

**SECTION 1: Identification****1.1. Product identifier**

Product form : Mixture  
Product name : P-18-27459  
Other means of identification : NI - CO HY  
Product group : Specialty Mixtures

**1.2. Recommended use and restrictions on use**

No additional information available

**1.3. Supplier**

Praxair Canada inc.  
1200 – 1 City Centre Drive  
Mississauga - Canada L5B 1M2  
T 1-905-803-1600 - F 1-905-803-1682  
[www.praxair.ca](http://www.praxair.ca)

**1.4. Emergency telephone number**

Emergency number : 1-800-363-0042  
Call emergency number 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.

**SECTION 2: Hazard identification****2.1. Classification of the substance or mixture****GHS-CA classification**

Simple asphyxiant SIAS  
Compressed gas H280

**2.2. GHS Label elements, including precautionary statements****GHS-CA labelling**

Hazard pictograms :



GHS04

Signal word : WARNING

Hazard statements : CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED  
MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION

Precautionary statements : Do not handle until all safety precautions have been read and understood  
Use and store only outdoors or in a well-ventilated area.  
Protect from sunlight when ambient temperature exceeds 52°C (125°F).  
Use a back flow preventive device in the piping.  
Close valve after each use and when empty.  
Use only with equipment rated for cylinder pressure.

**2.3. Other hazards**

Other hazards not contributing to the classification : Asphyxiant in high concentrations.

**2.4. Unknown acute toxicity (GHS-CA)**

No data available



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### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Not applicable

#### 3.2. Mixtures

Name	CAS No.	% (Vol)	Common Name (synonyms)
Nitrogen	(CAS No) 7727-37-9	99.8002 - 99.9998	Nitrogen (liquified) / Nitrogen gas / Nitrogen, liquefied / NITROGEN / Nitrogen, compressed
Hydrogen	(CAS No) 1333-74-0	0.0001 - 0.0999	Hydrogen, compressed / Hydrogen molecule H2 / Hydrogen
Carbon monoxide	(CAS No) 630-08-0	0.0001 - 0.0999	Carbon monoxide, compressed / Compressed carbon monoxide / Carbon oxide (CO) / Carbon(II) oxide / Carbon oxide

### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

- First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.
- First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately..

#### 4.2. Most important symptoms and effects (acute and delayed)

No additional information available

#### 4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment : None.

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

#### 5.2. Unsuitable extinguishing media

No additional information available

#### 5.3. Specific hazards arising from the hazardous product

- Reactivity : No reactivity hazard other than the effects described in sub-sections below.
- Reactivity in case of fire : No reactivity hazard other than the effects described in sub-sections below.

#### 5.4. Special protective equipment and precautions for fire-fighters

- Firefighting instructions : Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with their provincial and local fire code regulations.
- Protection during firefighting : Compressed gas: asphyxiant. Suffocation hazard by lack of oxygen.
- Special protective equipment for fire fighters : Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
- Other information : Containers are equipped with a pressure relief device. (Exceptions may exist where authorized.).

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.2. Methods and materials for containment and cleaning up

#### 6.3. Reference to other sections

For further information refer to section 8: Exposure controls/personal protection

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. 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. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

#### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C). Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

**OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE:** When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Hydrogen (1333-74-0)		
USA - ACGIH	Remark (ACGIH)	Simple asphyxiant
Carbon monoxide (630-08-0)		
USA - ACGIH	ACGIH TLV-TWA (ppm)	25 ppm
USA - OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	55 mg/m <sup>3</sup>
USA - OSHA	OSHA PEL (TWA) (ppm)	50 ppm
Canada (Quebec)	VECD (mg/m <sup>3</sup> )	230 mg/m <sup>3</sup>
Canada (Quebec)	VECD (ppm)	200 ppm
Canada (Quebec)	VEMP (mg/m <sup>3</sup> )	40 mg/m <sup>3</sup>
Canada (Quebec)	VEMP (ppm)	35 ppm
Alberta	OEL TWA (mg/m <sup>3</sup> )	29 mg/m <sup>3</sup>
Alberta	OEL TWA (ppm)	25 ppm
British Columbia	OEL STEL (ppm)	100 ppm
British Columbia	OEL TWA (ppm)	25 ppm
Manitoba	OEL TWA (ppm)	25 ppm
New Brunswick	OEL TWA (mg/m <sup>3</sup> )	29 mg/m <sup>3</sup>
New Brunswick	OEL TWA (ppm)	25 ppm
New Foundland & Labrador	OEL TWA (ppm)	25 ppm
Nova Scotia	OEL TWA (ppm)	25 ppm
Nunavut	OEL STEL (mg/m <sup>3</sup> )	460 mg/m <sup>3</sup>
Nunavut	OEL STEL (ppm)	190 ppm

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Carbon monoxide (630-08-0)		
Nunavut	OEL TWA (mg/m <sup>3</sup> )	57 mg/m <sup>3</sup>
Nunavut	OEL TWA (ppm)	25 ppm
Northwest Territories	OEL STEL (ppm)	190 ppm
Northwest Territories	OEL TWA (ppm)	25 ppm
Ontario	OEL TWA (ppm)	25 ppm
Prince Edward Island	OEL TWA (ppm)	25 ppm
Québec	VECD (mg/m <sup>3</sup> )	230 mg/m <sup>3</sup>
Québec	VECD (ppm)	200 ppm
Québec	VEMP (mg/m <sup>3</sup> )	40 mg/m <sup>3</sup>
Québec	VEMP (ppm)	35 ppm
Saskatchewan	OEL STEL (ppm)	190 ppm
Saskatchewan	OEL TWA (ppm)	25 ppm
Yukon	OEL STEL (mg/m <sup>3</sup> )	440 mg/m <sup>3</sup>
Yukon	OEL STEL (ppm)	400 ppm
Yukon	OEL TWA (mg/m <sup>3</sup> )	55 mg/m <sup>3</sup>
Yukon	OEL TWA (ppm)	50 ppm

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Ensure exposure is below occupational exposure limits (where available).

### 8.3. Individual protection measures/Personal protective equipment

Personal protective equipment : Gloves. Face shield. Safety glasses.



- Hand protection : Wear work gloves when handling containers. Wear heavy rubber gloves where contact with product may occur.
- Eye protection : Wear safety glasses with side shields. Safety eye wear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.
- Skin and body protection : Wear metatarsal shoes and work gloves for cylinder handling, and protective clothing where needed. Wear appropriate chemical gloves during cylinder changeout or wherever contact with product is possible.
- Respiratory protection : When workplace conditions warrant respirator use, follow a respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable). Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA). **Respiratory protection:** Use respirable fume respirator or air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Select in accordance with provincial regulations, local bylaws or guidelines. Selection should be based on the current CSA standard Z94.4, "Selection, Care, and Use of Respirators." Respirators should also be approved by NIOSH and MSHA. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).
- Thermal hazard protection : Wear cold insulating gloves when transfilling or breaking transfer connections.
- Other information : **Other protection** : Safety shoes for general handling at customer sites. Metatarsal shoes and cuffless trousers for cylinder handling at packaging and filling plants. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines. For working with flammable and oxidizing materials, consider the use of flame resistant anti-static safety clothing.



