# Ammonium Hydroxide

## SECTION 1. IDENTIFICATION

| | |
|---|---|
| **Product Identifier** | Ammonium Hydroxide |
| **Other Means of Identification** | Aqua Ammonia, Ammonia Solution, Ammonium Hydroxide ACS, Ammonium Hydroxide 26 deg Be |
| **Product Code(s)** | AM4810, AM4820 |
| **Product Family** | Inorganic solution |
| **Recommended Use** | Laboratory and industrial use. |
| **Restrictions on Use** | None known. |
| **Supplier Identifier** | Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995 |
| **Emergency Phone No.** | CANUTEC CANADA, 613-996-6666, 24 Hours |
| **SDS No.** | 0202 |

## SECTION 2. HAZARD IDENTIFICATION

**Classification**

Acute toxicity (Oral) - Category 4; Skin corrosion - Category 1; Serious eye damage - Category 1

**Label Elements**

Signal Word:
Danger

Hazard Statement(s):
Harmful if swallowed.
Harmful if inhaled.
Causes severe skin burns and eye damage.
Heating may cause a fire.

Precautionary Statement(s):
Do not breathe dust/fume/gas/mist/vapours/spray.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN: Wash with plenty of water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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 CENTRE or doctor.

**Other Hazards**

May be a health and fire hazard in a confined space.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

| Chemical Name | CAS No. | % | Other Identifiers |
|---|---|---|---|
| Ammonia gas | 7664-41-7 | 20 - 31.5 | Anhydrous Ammonia, Ammoniac |
| Water | 7732-18-5 | 68.5 - 80 | Dihydrogen Oxide |

**Notes**

Concentration is in percentage as Anhydrous Ammonia. 25 ppm as NH3.

## SECTION 4. FIRST-AID MEASURES

**First-aid Measures**

**Inhalation**

Remove source of exposure or move to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor. DO NOT move about unnecessarily. Symptoms of pulmonary edema may be delayed.

**Skin Contact**

Immediately rinse skin with lukewarm, gently flowing water for at least 30 minutes. DO NOT INTERRUPT FLUSHING. If it can be done safely, continue flushing during transport to hospital.

**Eye Contact**

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open.

**Ingestion**

Never give anything by mouth if person is rapidly losing consciousness, or is unconscious or convulsing. Do not induce vomiting. Do not induce vomiting. Rinse mouth with water. Immediately call a Poison Centre or doctor. Specific treatment is required.

**First-aid Comments**

Some of the first-aid procedures recommended here require advanced first-aid training. Get medical advice or attention if you feel unwell or are concerned.

**Most Important Symptoms and Effects, Acute and Delayed**

If inhaled: at low concentrations can cause severe irritation of the nose and throat. Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest.

**Immediate Medical Attention and Special Treatment**

**Special Instructions**

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

## SECTION 5. FIRE-FIGHTING MEASURES

**Extinguishing Media**

**Suitable Extinguishing Media**

Not combustible. Use extinguishing agent suitable for surrounding fire. Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.

**Unsuitable Extinguishing Media**

None known.

**Specific Hazards Arising from the Product**

Heating increases the release of toxic vapour. Closed containers may rupture violently when heated releasing contents.
In a fire, the following hazardous materials may be generated: corrosive, flammable ammonia; corrosive, oxidizing nitrogen oxides; flammable hydrogen.

**Special Protective Equipment and Precautions for Fire-fighters**

Evacuate area. Fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours or gases. Knock down vapours or gases with water fog or fine water spray. Use water spray to flush spills away from ignition sources. Dike and recover contaminated water for appropriate disposal.
Fire-fighters should enter area wearing specialized protective equipment. (Bunker Gear will not provide adequate protection.) chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment, and Emergency Procedures**

Emergency responders: evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Evacuate downwind locations. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment. Remove or isolate incompatible materials as well as other hazardous materials. Increase ventilation to area or move leaking container to a well-ventilated and secure area. Before entry, especially into confined areas, check atmosphere with an appropriate monitor.

