

Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

| | |
|--|---|
| Product Name: Ammonia/Inert Gas Mixture | Trade Name: Ammonia/Inert Gas Mixture |
| Product Use: Many. | |
| Chemical Name: Ammonia/Inert Gas Mixture. | Synonym: Not available. |
| Chemical Formula: Not available. | 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 | 0.0001-0.99 | 7664-41-7 | Not available. | 2000 ppm | 25 ppm |
| AND CONTAINS ONE OR MORE OF THE FOLLOWING GASES: | | | | | |
| Argon | 99.01 - 99.9999 | 7440-37-1 | Not available. | Not available. | Simple asphyxiant. |
| Helium | 99.01 - 99.9999 | 7440-59-7 | Not available. | Not available. | Simple asphyxiant. |
| Krypton | 99.01 - 99.9999 | 7439-90-9 | Not available. | Not available. | Simple asphyxiant. |
| Neon | 99.01 - 99.9999 | 7440-01-9 | Not available. | Not available. | Simple asphyxiant. |
| Nitrogen | 99.01 - 99.9999 | 7727-37-9 | Not available. | Not available. | Simple asphyxiant. |
| Xenon | 99.01 - 99.9999 | 7440-63-3 | Not available. | Not available. | Simple asphyxiant. |

3. Hazards Identification

Emergency Overview

DANGER! High-pressure gas. Can cause rapid suffocation. May cause dizziness and drowsiness. Self-contained breathing apparatus may be required by rescue workers.

ROUTES OF EXPOSURE: Inhalation.

THRESHOLD LIMIT VALUE: TLV-TWA Data from 2010 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:** Asphyxiant. Moderate concentrations may cause headaches, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. This product contains traces of ammonia which may cause irritation.

- SKIN CONTACT:** No evidence of adverse effects from available information.

- SKIN ABSORPTION:** No evidence of adverse effects from available information.

- SWALLOWING:** An unlikely route of exposure. This product is a gas at normal temperature and pressure.

- EYE CONTACT:** No evidence of adverse effects from available information.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE:

No evidence of adverse effects from available information.

OTHER EFFECTS OF OVEREXPOSURE:

None currently known. This product is an asphyxiant. Lack of oxygen can cause death.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:

None 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:

Wash with soap and water.

SWALLOWING:

This product is a gas at normal temperature and pressure.

EYE CONTACT:

Flush with water.

NOTES TO PHYSICIAN:

There is no specific antidote. This product is inert. Treatment of overexposure 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. |

Product Name: Ammonia/Inert Gas
Mixture

MSDS# E-6745-H

Date: Oct 15, 2010

**FLAMMABLE LIMITS
IN AIR, % by volume:**

LOWER: Not applicable.

UPPER: Not applicable.

EXTINGUISHING MEDIA:

Gas mixture cannot catch fire. Use media appropriate for surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES:

DANGER! Evacuate all personnel to a safe distance. Immediately deluge containers with water spray from maximum distance until cool, then move containers away from fire area if without risk.

UNUSUAL FIRE AND EXPLOSION HAZARD:

Gas mixture (high pressure gas) cannot catch fire. Container may rupture due to heat of fire. No part of a container should be subjected to a temperature higher than 52 C. Most containers are provided with a pressure relief device designed to vent contents when they are exposed to elevated temperatures.

HAZARDOUS COMBUSTION PRODUCTS:

Not applicable.

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:

DANGER! **High-pressure gas.** Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off flow if you can do so without risk. Ventilate area or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry of personnel.

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:

High pressure gas. Use piping and equipment adequately designed to withstand pressures to be encountered. **Gas can cause rapid suffocation due to oxygen deficiency.** 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. **Never work on a pressurized system.** If there is a leak, close the cylinder valve. Blow the system down in an environmentally safe 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: Preferred.

MECHANICAL (general): Acceptable.

SPECIAL: Not applicable.

OTHER: Not applicable.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION: For concentrations up to 10 times the applicable exposure limit any NIOSH/MSHA approved supplied air respirator is recommended. Up to 50 times the TLV, a NIOSH/MSHA approved respirator with a full-face piece or self-contained breathing apparatus is recommended. For higher concentration us only self-contained breathing apparatus operated in the pressure demand mode. 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.

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 applicable. | MOLECULAR WEIGHT: Not applicable. |
| SPECIFIC GRAVITY: LIQUID (Water = 1) Not available. | SOLUBILITY IN WATER, Not available. | |
| SPECIFIC GRAVITY: VAPOUR (air = 1) Not available. | EVAPORATION RATE (Butyl Acetate=1): Not available. | COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable. |
| | | |

Product Name: Ammonia/Inert Gas Mixture

MSDS# E-6745-H

Date: Oct 15, 2010

VAPOUR DENSITY: Not available.

% VOLATILES BY VOLUME: Not available.

ODOUR THRESHOLD: Not available.

APPEARANCE & ODOUR: Colourless gas at normal temperature and pressure. Irritating odour

10. Stability and Reactivity

STABILITY: The product is stable.

CONDITIONS OF CHEMICAL INSTABILITY: See Section seven

INCOMPATIBILITY (materials to avoid): None currently known. Gas mixture is chemically inert.

HAZARDOUS DECOMPOSITION PRODUCTS: Not available - mixture not tested.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS OF REACTIVITY: None currently known

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, n.o.s. (name of the inert gas component)

HAZARD CLASS:

C L A S S 2 . 2 :
Non-flammable,
non-toxic gas.

IDENTIFICATION #:

UN 1956

PRODUCT RQ:

Any accidental release in a quantity that could pose a danger to public safety or any sustained release of 10 minutes or more

SHIPPING LABEL(s): Non-flammable, non-toxic gas

PLACARD (when required): Non-flammable, non-toxic gas

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
WHMIS (Canada) CLASS A: Compressed 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:

HEALTH 0
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

Product Name: Ammonia/Inert Gas
Mixture

MSDS# E-6745-H

Date: Oct 15, 2010

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: October 15, 2010
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 information, (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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Praxair Canada Inc.
1 City Centre Drive
Suite 1200
Mississauga, ON L5B 1M2

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