-25
<b>Autoignition Temperature (°C):</b>	Not applicable
<b>% Volatile by Volume:</b>	100
<b>Boiling Point/Range (°C):</b>	18-37
<b>pH:</b>	11.7 (1% aqueous solution)

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## 10. STABILITY AND REACTIVITY

<b>Reactivity:</b>	Reacts violently with acids.
<b>Chemical stability:</b>	May form explosive compounds with mercury, halogens, and hypochlorites. Reacts exothermically with strong mineral acids .
<b>Possibility of hazardous reactions:</b>	Corrosive to copper , nickel , tin , zinc , and their alloys .
<b>Conditions to avoid:</b>	Avoid exposure to heat. Avoid exposure to light.
<b>Incompatible materials:</b>	Incompatible with peroxides , metal salts , acids , and reducing agents .
<b>Hazardous decomposition products:</b>	None known.

## 11. TOXICOLOGICAL INFORMATION

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:

<b>Ingestion:</b>	Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract.
<b>Eye contact:</b>	A severe eye irritant. Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury.
<b>Skin contact:</b>	Contact with skin will result in severe irritation. Corrosive to skin - may cause skin burns.
<b>Inhalation:</b>	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.

**Acute toxicity:**

Oral LD50 (rat): 350 mg/kg (1)

**Chronic effects:** Chronic exposure to ammonia may cause chemical pneumonitis and kidney damage.

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	Avoid contaminating waterways.
<b>Aquatic toxicity:</b>	Toxic to aquatic organisms.
96hr LC50 (rainbow trout):	0.53 mg/L (for ammonia) (2)

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods:**

Refer to Waste Management Authority. Dispose of contents/container in accordance with local/regional/national/international regulations.

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## 14. TRANSPORT INFORMATION

### Road and Rail Transport

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.



**UN No:** 2672  
**Transport Hazard Class:** 8 Corrosive  
**Packing Group:** III  
**Proper Shipping Name or Technical Name:** AMMONIA SOLUTION  
**Hazchem or Emergency Action Code:** 2R

### Marine Transport

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

**UN No:** 2672  
**Transport Hazard Class:** 8 Corrosive  
**Packing Group:** III  
**Proper Shipping Name or Technical Name:** AMMONIA SOLUTION

**IMDG EMS Fire:** F-A  
**IMDG EMS Spill:** S-B

### Air Transport

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

**UN No:** 2672  
**Transport Hazard Class:** 8 Corrosive  
**Packing Group:** III  
**Proper Shipping Name or Technical Name:** AMMONIA SOLUTION

## 15. REGULATORY INFORMATION

### Classification:

This material is hazardous according to Safe Work Australia; HAZARDOUS SUBSTANCE.

### Classification of the substance or mixture:

Skin Corrosion - Sub-category 1C  
Specific target organ toxicity (single exposure) - Category 3  
Acute Aquatic Toxicity - Category 1

### Hazard Statement(s):

H314 Causes severe skin burns and eye damage.  
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**Poisons Schedule (SUSMP):** S6 Poison.

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

## 16. OTHER INFORMATION

(1) 'Registry of Toxic Effects of Chemical Substances'. Ed. D. Sweet, US Dept. of Health & Human Services: Cincinnati, 2012.

(2) In: 'The Dictionary of Substances and their Effects'. Ed. Gangolli S. Royal Society of Chemistry, 1999.

This safety data sheet has been prepared by Orica Toxicology & SDS Services.

### **Reason(s) for Issue:**

5 Yearly Revised Primary SDS

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Orica Limited cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Orica representative or Orica Limited at the contact details on page 1.

Orica Limited's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.