

Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name: Ammonia Mixture Corrosive	Trade Name: Ammonia Mixture Corrosive
Product Use: Many.	
Chemical Name: Ammonia Mixture Corrosive	Synonym: Not applicable.
Chemical Formula: Not applicable.	Chemical Family: Not applicable
Telephone: Emergencies: * 1-800-363-0042	Supplier /Manufacture: Praxair Canada Inc. 1 City Centre Drive Suite 1200 Mississauga, ON L5B 1M2 Phone: 905-803-1600 Fax: 905-803-1682

**Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier or Praxair sales representative.*

2. Composition and Information on Ingredients

INGREDIENTS	% (VOL)	CAS NUMBER	LD ₅₀ (Species & Routes)	LC ₅₀ (Rat, 4 hrs.)	TLV-TWA (ACGIH)
Ammonia, anhydrous	1.0-15	7664-41-7	Not available.	2,000 ppm	25 ppm
AND CONTAINS ONE OR MORE OF THE FOLLOWING GASES:					
Nitrogen	Balance	7727-37-9	Not applicable.	Not available.	Simple asphyxiant.
Helium	Balance	7440-59-7	Not available.	Not available.	Simple asphyxiant.
Argon	Balance	7440-37-1	Not available.	Not available.	Simple asphyxiant.
Krypton	Balance	7439-90-9	Not available.	Not available.	Simple asphyxiant
Xenon	Balance	7440-63-3	Not available.	Not available.	Simple asphyxiant.
Neon	Balance	7440-01-9	Not available.	Not available.	Simple asphyxiant.

3. Hazards Identification



Emergency Overview



WARNING! Toxic, corrosive, high-pressure gas. May be fatal if inhaled. Symptoms may be delayed. May cause respiratory system damage. Self-contained breathing apparatus must be worn by rescue workers.

ROUTES OF EXPOSURE: Absorbed through skin. Eye contact. Inhalation. Ingestion.

THRESHOLD LIMIT VALUE: TLV-TWA Data from 2007 Guide to Occupational Exposure Values (ACGIH). TLV-TWAs should be used as a guide in the control of health hazards and not as fine lines between safe and dangerous concentrations.

EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:

INHALATION: Overexposure to concentrations moderately above the threshold Limit Value (TLV) of 25 ppm for ammonia may cause irritation of the eyes, nose, and throat. Higher concentrations may cause breathing difficulty, chest pain, bronchospasm, pink frothy sputum, and pulmonary edema. Overexposure may predispose to the development of acute bronchitis and pneumonia. This gas mixture may also cause asphyxiation.

SKIN CONTACT: This product is a gas.

SKIN ABSORPTION: Prolonged or widespread skin contact with the liquid may result in the absorption of harmful amounts of material.

SWALLOWING: An unlikely route of exposure. This product is a gas at normal temperature and pressure, but may cause chemical burn of the mouth, throat, oesophagus and stomach.

EYE CONTACT: This product is a gas.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE:
Chronic exposure may cause chemical pneumonitis and kidney damage.

OTHER EFFECTS OF OVEREXPOSURE:
None currently known.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:
Inhalation may aggravate asthma and inflammatory or fibrotic pulmonary disease. The skin irritating properties of this material may aggravate an existing dermatitis.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:
Not currently known.

CARCINOGENICITY:
Not listed as carcinogen by OSHA, NTP or IARC.

4. First Aid Measures

INHALATION:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

SKIN CONTACT:
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Discard clothing and shoes. Call a physician.

SWALLOWING:
This product is a gas at normal temperature and pressure. Rinse mouth with water. Give at least two glasses of water or milk at once. Do not induce vomiting. Call a physician.

EYE CONTACT:
This product is a gas.

NOTES TO PHYSICIAN:
Victims of overexposure should be observed for at least 72 hours for delayed onset of pulmonary edema. The hazards of this material are mainly due to its severe irritant and corrosive properties on the skin and mucosal surfaces. There is no specific antidote, and treatment should be directed at the control of symptoms and the clinical condition.

5. Fire Fighting Measures

FLAMMABLE : No. **IF YES, UNDER WHAT CONDITIONS?** Not available.

FLASH POINT (test method) Not applicable. **AUTOIGNITION TEMPERATURE** Not applicable.

FLAMMABLE LIMITS IN AIR, % by volume: **LOWER:** Not applicable. **UPPER:** Not applicable.

