

Date of issue: 31 March 2025  
Revised by: Simonne Moses - HSNO Consultant SDS No: 2

# Safety Data Sheet

## Ammonia, Anhydrous

Classified as: Hazardous according to the EPA Hazardous Substances  
(Hazard Classifications) Notice 2020.

### Section 1: SUBSTANCE AND SUPPLIER DETAILS

**Product Name:** Ammonia, Anhydrous

**Other Names:** Ammonia gas, Ammonia

**Supplier:** Chemtrex Limited  
PO Box 9122  
17 Maleme Street  
Tauranga 3112  
New Zealand

**Recommended Use:** Chemical manufacture, refrigeration.

### In Case of Emergency Contact:

CHEMCALL: 0800 CHEMCALL (243 622)

### Section 2: HAZARDS IDENTIFICATION

Classified as Dangerous Goods by the criteria of the New Zealand Land Transport Rule, Dangerous Goods for Transport by Road and Rail.

This substance is classified as hazardous according to criteria in the EPA Hazardous Substances (Hazard Classifications) Notice 2020.

HSNO APPROVAL NUMBER: **HSR001035**

HSNO CLASSIFICATIONS: 2.1.1B Flammable gas, medium hazard  
6.1C (inhalation) Acutely toxic  
8.2B Corrosive to dermal tissue  
8.3A Corrosive to ocular tissue  
9.1A(fish) Very ecotoxic in the aquatic environment, acute

GHS Classification: Flammable Gas – Category 2  
Gases under pressure – Liquefied Gas  
Acute toxicity inhalation – Category 3  
Skin corrosion/irritation – Category 1B  
Serious eye damage/eye irritation – Category 1  
Hazardous to the aquatic environment, acute – Category 1

### Hazard Statements:

H221 Flammable gas.  
H280 Contains gas under pressure; may explode if heated.  
H331 Toxic if inhaled.

H314 Causes severe skin burns and eye damage.  
H400 Very toxic to aquatic life.

GHS Pictograms:



## DANGER

### PREVENTION STATEMENTS:

- P102 Keep out of reach of children.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P260 Do not breathe gas.
- P264 Wash hands, exposed skin, 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.

### RESPONSE STATEMENTS:

- 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.
- P363 Wash contaminated clothing before reuse.
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P308 + P310 If exposed or concerned: Immediately call a POISON CENTER or doctor/physician.
- P321 Specific treatment (See First Aid treatment on the Safety Data Sheet).
- 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.

### STORAGE

- P410 + P403 + P233 - Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.

### DISPOSAL

- P501 - In accordance with the EPA Hazardous Substances (Disposal) Notice 2017. Refer to Section 13 of this SDS.

Other Hazards:

Skin contact with liquified ammonia gas can cause freeze burns.

## Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Single substance.

Main Component	CAS Number	Concentration (%wt)
Ammonia anhydrous	7664-41-7	>=99.8%

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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#### Section 4: FIRST AID MEASURES

<b>Workplace Facilities Required:</b>	Eye wash and safety shower facilities must be provided.
<b>For Advice:</b>	Contact 0800 CHEMCALL (0800 243 622)
<b>If Inhaled:</b>	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.
<b>In Contact with Eye:</b>	If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by a doctor, or for at least 15 minutes.
<b>In Contact with Skin:</b>	If skin or hair contact occurs, immediately remove any contaminated clothing and wash skin and hair thoroughly with running water. If swelling, redness, blistering or irritation occurs seek medical assistance. For skin burns, cover with a clean, dry dressing until medical help is available. Launder contaminated clothing before reuse.
<b>If Swallowed:</b>	Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.
<b>Advice to Doctor:</b>	Treat symptomatically. Effects may be delayed. Delayed pulmonary oedema may result. Corrosive to skin and eyes. Ophthalmological opinion should be sought for corneal burns.

#### Section 5: FIRE FIGHTING MEASURES

<b>Fire/Explosion Hazard:</b>	Flammable gas, gas under pressure. Gas is pungent and suffocating.
<b>Suitable Extinguishing Media:</b>	If material is involved in a fire use: water spray or fog.
<b>Precautions in Connection with Fire:</b>	Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. If safe to do so, remove containers from the path of fire. Use water to keep containers cool. Only move cool cylinders. Do not approach cylinders suspected to be hot. Ammonia gas dissolved in water will form a moderately alkaline solution.
<b>Advice for firefighters:</b>	Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure. If unable to keep cylinders cool, evacuate area.

