

Air Liquide New Zealand Limited  
19 Maurice Road  
Penrose  
Auckland 1061

Phone: (09) 622 3880  
Fax: (09) 622 3881  
Emergency: 0800 156 516

## MATERIAL SAFETY DATA SHEET

Product Name:

**AMMONIA,  
(Low Pressure, Liquid) (NH<sub>3</sub>)**

Issued: May 2014

Revision: 8

Page: 1 of 7



Label 2.3 : Toxic gas.



Label 8 : Corrosive substance.

### IDENTIFICATION

**Chemical Name:** Ammonia  
**Synonyms:** None  
**UN Number:** 1005  
**Poisons Schedule Number:** S6  
**G.T. EPG. (Group Text. Emergency Procedure Guide):** AS 1678 2B3

**Use:** General chemical, refrigerant, explosives manufacturers.

### HAZARDS IDENTIFICATION

**Dangerous Goods Class and Subsidiary Risk:** 2.3 sub. 8  
**HSNO Classification:** 2.1.1B, 6.1C, 8.2B, 8.3A, 9.1A

**Hazard Statement:** Flammable gas.  
Causes severe skin burns and eye damage.  
Toxic if inhaled.  
Toxic if swallowed.  
Very toxic to aquatic life with long lasting effects.

**Precautionary Statements:** Read label before use.  
Read Safety Data Sheet before use.  
Keep out of reach of children.  
Keep away from heat, sparks, open flames and hot surfaces. No Smoking.

If Swallowed: Immediately call a Poison Centre or Doctor. Rinse mouth.  
Do NOT induce vomiting.  
If on Skin: Wash with plenty of soap and water. Remove immediately all contaminated clothing and wash before re-use.  
Do not breathe in gas.  
If Inhaled: Remove to fresh air and keep at rest in a position comfortable for breathing.  
If medical advice is needed, have product container or label at hand.  
Wash hands thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
Eliminate all ignition sources if safe to do so.  
Wear protective gloves/clothing and eye/face protection.  
Store in a well-ventilated place.  
Use only outdoors or in a well-ventilated area.  
Avoid release to the environment.

Collect spillage.

**COMPOSITION****Ingredients**

Chemical Entity	CAS Number	Proportion
Ammonia	7664-41-7	100%

**FIRST AID MEASURES****Health Effects****Acute**

- Swallowed: Can kill if swallowed.
- Eye: A severe eye irritant. Permanent damage including loss of sight may occur.
- Skin: Contact may cause first or second degree burns and if extensive may be fatal.
- Inhaled: Inhalation of high concentrations may cause severe breathing difficulty, chest pains and lung damage including severe oedema which may be fatal.

**Chronic**

No data available.

**First Aid**Swallowed:Seek immediate medical assistance. Give water to drink. **DO NOT** induce vomiting.Eye Contact:

Immediately irrigate with copious quantities of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.

Skin Contact:

Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. If swelling, redness, blistering or irritation occurs, seek medical advice.

Inhaled:

Remove victim from exposure - avoid becoming a casualty. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have qualified person give oxygen through a face mask. If breathing has stopped, apply artificial respiration at once. In the event of cardiac arrest, apply external cardiac massage. Seek medical attention.

**Advice to Doctor**

Treat symptomatically and advise exposure to ammonia has occurred. If vomiting occurs place the victim's face downwards, head lower than hips to prevent vomit entering lungs. Contact National Poisons Centre for Further Advice.

**FIRE FIGHTING MEASURES****Flammability:**

Flammable. May form explosive mixtures with air. Avoid all ignition sources.

**Fire/Explosion Hazard:**

Keep containers cool with water spray. Heating can cause expansion or decomposition leading to violent rupture of containers. If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Nitric oxide/nitrogen dioxide.

**Extinguishing Media:**

Water fog or fine water spray.

**Hazchem Code:**

2RE

**Recommended Protective Clothing:**

Use self-contained breathing apparatus and chemically protective clothing.

**ACCIDENTAL RELEASE MEASURES****Personal Protection:**

Personnel handling ammonia must wear PVC gloves, face shield, chemical goggles, rubber boots and splash apron. Always wash hands before smoking, eating, drinking or using the toilet. Full body encapsulating suit with self-contained breathing apparatus, e.g. a moon suit or acid suit should be readily available.