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### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: No data available
Colour	: Colourless.
Odour	: No data available.
Odour threshold	: No data available
pH	: Not applicable.
pH solution	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable.
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Vapour pressure	: Not applicable.
Vapour pressure at 50 °C	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Relative density of saturated gas/air mixture	: No data available
Density	: No data available
Relative gas density	: No data available
Solubility	: Water: No data available
Log Pow	: Not applicable.
Log Kow	: Not applicable.
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Viscosity, kinematic (calculated value) (40 °C)	: No data available
Explosive properties	: Not applicable.
Oxidizing properties	: None.
Flammability (solid, gas)	: Flammable

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Reactivity	: No reactivity hazard other than the effects described in sub-sections below.
Chemical stability	: Stable under normal conditions.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

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<b>Hydrogen (1333-74-0)</b>	
LC50 inhalation rat (ppm)	> 15000 ppm/1h
<b>Carbon monoxide (630-08-0)</b>	
LC50 inhalation rat (ppm)	3760 ppm/1h
Skin corrosion/irritation	: Not classified pH: Not applicable.
Serious eye damage/irritation	: Not classified pH: Not applicable.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

<b>P-18-27459</b>	
Persistence and degradability	No ecological damage caused by this product.
<b>Hydrogen (1333-74-0)</b>	
Persistence and degradability	No ecological damage caused by this product.
<b>Nitrogen (7727-37-9)</b>	
Persistence and degradability	No ecological damage caused by this product.

### 12.3. Bioaccumulative potential

<b>P-18-27459</b>	
Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.
<b>Hydrogen (1333-74-0)</b>	
BCF fish 1	(no bioaccumulation expected)
Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.
<b>Carbon monoxide (630-08-0)</b>	
Log Kow	Not applicable.
<b>Nitrogen (7727-37-9)</b>	
Log Pow	Not applicable for inorganic gases.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.

### 12.4. Mobility in soil

<b>P-18-27459</b>	
Mobility in soil	No data available.
Log Pow	Not applicable.

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<b>P-18-27459</b>	
Log Kow	Not applicable.
<b>Hydrogen (1333-74-0)</b>	
Mobility in soil	No data available.
Log Pow	Not applicable.
Log Kow	Not applicable.
Ecology - soil	No ecological damage caused by this product.
<b>Carbon monoxide (630-08-0)</b>	
Mobility in soil	No data available.
Log Kow	Not applicable.
<b>Nitrogen (7727-37-9)</b>	
Mobility in soil	No data available.
Log Pow	Not applicable for inorganic gases.
Log Kow	Not applicable.
Ecology - soil	No ecological damage caused by this product.

### 12.5. Other adverse effects

Effect on the ozone layer : None.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

## SECTION 14: Transport information

### 14.1. Basic shipping description

In accordance with TDG

#### TDG

UN-No. (TDG) : UN1956  
TDG Primary Hazard Classes : 2.2 - Class 2.2 - Non-Flammable, Non-Toxic Gas.  
Proper shipping name : COMPRESSED GAS, N.O.S.  
  
Explosive Limit and Limited Quantity Index : 0.125 L

### 14.3. Air and sea transport

#### IMDG

UN-No. (IMDG) : 1956  
Proper Shipping Name (IMDG) : COMPRESSED GAS, N.O.S.  
Class (IMDG) : 2.2 - Non-flammable, non-toxic gases

#### IATA

UN-No. (IATA) : 1956  
Proper Shipping Name (IATA) : COMPRESSED GAS, N.O.S.  
Class (IATA) : 2

## SECTION 15: Regulatory information

### 15.1. National regulations

<b>Hydrogen (1333-74-0)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Carbon monoxide (630-08-0)</b>	
Listed on the Canadian DSL (Domestic Substances List)	

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### Nitrogen (7727-37-9)

Listed on the Canadian DSL (Domestic Substances List)

### 15.2. International regulations

#### Hydrogen (1333-74-0)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

#### Carbon monoxide (630-08-0)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

#### Nitrogen (7727-37-9)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on INSQ (Mexican National Inventory of Chemical Substances)

### SECTION 16: Other information

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Indication of changes:

Other information : When you mix two or more chemicals, you can 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 evaluate the end product. Before using any plastics, confirm their compatibility with this product.

Praxair asks users of this product to study this SDS and become aware of the 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 SDS 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.

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SDS Canada (GHS) - Praxair

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