**Environmental Precautions**

Do not allow into any sewer, on the ground or into any waterway. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

**Methods and Materials for Containment and Cleaning Up**

Small spills or leaks: stop or reduce leak if safe to do so. Contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal. Flush spill area.
Large spills or leaks: contact emergency services and manufacturer/supplier for advice. Dike and recover contaminated water for appropriate disposal. Store recovered product in suitable containers that are: tightly-covered, corrosion-resistant.

## SECTION 7. HANDLING AND STORAGE

**Precautions for Safe Handling**

Wear personal protective equipment to avoid direct contact with this chemical. Avoid breathing in this product. Do not get in eyes, on skin or on clothing. Only use where there is adequate ventilation. Avoid generating vapours or mists. Prevent accidental contact with incompatible chemicals. Immediately report leaks, spills or failures of the safety equipment (e.g. ventilation system).

**Conditions for Safe Storage**

Store in an area that is: cool, well-ventilated, separate from incompatible materials (see Section 10: Stability and Reactivity). Have escape-type respiratory protective equipment readily available, in case of leaks or spills. Keep amount in storage to a minimum. Store in the original, labelled, shipping container. Comply with all applicable health and safety regulations, fire and building codes.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

| | ACGIH TLV® | | OSHA PEL | | AIHA WEEL | |
|---|---|---|---|---|---|---|
| **Chemical Name** | **TWA** | **STEL** | **TWA** | **Ceiling** | **8-hr TWA** | **TWA** |
| Ammonia gas | 25 ppm | 35 ppm | | | | |
| Water | Not established | | Not established | | | |

**Appropriate Engineering Controls**

Use stringent control measures such as process enclosure to prevent product release into the workplace. Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. For large scale use of this product: use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas

where this product is used and stored. Provide eyewash and safety shower if contact or splash hazard exists. Use an automatic leak detection system.

**Individual Protection Measures**

**Eye/Face Protection**

Wear chemical safety goggles and face shield when contact is possible.

**Skin Protection**

Wear chemical protective clothing e.g. gloves, aprons, boots.
Suitable materials are: butyl rubber, Viton®, Viton®/butyl rubber, neoprene rubber, nitrile rubber.
The following materials should NOT be used: natural rubber, polyethylene, polyvinyl alcohol, Barrier® (PE/PA/PE).

**Respiratory Protection**

Wear a NIOSH approved air-purifying respirator with an appropriate cartridge.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### Basic Physical and Chemical Properties

| | |
|---|---|
| **Appearance** | Colourless liquid. |
| **Odour** | Pungent |
| **Odour Threshold** | 2 - 5 ppm |
| **pH** | 12.0 |
| **Melting Point/Freezing Point** | Not available (melting); Not available (freezing) |
| **Initial Boiling Point/Range** | 22.8 - 47.8 °C |
| **Flash Point** | Not applicable |
| **Evaporation Rate** | Not applicable |
| **Flammability (solid, gas)** | Not available |
| **Upper/Lower Flammability or Explosive Limit** | 25% (upper); 16% (lower) |
| **Vapour Pressure** | 25.84 - 217.04 kPa |
| **Vapour Density (air = 1)** | 0.6 |
| **Relative Density (water = 1)** | Not available |
| **Solubility** | Soluble in water; Soluble in all proportions in alcohols (e.g. ethanol). |
| **Partition Coefficient, n-Octanol/Water (Log Kow)** | Not available |
| **Auto-ignition Temperature** | 651 °C |
| **Decomposition Temperature** | Not available |
| **Viscosity** | Not available (kinematic); Not available (dynamic) |

### Other Information

| | |
|---|---|
| **Physical State** | Liquid |
| **Bulk Density** | Not applicable |

## SECTION 10. STABILITY AND REACTIVITY

**Reactivity**

Not reactive under normal conditions of use.

