

Precision Gas Products Inc.

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Carbon Monoxide in Nitrogen

0.0001% to 75%

MATERIAL SAFETY DATA SHEET

Identification

Revision Date 01-01-09

Products Name: CARBON MONOXIDE IN NITROGEN 0.0001% TO 75%

Chemical Family: Gas Mixture

Chemical formula: CO in N₂

MSDS identification Code/ Number: MSDS 106N

Composition/ Information on Ingredients

Ingredient Name	Concentration Percent by Weight
CARBON MONOXIDE CAS Number: 630-08-0	<.0001 to 75.0
Exposure Limits	
• ACGIH TLV-TWA: 50 ppm	
• ACGIH TLV-STEL: 400 ppm	
• IDLH: 1500 ppm	
• OSHA PEL-TWA: 50 ppm (transitional)	
• OSHA PEL-TWA: 35 ppm (final)	
• OSHA PEL-STEL: 200 ppm (final)	
NITROGEN Simple Asphyxiant	> 25.0 to 99.999
CAS Number: 7727-37-9	

Hazard Identification

No data given

First Aid Measures

Inhalation

Prompt medical attention is mandatory in all cases of overexposure. Rescue personnel should be equipped with self-contained breathing apparatus.

Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, and if breathing has stopped, administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive. The administering of the oxygen at an elevated pressure (up to 2 to 2.5 atmospheres) has shown to be beneficial as has treatment in a hyperbolic chamber. The physician should be informed that the patient has inhaled toxic quantities of carbon monoxide.

Fire Fighting Measures

Flammable Properties

Flash Point: None

Lower Explosive Limit (%): 12.5 for CO

Upper Explosive Limit (%): 74.0 for CO

- Fire and Explosion Hazards: Carbon Monoxide has almost the same density as air, it will not diffuse by rising as with some lighter flammables such as hydrogen or natural gas (methane). Air is nonflammable but supports combustion.
Electrical Classification: Class 1, Group C
Carbon Monoxide is flammable in air over a very wide range.
- Extinguishing Media: Water, dry chemical, carbon dioxide
- Fire Fighting Instructions: If possible, stop flow of gas; use water spray to cool surrounding containers.

Accidental Release Measures

Evacuate all personnel from affected areas. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact CHEMTREC location for emergency assistance.

Handling and Storage

- Handling and Storage Precautions

Use only in well – ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure-reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the system.

Protect cylinders from physical damage. Store in cool, dry, well – ventilated area of noncombustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Use a “first in, first out” inventory system to prevent full cylinders being stored for excessive periods of time. Post “NO SMOKING OR OPEN FLAMES” signs in the storage area or use area. There should be no sources of ignition in the storage or use area.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, asphyxiation or toxic exposure.

Exposure Controls/Personal Protection

Engineering Controls: Hood with forced ventilation. Use local exhaust to prevent accumulation above the exposure limit.

Eye/Face Protection: Safety goggles or glasses.

Skin Protection: Protective gloves of any material.

Respiratory Protection: Positive pressure air lines with mask or self-contained breathing apparatus should be available for emergency use.

Other/General Protection: Safety shoes.

Physical & Chemical Properties

Appearance: A colorless gas.

Odor: Odorless gas.

Basic Physical Properties

Solubility (H₂O): Very slightly

Stability & Reactivity

Stability: Stable

Incompatible Materials: None known

Hazardous Polymerization: Will not occur

Toxicological Information

Acute Inhalation Effects: Depending on levels and duration of exposure, symptoms may include headache, dizziness, heart palpitations, weakness, confusion and nausea to convulsions, eventual unconsciousness and death. The oxygen transport function of the hemoglobin of the blood is reduced since it reacts with inhaled carbon monoxide to form carboxyhemoglobin instead of its normal reaction with the oxygen in the lungs to form oxyhemoglobin. The affinity of hemoglobin for carbon monoxide is 200 to 300 times greater than its affinity for oxygen. Nitrogen is classified as a simple asphyxiant. Oxygen levels should be maintained at greater than 19.5% at normal atmospheric pressure which is equivalent to a partial pressure of 135mm Hg.

Miscellaneous Toxicological Information: All the disorders are due to the markedly reduced cellular respiration and may include central nervous system impairment, cardiovascular collapse, renal insufficiency, coma, etc.

Carcinogenicity – NTP: No IARC: No OSHA: No

Ecological Information

No data given

Disposal Considerations

Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place to Precision Gas Products for proper disposal.

Transport Information

Proper Shipping Name:	<12.5% Carbon Monoxide Compressed Gas, N.O.S. (Carbon Monoxide, Nitrogen)	>12.5% Carbon Monoxide Compressed Gas, N.O.S. (Carbon Monoxide, Nitrogen)
Hazardous Class:	2.2	2.2
CT (DOT) Identification Number:	UN 1956	UN1954
CT (DOT) Shipping Label:	Nonflammable gas	Flammable gas

Regulatory Information

SARA Title III Notifications and Information

SARA Title III – Hazard Class: Acute Health Hazard
Chronic Health Hazard
Sudden Release of Pressure Hazard

Other Information

Hazard Rating	Health:	3 High
	Fire:	1 Slight
	Reactivity:	0 Negligible
MSDS Identification Code/Number:	MSDS 106N	

Reference Documentation

Earth – ground and bond all lines and equipment associated with the system. All electrical equipment should be non-sparking or explosion proof. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipments of a compressed gas cylinder, which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).

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