EXTINGUISHING MEDIA:

CO2, dry chemical, water spray or fog.

SPECIAL FIRE FIGHTING PROCEDURES:

WARNING Evacuate all personnel from danger area. Do not approach area without self-contained breathing apparatus and protective clothing. Immediately cool containers with water spray from maximum distance taking care not to extinguish flames. Remove ignition source if without risk. If flames are accidentally extinguished, explosive re-ignition may occur. Reduce corrosive vapours with water spray or fog. Stop flow of gas if without risk while continuing cooling water spray. Remove all containers from area or fire if without risk. Allow fire to burn out.

UNUSUAL FIRE AND EXPLOSION HAZARD:

Toxic, corrosive gas. Container may rupture due to heat of fire. Do not extinguish flames due to possibility of explosive re-ignition. Corrosive vapours may spread from spill. Explosive atmospheres may linger. Before entering area, especially confined areas, check atmosphere with appropriate device. No part of a container should be subjected to a temperature higher than 52 C.

HAZARDOUS COMBUSTION PRODUCTS:

None.

SENSITIVITY TO IMPACT:

Avoid impact against container.

SENSITIVITY TO STATIC DISCHARGE:

Not available.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

WARNING! Corrosive, toxic gas. Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus and protective clothing where needed. Reduce vapours with fog or fine water spray. Reverse flow into cylinder may cause rupture. Shut off leak if without risk. Ventilate area of leak or move leaking container to well ventilated area. Prevent runoff from contaminating surrounding environment. Corrosive, toxic vapours may spread from spill. Before entering area, especially confined areas, check atmosphere with appropriate device.

WASTE DISPOSAL METHOD:

Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, provincial, and local regulations. If necessary, call your local supplier for assistance.

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN STORAGE:

Store and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 52 C. Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

PRECAUTIONS TO BE TAKEN IN HANDLING:

Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. If valve is hard to open, discontinue use and contact your supplier.

For additional information on storage and handling, refer to Compressed Gas Association (CGA) pamphlet P-1, *Safe Handling of Compressed Gases in Containers*, available from the CGA. Refer to Section 16 for the address and phone number along with a list of other available publications.

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:

Toxic, corrosive high-pressure gas. Do not breathe gas. Do not get vapour in eyes, on skin, or on clothing. Have safety showers and eyewash fountains immediately available. Use only in a closed system. Use piping and equipment adequately designed to withstand pressures to be encountered. Store and use with adequate ventilation. Close valve after each use; keep closed even when empty. **Prevent reverse flow.** Reverse flow into cylinder may cause rupture. Use a check valve or other protective device in any line or piping from the cylinder. **When returning cylinder to supplier,** be sure valve is closed, then install valve outlet plug tightly. **Never work on a pressurized system.** If there is a leak, close the cylinder valve. Vent the system down in a safe and environmentally sound manner in compliance with all federal, provincial, and local laws; then repair the leak. **Never place a compressed gas cylinder where it may become part of an electrical circuit.**

8. Exposure Controls/Personal Protection

VENTILATION/ENGINEERING CONTROLS:

LOCAL EXHAUST: Explosion-proof, corrosion resistant system is acceptable.

MECHANICAL (general): Inadequate.
See SPECIAL.

SPECIAL: Use only in a closed system. Explosion-proof, corrosion resistant, forced draft fume hood is preferred.

OTHER: See SPECIAL.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION: Select in accordance with provincial regulations, local bylaws or guidelines. Selection should also be based on the current CSA standard Z94.4, "Selection, Care and Use of Respirators". Respirators should also be approved by NIOSH and MSHA.

SKIN PROTECTION: Neoprene

EYE PROTECTION: Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.

Product Name: Ammonia Mixture
Corrosive

MSDS# E-6744-G

Date: 10/15/2007

OTHER PROTECTIVE EQUIPMENT: Metatarsal shoes for cylinder handling. Protective clothing where needed. Cuffless trousers should be worn outside the shoes. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines.

9. Physical and Chemical Properties

PHYSICAL STATE: Gas.	FREEZING POINT: Not available.	pH: Not available.
BOILING POINT: Not available.	VAPOUR PRESSURE: Not available.	MOLECULAR WEIGHT: Not applicable.
SPECIFIC GRAVITY: Not available. LIQUID (Water = 1)	SOLUBILITY IN WATER: Not available.	
SPECIFIC GRAVITY: Not available. VAPOUR (air = 1)	EVAPORATION RATE (Butyl Acetate=1): Not available.	COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable.
VAPOUR DENSITY: Not available.	% VOLATILES BY VOLUME: Not available.	ODOUR THRESHOLD: Not available.