**Chemical Stability**

Normally stable.

**Possibility of Hazardous Reactions**

None known.

**Conditions to Avoid**

Heat. Incompatible materials.

**Incompatible Materials**

Halogens (e.g. chlorine), strong oxidizing agents (e.g. perchloric acid), strong acids (e.g. hydrochloric acid).

**Hazardous Decomposition Products**

None known.

## SECTION 11. TOXICOLOGICAL INFORMATION

**Likely Routes of Exposure**

Inhalation; skin contact; eye contact; ingestion.

**Acute Toxicity**

| Chemical Name | LC50 | LD50 (oral) | LD50 (dermal) |
|---|---|---|---|
| Ammonia gas | 350 mg/kg (rat) (4-hour exposure) | | |
| Water | Not available | > 89840 mg/kg (rat) | Not available |

LC50: No information was located.

LD50 (oral): No information was located.

LD50 (dermal): No information was located.

**Skin Corrosion/Irritation**

Human experience shows skin corrosion. Reacts with water to form corrosive material. May burn the skin. Permanent scarring may result. Contact can cause pain, redness, burns, and blistering. Permanent scarring can result.

**Serious Eye Damage/Irritation**

Contact causes severe burns with redness, swelling, pain and blurred vision. Permanent damage including blindness can result.

**STOT (Specific Target Organ Toxicity) - Single Exposure**

**Inhalation**

Causes severe nose and throat irritation. Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest.

**Skin Absorption**

No information was located.

**Ingestion**

Harmful Causes severe irritation or burns to the mouth, throat and stomach. Symptoms may include nausea, vomiting, stomach cramps and diarrhea. Permanent damage can result.

**Aspiration Hazard**

No information was located.

**STOT (Specific Target Organ Toxicity) - Repeated Exposure**

No information was located.

**Respiratory and/or Skin Sensitization**

No information was located.

**Carcinogenicity**

| Chemical Name | IARC | ACGIH® | NTP | OSHA |
|---|---|---|---|---|
| Ammonia gas | Not evaluated | Not designated | Not Listed | |
| Water | Not Listed | Not Listed | Not Listed | Not Listed |

Key to Abbreviations

IARC = International Agency for Research on Cancer.
ACGIH® = American Conference of Governmental Industrial Hygienists.
NTP = National Toxicology Program.
OSHA = US Occupational Safety and Health Administration.

**Reproductive Toxicity**

**Development of Offspring**

No information was located.

**Sexual Function and Fertility**

No information was located.

**Effects on or via Lactation**

No information was located.

**Germ Cell Mutagenicity**

Conclusions cannot be drawn from the limited studies available.

**Interactive Effects**

No information was located.

## SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

## SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal Methods**

Dispose of contents and container in accordance with local, regional, national and international regulations.

## SECTION 14. TRANSPORT INFORMATION

| Regulation | UN No. | Proper Shipping Name | Transport Hazard Class(es) | Packing Group |
|---|---|---|---|---|
| Canadian TDG | UN2672 | Ammonia Solution | 8 ; 9.2 | III |
| US DOT | UN2672 | Ammonia Solution | 8 | III |

**Environmental Hazards** Environmentally Hazardous Substance

**Special Precautions** Not applicable

**Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable

## SECTION 15. REGULATORY INFORMATION

**Safety, Health and Environmental Regulations**

**Canada**

**Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)**

Listed on the DSL.

**USA**

**Toxic Substances Control Act (TSCA) Section 8(b)**

Listed on the TSCA Inventory.

## SECTION 16. OTHER INFORMATION

**SDS Prepared By** Alphachem Limited
**Phone No.** (905)-821-2995
**Date of Preparation** November 12, 2015
**Date of Last Revision** April 04, 2016
**References** CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). ANCO

Chemicals database.

**Disclaimer**

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