**Spills and Disposal:**

Shut off all possible sources if ignition. Evacuate unprotected personnel. Work upwind. Wear impervious overalls or similar protective apparel, safety glasses (goggles or face shield), appropriate respirator. Stop leak if possible by closing valves.

If contamination of crops or waterways has occurred, advise Emergency Services or State Department of Agriculture.

**Gas:** For a small gas leakage increase ventilation and allow gas to vent in safe area. Otherwise, use fire hoses equipped with fog nozzles to disperse gas down wind. Do not spray water directly on the leak or ammonia container. Alert Emergency Services.

**Liquid:** Large volumes of gas will evaporate from liquid spill. Contain liquid. Use sand and earth. Prevent run-off into drains or waterways. For small liquid spillages, allow vaporisation and treat as above. For large spillages, cover liquid with foam 150mm thick. Do not hose down liquid ammonia with water - this will only increase boil-off. Alert Emergency Services.

**Reference Guide:**

Standard SNZ HB 76:2008 Dangerous Goods – Initial Emergency Response Guide.

**General:**

Only experienced and properly instructed personnel should handle compressed gases. Cylinder contents and identification labels provided by the supplier must not be removed or defaced. Colour coding should not be the only criterion used for content identification.

**HANDLING AND STORAGE****Handling****Flammability:**

Flammable. May form explosive mixtures with air. Avoid all ignition sources.

**General:**

Only experienced and properly instructed personnel should handle compressed gases. Cylinder contents and identification labels provided by the supplier must not be removed or defaced. Colour coding should not be the only criterion used for content identification.

**Approved Handlers:**

Approved handlers required for any quantity stored on site.

## Storage

### Separation:

Not to be loaded with foodstuffs, flammable liquids (Class 3), flammable solids (Class 4), oxidising agents (Class 5).

Storage of compressed gas cylinders shall be in compliance with New Zealand regulations. Cylinders shall be stored in a cool, dry, well ventilated area out of direct sunlight and away from heat and ignition sources (including static discharges). No part of cylinders shall be exposed to temperatures above 55°C. Cylinders shall be stored upright on a level, fireproof floor, secure in position and protected from damage. Full cylinders shall be stored separately from empties.

Cylinders should be moved by hand-truck or cart designed for that purpose. Avoid any contact with oil or grease particularly to the cylinder valve.

Do not allow backfeed into the container. Suck back of water into the container must be prevented.

### Spills and Disposal:

Shut off all possible sources if ignition. Evacuate unprotected personnel. Work upwind. Wear impervious overalls or similar protective apparel, safety glasses (goggles or face shield), appropriate respirator. Stop leak if possible by closing valves.

If contamination of crops or waterways has occurred, advise Emergency Services or State Department of Agriculture.

Gas: For a small gas leakage increase ventilation and allow gas to vent in safe area. Otherwise, use fire hoses equipped with fog nozzles to disperse gas down wind. Do not spray water directly on the leak or ammonia container. Alert Emergency Services.

Liquid: Large volumes of gas will evaporate from liquid spill. Contain liquid. Use sand and earth. Prevent run-off into drains or waterways. For small liquid spillages, allow vaporisation and treat as above. For large spillages, cover liquid with foam 150mm thick. Do not hose down liquid ammonia with water - this will only increase boil-off. Alert Emergency Services.

<b>EXPOSURE CONTROLS / PERSONAL PROTECTION</b>
------------------------------------------------

### Exposure Standards:

TWA 25 ppm v/v, STEL 35 ppm v/v

### Engineering Controls:

Use with local exhaust ventilation or while wearing appropriate respirator.

### Personal Protection:

Personnel handling ammonia must wear PVC gloves, face shield, chemical goggles, rubber boots and splash apron. Always wash hands before smoking, eating, drinking or using the toilet. Full body encapsulating suit with self-contained breathing apparatus, e.g. a moon suit or acid suit should be readily available.

<b>PHYSICAL AND CHEMICAL PROPERTIES</b>
-----------------------------------------

### Physical Properties

Appearance:	Colourless, pungent odour	Flashpoint:	Not applicable
Boiling Point:	-33.4°C	Flammability Limits (in Air):	15% to 27%
Vapour Pressure:	8.6 bar	Solubility in Water (at 0°C):	1.07 m <sup>3</sup> /kg

### Other Properties

Relative Density (at 15°C) (Air = 1):	0.597	Density of Gas (101.3 kPa, 15°C):	0.731 kg/m <sup>3</sup>
Molecular Weight:	17.03	Critical Temperature:	132.4°C

**STABILITY AND REACTIVITY****Flammability:**

Flammable. May form explosive mixtures with air. Avoid all ignition sources (including static discharges).