#### Section 6: ACCIDENTAL RELEASE MEASURES

**An emergency response plan meeting the requirements of Part 5 of the Health and Safety at Work (Hazardous Substances) Regulations 2017 is required when held in quantities greater than 5kg. Wind socks should be installed where anhydrous ammonia is stored and used.**

<b>Precautions:</b>	Remove all sources of ignition. Clear area of all unprotected personnel. Evacuate personnel from downwind areas. Wear protective equipment to prevent skin and eye contact and inhalation of gas. Avoid breathing in gas. Work
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up wind or increase ventilation.

**Suitable Protective Equipment:** Emergency responders must use personal protective equipment, including gloves, protective overalls and footwear, face shield and self-contained breathing apparatus.

**Spill or Leak Procedures.** For large spills notify the emergency services.

Ammonia gas is heavier than air and will settle in low areas. Clouds of ammonia gas may not be visible if atmospheric conditions are dry. Will appear as a white cloud in damp conditions.

Shut off leak if possible, without risk. Use fire hoses equipped with fog nozzles to disperse gas downwind. If safe to do so, rotate container so that gas and not liquid escapes.

For liquid: Contain - prevent run off into drains and waterways. Use fog nozzles as before to disperse any gas. Where possible vapour knock down water should be contained.

SMALL SPILLS: Allow liquid to evaporate. Vapours may be diluted with water.

**Waste Disposal Methods:** Dispose of as per Section 13.

**Emergency preparation:** Ensure there is appropriate and adequate personal protective equipment, trained personnel and clean up materials for management of accidental release.

## Section 7: HANDLING AND STORAGE

**Precautions for Safe Handling:** Avoid contact with skin and eyes. Do not breathe gas. Do not eat, drink, or smoke when using this product. Remove contaminated clothing and wash hands and face before entering eating areas. Avoid release to the environment.

**Storage:** Cylinders should be securely restrained so that they are kept upright at all times. Tanks should be stored horizontally. Keep containers closed when not in use - check regularly for leaks.

Store in a cool, dry, well-ventilated area – dissolves in water to form a moderately alkaline solution. Store away from foodstuffs, ignition sources and incompatible materials. (For incompatible materials refer to Section 10.)

**Site Storage Requirements:** Site Signage will be required when quantities exceed 5kg.

## Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

**Workplace Exposure Standards NZ:** Ammonia anhydrous: WES-TWA 20 ppm, 14 mg/m<sup>3</sup>; WES-STEL 40 ppm, 28 mg/m<sup>3</sup>.

**Engineering Controls:** Ensure ventilation is adequate to maintain air concentrations below Workplace Exposure Standards. If inhalation risk exists: Use with local exhaust ventilation or while wearing air supplied mask. Vapour heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected.

**Personal Protective Equipment:** Avoid contact with the skin and eyes. Avoid inhaling gas.

\* Not required if wearing air supplied mask



- Hand protection:** Wear elbow-length impervious gloves. Refer to Australian and New Zealand Standard AS/NZS 2161 for protective gloves.
- Skin and body protection:** Use protective overalls. Clothing worn should be impervious to ammonia (such as neoprene, butyl rubber). Wash work clothes regularly. Refer to Australian and New Zealand Standard AS/NZS 4501 for occupational protective clothing.
- Eye protection:** Use full face shield to protect eyes and face. Alternatively, an air supplied mask can be used. Refer to AS/NZS 1336 for suitable eye and face protection.
- Respiratory protection:** Wear an air supplied mask. Refer to AS/NZS 1715 and AS/NZS 1716 for suitable respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Other information:** PPE selected must be impervious to the substance. Do not eat, smoke, or drink where material is handled, processed, or stored. Wash hands carefully before eating, drinking, or smoking. Handle in accordance with safe industrial hygiene practices.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Description:</b>	Gas/Liquid	<b>Colour:</b>	Colourless
<b>Odour:</b>	Irritating, pungent	<b>Odour Threshold:</b>	2-5ppm
<b>pH (20°C):</b>	11.6 (1N aq. solution)	<b>Solubility (water, 20°C):</b>	Very soluble
<b>Freezing point:</b>	-77 °C	<b>Boiling Point:</b>	-33 °C
<b>Flammability:</b>	Flammable, medium hazard	<b>Flash Point:</b>	Not available
<b>LEL/UEL:</b>	16 – 25%	<b>Vapour Pressure (35°C):</b>	7600 mm Hg
<b>Decomposition Temp:</b>	-77 °C	<b>Autoignition Temp:</b>	651 °C
<b>Specific Gravity:</b>	0.771 @ 0 °C	<b>Viscosity:</b>	Not available
<b>Vapour Density:</b>	0.60 (air = 1)	<b>Partition Coefficient:</b>	Not available
<b>Particle Characteristics:</b>	Not applicable		

