

Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

| | |
|--|---|
| Product Name: Inert Gas/Carbon Dioxide Mixture | Trade Name: Inert Gas/Carbon Dioxide Mixture |
| Product Use: Not available. | |
| Chemical Name: Not applicable. | 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. Hazards Identification

Emergency Overview

CAUTION! 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.

EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:

INHALATION: Asphyxiant. Moderate concentrations may cause headache, drowsiness, dizziness, stinging of the nose and throat, excitation, rapid breathing, excess salivation, vomiting and unconsciousness. Exposure to high concentrations may cause stinging of the nose and throat due to the presence of Carbon Dioxide.

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

SKIN ABSORPTION: No harm expected from vapour.

SWALLOWING: This product is a gas at normal temperature and pressure.

EYE CONTACT: No harm expected from vapour.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE:

No evidence of adverse effects from available information.

OTHER EFFECTS OF OVEREXPOSURE:

None.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:

None.

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

None currently known.

CARCINOGENICITY:

Not listed as carcinogen by OSHA, NTP or IARC.

3. Composition and Information on Ingredients

| COMPONENTS | CAS NUMBER | CONCENTRATION % by Mole |
|--|-------------------|--------------------------------|
| Carbon dioxide | 124-38-9 | 0.0001-0.0999 |
| And contains one or more of the following gases: | | |
| Argon | 7440-37-1 | 0 - 99.9999 |
| Helium | 7440-59-7 | 0 - 99.9999 |
| Krypton | 7439-90-9 | 0 - 99.9999 |
| Neon | 7440-01-9 | 0 - 99.9999 |
| Nitrogen | 7727-37-9 | 0 - 99.9999 |
| Xenon | 7440-63-3 | 0 - 99.9999 |

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:

Flush with water.

SWALLOWING:

This product is a gas at normal temperature and pressure.

EYE CONTACT:

Flush with water.

NOTES TO PHYSICIAN:

This product is inert. There is no specific antidote. 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 applicable.

EXTINGUISHING MEDIA:

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

PRODUCTS OF COMBUSTION:

None.

PROTECTION OF FIREFIGHTERS:

CAUTION! 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.

SPECIFIC PHYSICAL AND CHEMICAL HAZARDS:

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 temperature.

SENSITIVITY TO IMPACT:

Avoid impact against container.

SENSITIVITY TO STATIC DISCHARGE:

Not applicable.

PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:

Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

FLAMMABLE LIMITS IN AIR, % by volume:

LOWER: Not applicable.

UPPER: Not applicable.

FLASH POINT: Not applicable.

AUTOIGNITION TEMPERATURE: Not applicable.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Personal Precautions:

CAUTION! 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.

Environmental Precautions:

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 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.

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.

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.**

RECOMMENDED PUBLICATIONS:

Additional information on storage, handling, and use of this product is provided in **NFPA 55: Standard for the Storage, Use, and Handling of Compressed and Liquefied Gases in Portable Cylinders**, published by the National Fire Protection Association.

See also Praxair publication P-14-153, *Guidelines for Handling Gas Cylinders and Containers*. Obtain from your local supplier.

8. Exposure Controls/Personal Protection

| INGREDIENTS | CAS NUMBER | LD ₅₀ (Species & Routes) | LC ₅₀ (Rat, 4 hrs.) | Exposure Limits |
|--|------------|--|-----------------------------------|---|
| Carbon dioxide | 124-38-9 | Not available. | Not available. | TWA: 5000 ppm 8 hours. STEL: 30000 ppm 15 minutes. |
| And contains one or more of the following gases: | | | | |
| Argon | 7440-37-1 | Not available. | Not available. | Simple asphyxiant. |
| Helium | 7440-59-7 | Not available. | Not available. | Simple asphyxiant. |
| Krypton | 7439-90-9 | Not available. | Not available. | Simple asphyxiant. |
| Neon | 7440-01-9 | Not available. | Not available. | Simple asphyxiant. |
| Nitrogen | 7727-37-9 | Not available. | Not available. | Simple asphyxiant. |
| Xenon | 7440-63-3 | Not available. | Not available. | Simple asphyxiant. |

IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH):

VENTILATION/ENGINEERING CONTROLS:

LOCAL EXHAUST: Use an explosion-proof local exhaust system, if necessary, to prevent oxygen deficiency and keep hazardous fumes and gases below applicable TLVs in the worker's breathing zone.

MECHANICAL (General): ALWAYS WORK WITH ENOUGH VENTILATION.

SPECIAL: Avoid using electric arcs in the presence of chlorinated hydrocarbon vapours – highly toxic phosgene residues (anti-rust, cleaning preparations) – a highly toxic phosphine may be produced.

OTHER: Depends on specific use conditions, and location. Use adequate ventilation or personal respiratory protection.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION: Wear appropriate respirator when ventilation is inadequate.

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: Protected gloves recommended.

EYE PROTECTION: Wear safety glasses when handling cylinders.

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. |
| VAPOUR DENSITY: Not available. | % VOLATILES BY VOLUME: 100% | ODOUR THRESHOLD: Not available. |

APPEARANCE & ODOUR: Colourless gas at normal temperature and pressure. Not available.

10. Stability and Reactivity

| | |
|--|---|
| STABILITY: | The product is stable. |
| CONDITIONS OF CHEMICAL INSTABILITY: | Heat (See section 7). |
| INCOMPATIBILITY (materials to avoid): | None currently known. Gas is chemically inert. |
| HAZARDOUS DECOMPOSITION PRODUCTS: | If gas is used in welding, Ozone and Nitrogen Oxides may be formed by the radiation from the arc. Other decomposition products of normal operation originate from the volatilization, reaction or oxidation of the material being worked. |

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None.

CONDITIONS OF REACTIVITY: None.

11. Toxicological Information

ACUTE DOSE EFFECTS: See section 2.

STUDY RESULTS:

Carbon Dioxide Component: Carbon dioxide is an asphyxiant. It initially stimulates respiration and then causes respiratory depression. High concentrations result in narcosis. Symptoms in humans are as follows:

Table with 2 columns: EFFECTS and CO2 CONCENTRATION. Rows describe breathing rate increases and unconsciousness at various CO2 levels (1%, 2%, 3%, 4-5%, 5-10%, 50-100%).

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 major component)

Table with 3 columns: HAZARD CLASS (CLASS 2.2: Non-flammable, non-corrosive and non-toxic gas), IDENTIFICATION # (UN1956), and PRODUCT REPORTABLE QUANTITY (PRQ) (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-corrosive and non-toxic gas

PLACARD (When Required): Non-flammable, non-corrosive and non-toxic gas

SPECIAL SHIPPING INFORMATION:

Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, non-ventilated compartment of a 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. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS (Canada): CLASS A: Compressed gas.

This product is on the DSL list.

International Regulations:

EINECS: Not available.

DSCL (EEC): This product is not classified according to the EU regulations.

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-580

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, Fifth Edition

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

For more in-depth 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: October 15, 2013

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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