**Materials Compatibility:**

No information.

**TOXICOLOGY INFORMATION**

Toxic by inhalation. Toxic in contact with skin. Toxic if swallowed. Causes severe skin burns and eye damage.

**ECOLOGICAL INFORMATION**

Very Toxic to Aquatic Organisms. May cause long term adverse effects in Aquatic Environment.

**DISPOSAL CONSIDERATIONS**

Avoid discharge to atmosphere. Do not discharge into any place where its accumulation could be dangerous. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Gas may be scrubbed in sulphuric acid solution. Gas may be scrubbed in water. Toxic and corrosive gases formed during combustion should be scrubbed before discharge to atmosphere. Seek expert advice on handling and disposal.

**TRANSPORT INFORMATION**

<b>UN Number:</b>	1005
<b>Proper Shipping Name:</b>	AMMONIA, ANHYDROUS
<b>Dangerous Goods Class and Subsidiary Risk:</b>	2.3 sub. 8
<b>Packing Group:</b>	Not applicable
<b>Hazchem Code:</b>	2RE
<b>Other Information:</b>	Avoid transport on vehicles where the load is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: <ul style="list-style-type: none"><li>• Ensure that containers are firmly secured.</li><li>• Ensure cylinder valve is closed and not leaking.</li><li>• Ensure there is adequate ventilation.</li><li>• Compliance with applicable regulations.</li></ul>

**REGULATORY INFORMATION****ERMA Register Approval No:** HSR001035

**HSNO Controls:** Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.  
Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001.  
Hazardous Substances (Disposal) Regulations 2001.  
Hazardous Substances (Personnel Qualifications) Regulations 2001.  
Hazardous Substances (Emergency Management) Regulations 2001.  
Hazardous Substances (Tracking) Regulations 2001.  
Hazardous Substances (Identification) Regulations 2001.  
Hazardous Substances (Compressed Gases) Regulations 2004.  
Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004.

Schedule 10 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004.

Schedule 12 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

**Approved Handlers:**

Approved handlers required for any quantity stored on site.

**OTHER INFORMATION**

Ammonia Cylinder Colour: White  
Cylinder Valve Outlet: Industrial: A 2473 Type 32.

References:

- . L'Air Liquide Gas Encyclopaedia - Elsevier Scientific Publishing Co. Amsterdam
- . Cheminfo Database
- . New Zealand Code for the Transport of Dangerous Goods by Road and Rail
- . NHMRC Threshold Limit Values - Commonwealth Dept Health
- . SAA Safe Storage and Handling Information Cards
- . SAA Emergency Procedure Cards
- . Matheson Gas Data Book, 6th Edition, Matheson 1980
- . Canadian Liquid Air Montreal, Canada - Gas Products Safety Data Sheets
- . AS 1894 Code of Practice for Safe Handling of Cryogenic fluids
- . NZCIC Code of Practice – Preparation of Safety Data Sheets

**END MSDS**

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

This MSDS has been prepared in accordance with NZCIC Code of Practice – Preparation of Safety Data Sheets.

**Air Liquide regional offices contact details on following page**

## **Regional Offices**

### **Auckland**

PO Box 12846  
19 Maurice Road  
Penrose  
Phone: 09 622 3888  
Fax: 09 622 3882

### **Hamilton**

PO Box 10 394  
2 Tawn Place, Pukete  
Phone: 07 849 2969  
Fax: 07 348 9063

### **Mt Maunganui**

89 Poturi Street, Tauriko  
Tauranga 3110  
Phone: 07 574 8475  
Fax: 07 574 8476

### **Palmerston North**

PO Box 10 010  
5 Connolly Place  
Palmerston North  
Phone: 06 355 5216  
Fax: 06 354 7104

### **Christchurch**

PO Box 16453  
7 Canterbury St  
Hornby  
Phone: 03 344 6033  
Fax: 03 344 6031

**Emergency 24hr Phone  
Number 0800 156 516**