## Section 10: STABILITY AND REACTIVITY

- Stability:** Stable under normal temperature and pressure conditions.
- Reactivity:** Reacts exothermically with acids and water.  
May react explosively with strong oxidisers.  
Forms explosive mixtures in air with hydrocarbons, chlorine, fluorine, and silver nitrate. May react to form explosive mixtures with silver compounds, gold, mercury, iodine, and bromine.  
Hazardous polymerisation will not occur.
- Conditions to Avoid:** Avoid exposure to heat, sources of ignition, and open flame. Avoid contact with

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chlorine as this will form chloramine gas. Avoid contact with galvanised surfaces, copper, brass, bronze, mercury, gold and silver as a corrosive reaction will occur.

**Incompatibility:** Incompatible with strong acids, acetaldehyde, acrolein, boron, chloric acid, chlorine monoxide, chlorites, nitrogen tetroxide, perchlorate, sulfur, tin, gold, mercury, silver and halogens.

**Hazardous Decomposition:** Decomposes to form nitrogen and hydrogen gases above 450°C. Decomposition temperatures may be lowered by contact with certain metals, such as iron, nickel and zinc, and by catalytic surfaces such as pumice and porcelain.

## Section 11: TOXICOLOGICAL INFORMATION

### Acute Exposure

**Acute Toxicity:** Acutely toxic by inhalation.  
LD<sub>50</sub> oral > 2000 mg/kg  
LD<sub>50</sub> dermal > 2000 mg/kg  
LC<sub>50</sub> inhalation (mice) 4824 ppm/1hr. Converts to 1205 ppm/4hr

**Inhalation:** Toxic if inhaled. May cause irritation or burns to mucous membranes, shortness of breath, wheezing.

**Ingestion:** Swallowing liquid will result in freeze burns of the mouth, throat, and stomach. Swallowing can result in chemical burns to the mouth, throat, and abdomen; perforation of the gastrointestinal tract and vomiting of blood and eroded tissue.

**Skin Corrosion/Irritation:** Liquid splashes or spray may cause freeze burns and caustic burns. Skin contact with gas may cause corrosive burns.

**Serious Eye Damage/Eye Irritation:** Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury. Liquid splashes or spray may cause freeze burns to the eye.

**Respiratory or Skin Sensitisation:** Not expected to be a respiratory or contact sensitiser.

### Chronic Exposure:

**Mutagen/Carcinogen/Reproductive Toxicant** No information available. Product is not expected to be mutagenic, carcinogenic or a reproductive toxicant.

**Specific Target Organ Toxicity Single Exposure:** No information available. Not expected to be a specific target organ toxicant by single exposure.

**Specific Target Organ Toxicity Repeated Exposure:** No information available. Not expected to be a specific target organ toxicant by repeated exposure.

**Aspiration Hazard:** No information available. Not expected to be an aspiration hazard.

Toxicity data is based on hazardous ingredient information and information in the EPA Chemical Classification and Identification Database.

## Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity:** Very toxic to aquatic organisms with short-term, acute effects.  
Avoid losses of product to the environment wherever possible.

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LC50 (fish) 96 hr: 0.45 mg/L

**Persistence/degradability:** Product is biodegradable.

**Bioaccumulation:** Not bioaccumulative.

**Mobility in soil:** No information available.

**Other adverse effects:** Gas may dissolve in water to form moderately alkaline solutions. Spills may affect water pH. Avoid losses of product to the environment wherever possible.

