# Safety Data Sheet

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product Name:** **AMMONIA/AMMONIUM CHLORIDE BUFFER**

**Recommended Use of the Chemical and Restrictions on Use** Reagent.


**Supplier:** Ixom Operations Pty Ltd (Incorporated in Australia)
**NZBN:** 9429041465226
**Street Address:** 166 Totara Street
Mt Maunganui South
New Zealand

**Telephone Number:** +64 9 368 2700
**Facsimile:** +64 9 368 2710
**Emergency Telephone:** **0 800 734 607 (ALL HOURS)**


Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

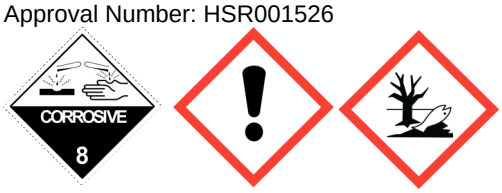
## 2. HAZARDS IDENTIFICATION

Classified as a Dangerous Good according to NZS 5433:2012 Transport of Dangerous Goods on Land.

Classified as hazardous according to criteria in the HS (Minimum Degrees of Hazard) Regulations 2001.

**Subclasses:**
Subclass 6.1 Category D - Substances which are acutely toxic.
Subclass 8.1 Category A - Substances that are corrosive to metals.
Subclass 8.2 Category C - Substances that are corrosive to dermal tissue.
Subclass 8.3 Category A - Substances that are corrosive to ocular tissue.
Subclass 9.1 Category A - Substances that are very ecotoxic in the aquatic environment.
Subclass 9.3 Category C - Substances that are harmful to terrestrial vertebrates.

Approval Number: HSR001526




**Hazard Statement(s):**
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H400 Very toxic to aquatic life.
H433 Harmful to terrestrial vertebrates.

**Precautionary Statement(s):**

**Prevention:**
P102 Keep out of reach of children.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P260 Do not breathe mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

**Response:**
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P321 Specific treatment (see First Aid Measures on the Safety Data Sheet).
P363 Wash contaminated clothing before re-use.
P304+P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P310 Immediately call a POISON CENTER or doctor/physician.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Storage:**
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.

**Disposal:**
P501 In case of a substance that is in compliance with a HSNO approval other than a Part 6A (Group Standards) approval, a label must provide a description of one or more appropriate and achievable methods for the disposal of a substance in accordance with the Hazardous Substances (Disposal) Regulations 2001. This may also include any method of disposal that must be avoided.

## 3. COMPOSITION AND INFORMATION ON INGREDIENTS

| Components | CAS Number | Proportion | Hazard Codes |
|---|---|---|---|
| Non hazardous component(s) | - | >60% | - |
| Ammonia, aqueous solution | 1336-21-6 | 10-<30% | H314 H400 |
| Ammonium chloride | 12125-02-9 | <10% | H302 H319 |

## 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

**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 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.

**Special protective equipment and precautions for fire-fighters:**
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. Fatalaties 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 residues with dilute acid. Collect and seal in properly labelled containers or drums for disposal.

## 7. HANDLING AND STORAGE

**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

**Workplace Exposure Standards:** No value assigned for this specific material by the New Zealand Workplace Health & Safety Authority. However, Workplace Exposure Standard(s) for constituent(s):

Ammonia: WES-TWA 25 ppm, 17 mg/m$^3$; WES-STEL 35 ppm, 24 mg/m$^3$
Ammonium chloride fume: WES-TWA 10 mg/m$^3$; WES-STEL 20 mg/m$^3$

As published by the New Zealand Workplace Health & Safety Authority.

WES - TWA (Workplace Exposure Standard - Time Weighted Average) - The eight-hour, time-weighted average exposure standard is designed to protect the worker from the effects of long-term exposure.

WES - STEL (Workplace Exposure Standard - Short Term Exposure Limits) - The 15 minute average exposure standard. Applies to any 15 minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both short-term and eight-hour, time-weighted average exposures should be determined.

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. Keep containers closed when not in use.

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.

**Individual protection measures, such as 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.

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 determined by a risk assessment an inhalation risk exists, wear an 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

| | |
|---|---|
| **Physical state:** | Clear Liquid |
| **Colour:** | Colourless |
| **Odour:** | Ammonia |
| **Solubility:** | Miscible in water. |
| **Specific Gravity:** | ca. 0.9 |
| **Relative Vapour Density (air=1):** | Not available |

| | |
|---|---|
| **Vapour Pressure (20 °C):** | Not available |
| **Flash Point (°C):** | Not applicable |
| **Flammability Limits (%):** | Not available |
| **Autoignition Temperature (°C):** | Not available |
| **Boiling Point/Range (°C):** | Not available |
| **pH:** | Not available |

## 10. STABILITY AND REACTIVITY

**Reactivity:** Reacts violently with acids.

**Chemical stability:** May form explosive compounds with mercury, halogens, and hypochlorites. Reacts exothermically with strong mineral acids .

**Possibility of hazardous reactions:** Corrosive to copper , nickel , tin , zinc , and their alloys .

**Conditions to avoid:** Avoid exposure to heat. Avoid exposure to light.

**Incompatible materials:** Incompatible with peroxides , metal salts , acids , reducing agents .

**Hazardous decomposition products:** Hydrogen.

## 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:

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

**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.

**Inhalation:** Breathing in mists or aerosols may 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:** No LD50 data available for the product. For the constituent Ammonium hydroxide :
Oral LD50 (rat): 350 mg/kg (1)

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

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** Avoid contaminating waterways.

**Aquatic toxicity:** Toxic to aquatic organisms.

96hr LC50 (rainbow trout): 0.53 mg/L (for ammonia) (2)

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods:**
Refer to local government authority for disposal recommendations. Dispose of contents/container in accordance with local/regional/national/international regulations.

## 14. TRANSPORT INFORMATION

**Road and Rail Transport**
Classified as a Dangerous Good according to NZS 5433:2012 Transport of Dangerous Goods on Land.


| | |
|---|---|
| **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:**
Classified as hazardous according to criteria in the HS (Minimum Degrees of Hazard) Regulations 2001.

**Subclasses:**
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H433 Harmful to terrestrial vertebrates.

## 16. OTHER INFORMATION

(1) `Registry of Toxic Effects of Chemical Substances'. Ed. D. Sweet, US Dept. of Health & Human Services: Cincinatti, 2017.
(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 Ixom Operations Pty Ltd Toxicology & SDS Services.

**Reason(s) for Issue:**
Change in Formulation
Update in Toxicological Information

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 Ixom Operations Pty Ltd 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 Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

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