APPEARANCE & ODOUR: Colourless gas at normal temperature and pressure. Pungent, irritating odour.

10. Stability and Reactivity

STABILITY:	The product is stable.
CONDITIONS OF CHEMICAL INSTABILITY:	See Section 7.
INCOMPATIBILITY (materials to avoid):	Gold, silver, mercury, oxidizing agents, halogens, halogenated compounds, acids, copper, copper-zinc alloys (brass), aluminum, chlorates, zinc.
HAZARDOUS DECOMPOSITION PRODUCTS:	Hydrogen may be formed at temperatures in excess of 840 C in the absence of air and oxygen. The normal products of combustion are nitrogen and water.
HAZARDOUS POLYMERIZATION:	Will not occur.
CONDITIONS OF REACTIVITY:	None.

11. Toxicological Information

See section 3.

12. Ecological Information

No adverse ecological effects expected. This product does not contain any Class I or Class II ozone-depleting chemicals. The components of this mixture are not listed as marine pollutants by TDG Regulations.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

14. Transport Information

TDG/IMO SHIPPING NAME: Compressed gas, toxic, corrosive, n.o.s.

HAZARD CLASS:	IDENTIFICATION #:	PRODUCT RQ:
CLASS 2.3: Poisonous gas. Class 8: Corrosive material	UN3304	ALL.

SHIPPING LABEL(s): Poison gas, Corrosive gas (subsidiary)

PLACARD (when required): Poison gas, Corrosive gas (subsidiary)

SPECIAL SHIPPING INFORMATION:

Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, nonventilated compartment of vehicle can present serious safety hazards.

15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, provincial, and local regulations.

DSL (Canada) This product is on the DSL list

WHMIS (Canada) Class A: Compressed gas.
Class D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
Class E: Corrosive gas.

International Regulations

EINECS Not available.

DSCL (EEC) R20- Harmful by inhalation.

International Lists No products were found.

16. Other Information

MIXTURES:

When two or more gases, or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist, or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

HAZARD RATING SYSTEM:

HMIS RATINGS:

Product Name: Ammonia Mixture
Corrosive

MSDS# E-6744-G

Date: 10/15/2007

HEALTH 2
FLAMMABILITY 0
PHYSICAL HAZARD 2

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED: CGA-705
PIN-INDEXED YOKE: Not available.
ULTRA-HIGH-INTEGRITY CONNECTION: Not available.

Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlets V-1 and V-7 listed below.

Ask your supplier about free Praxair safety literature as referred to in this MSDS and on the label for this product. Further information about this product can be found in the following pamphlets published by the Compressed Gas Association, Inc. (CGA), 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923, Telephone (703) 788-2700, Fax (703) 961-1831, website: www.cganet.com.

- AV-1 Safe Handling and Storage of Compressed Gas
- P-1 Safe Handling of Compressed Gases in Containers
- P-14 Accident Prevention in Oxygen-Rich, Oxygen-Deficient Atmospheres
- SB-2 Oxygen-Deficient Atmospheres
- V-1 Compressed Gas Cylinder Valve Inlet and Outlet Connections
- V-7 Standard Method of Determining Cylinder Valve Outlet Connections for Industrial Gas Mixtures
- Handbook of Compressed Gases, Fourth Edition

For more indepth information for each component, refer to the pure product MSDS.

The information contained in this MSDS is generated from technical sources using the Chemmate Mixture MSDS system and the pure-product MSDS for each component. These mixtures are not tested as a whole for chemical, physical, or health effects.

PREPARATION INFORMATION:

DATE: 10/15/2007
DEPARTMENT: Safety and Environmental Services
TELEPHONE: 905-803-1600

The opinions expressed herein are those of qualified experts within Praxair Canada Inc. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Praxair Canada Inc., it is the user's obligation to determine the conditions of safe use of the product.

Praxair Canada Inc. requests the users of this product to study this Material Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify its employees, agents and contractors of the information on this MSDS and any product hazards and safety nformation, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the same product hazards and safety information.

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Product Name: Ammonia Mixture
Corrosive

MSDS# E-6744-G

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Praxair Canada Inc.
1 City Centre Drive
Suite 1200
Mississauga, ON L5B 1M2

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Page 8 of 8