**Ingredients with Ecotoxic classifications:** Anhydrous Ammonia is classified as very ecotoxic to aquatic life with acute effects. Ecotoxicity data is based on hazardous ingredient information and information in the EPA Chemical Classification and Identification Database.

### Section 13: DISPOSAL CONSIDERATIONS

**Disposal:** Avoid discharge of untreated product to the environment. Dispose of waste product via an approved waste disposal contractor. Toxic and corrosive gases should be scrubbed before discharge to atmosphere. Ammonia may be scrubbed in water or a sulphuric acid solution. Contact supplier for advice.

**Disposal of Packaging:** Cylinders and tanks may contain product residues and should be treated as hazardous. Do not puncture or incinerate container. Return to supplier or contact supplier for advice.

### Section 14: TRANSPORT INFORMATION

Anhydrous Ammonia is classified as a Dangerous Good for transport in accordance with NZS5433:2020, IMDG, and IATA.

Ensure transportation methods prevent leakage from packages and collapsing loads.



#### Land Transport:

UN No: 1005  
Transport Hazard Class: 2.3 Toxic Gas  
Subrisk 1: 8 Corrosive  
Proper Shipping Name or Technical Name: AMMONIA  
Hazchem or Emergency Action Code: 2RE

#### Marine Transport:

UN No: 1005  
Transport Hazard Class: 2.3 Toxic Gas  
Subrisk 1: 8 Corrosive  
Proper Shipping Name or Technical Name: AMMONIA  
IMDG EMS Fire: F-C  
IMDG EMS Spill: S-U  
Marine Pollutant: Yes

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### Air Transport:

TRANSPORT PROHIBITED under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in Passenger and Cargo Aircraft, and Cargo Aircraft Only.

## Section 15: REGULATORY INFORMATION

**EPA Approval Number:** Ammonia, anhydrous HSR001035

**Classifications:** Flammable Gas – Category 2  
Gases under pressure – Liquefied Gas  
Acute toxicity inhalation – Category 3  
Skin corrosion/irritation – Category 1B  
Serious eye damage/eye irritation – Category 1  
Hazardous to the aquatic environment, acute – Category 1

**NZ Inventory of Chemicals:** All ingredients are listed in the NZ inventory of chemicals.

**This substance triggers:**

Compliance Certificate	100 kg
Certified Handler	No*
Emergency Response Plan	5kg
Secondary Containment	N/A
Signage	5kg

\* Must be secured when quantities  $\geq$  100 kg.

This substance is not required to be Tracked.

This product is restricted to workplaces. Suppliers must ensure they comply with Clause 13 of the EPA Hazardous Substances (Hazardous Property Controls) Notice 2017 (Consolidated) and keep written records in accordance with this clause.

All workplace personnel handling this substance are required to be trained on the safe handling and PPE requirements for the hazards associated with this substance.

## Section 16: OTHER INFORMATION

The information provided in this Safety Data Sheet relates only to the specific material designated herein. This Safety Data Sheet summarises our best knowledge of the health and safety hazard information of the product and how to safely handle the product in the workplace. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace including its use in conjunction with other products.

This substance is approved under HSNO for various industrial uses. All reasonable care has been taken to ensure that the information and advice contained herein are from sources believed to be reliable and to represent the most up-to-date knowledge available at the date given in Section 16. No liability is assumed for any damages related to the use or misuse of this substance.

All chemical materials may present unknown hazards as people have varying degrees of sensitivity to chemicals. Therefore, this product should be used with caution. The information herein is given in good faith, but no warranty, express or implied is made.

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SDS Issued: 31/03/2025

Supersedes: 6/11/2020

Reason for Revision: 5-year review and update.

References:

EPA NZ Chemical Classification and Information Database  
EPA Guide: Assigning a Hazardous Substance to a Group Standard, 2014  
EPA Consolidated Hazardous Substances (Safety Data Sheets) Notice 2017  
EPA Consolidated Hazardous Substances (Hazardous Property Controls) Notice 2017

Summary of Abbreviations: EPA – Environmental Protection Authority  
GHS – Global Harmonisation System  
CAS – Chemical Abstracts Service  
TWA – Time Weighted Average  
STEL – Short Term Exposure Limit

**END OF SAFETY DATA SHEET**