



ALPHAGAZ

Material Safety Data Sheet

LIQUID AIR CORPORATION ALPHAGAZ DIVISION California Plaza, Suite 350 2121 N. California Blvd. Walnut Creek, California 94596	PRODUCT NAME 100 PPM Carbon Monoxide in Air	CAS NUMBER CO = 630-08-0 Air = N/A
	TELEPHONE (415) 977-8500 EMERGENCY RESPONSE INFORMATION ON PAGE 2	TRADE NAME AND SYNONYMS 100 PPM Carbon Monoxide in Air
ISSUE DATE NOVEMBER 1, 1989 AND REVISIONS CORPORATE SAFETY DEPT.	CHEMICAL NAME AND SYNONYMS See Page 4	CHEMICAL FAMILY Gas Mixture
	FORMULA See Page 4	

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT

Carbon Monoxide = 50 Molar PPM; STEL = 400 Molar PPM (ACGIH 1989-1990). OSHA 1989
 TWA = 35 Molar PPM; Ceiling Value = 200 Molar PPM.

SYMPTOMS OF EXPOSURE

Breathing this gas mixture for several hours could cause slight headache and possibly slight dizziness and discomfort. Carbon monoxide is colorless and odorless so that there is no warning of its presence.

TOXICOLOGICAL PROPERTIES

Carbon monoxide acts as a chemical asphyxiant by reducing the oxygen transport properties of the blood. It reacts with the hemoglobin forming carboxyhemoglobin thus preventing the hemoglobin from transporting oxygen.

Neither carbon monoxide or air are listed in the IARC, NTP or OSHA Subpart Z list as a carcinogen or potential carcinogen.

The State of California has listed carbon monoxide as a compound which is known to cause developmental reproductive toxicity.

Listed as Carcinogen or Potential Carcinogen	National Toxicology Program	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	I.A.R.C. Monographs	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	OSHA	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
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RECOMMENDED FIRST AID TREATMENT

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO CARBON MONOXIDE

Inhalation: Conscious persons should be assisted to an uncontaminated area and be treated with supplemental oxygen. Quick removal from the contaminated area is most important. The administering of the oxygen at an elevated pressure (up to 2 - 2.5 atmospheres) has shown to be beneficial as has treatment in a hyperbaric chamber. The physician should be informed that the patient has inhaled carbon monoxide.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

N/A

PHYSICAL DATA

BOILING POINT Air = -317.9°F (-194.2°C) CO = -312.75°F (-191.53°C)	LIQUID DENSITY AT BOILING POINT See Page 4
VAPOR PRESSURE @ 70°F (21.1°C) = Above the critical temperature for air and CO	GAS DENSITY AT 70°F 1 atm See Page 4
SOLUBILITY IN WATER Slightly	FREEZING POINT See Page 4
APPEARANCE AND ODOR Colorless, odorless gas. Specific gravity (air=1) = 1.00	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED) N/A	AUTO IGNITION TEMPERATURE N/A	FLAMMABLE LIMITS % BY VOLUME N/A
EXTINGUISHING MEDIA Nonflammable Gas		ELECTRICAL CLASSIFICATION Nonhazardous

SPECIAL FIRE FIGHTING PROCEDURES

N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS

Compressed air at high pressures will accelerate the burning of materials to a greater rate than they burn at atmospheric pressure.

REACTIVITY DATA

STABILITY Unstable	CONDITIONS TO AVOID	
Stable	X	N/A
INCOMPATIBILITY (Materials to avoid) None		
HAZARDOUS DECOMPOSITION PRODUCTS None		
HAZARDOUS POLYMERIZATION May Occur	CONDITIONS TO AVOID	
Will Not Occur	X	N/A

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in container or container valve, contact the closest Liquid Air Corporation location.

WASTE DISPOSAL METHOD

Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to Liquid Air Corporation for proper disposal. For emergency disposal, contact the closest Liquid Air Corporation location.

EMERGENCY RESPONSE INFORMATION

IN CASE OF EMERGENCY INVOLVING THIS MATERIAL, CALL DAY OR NIGHT (800) 231-1366

OR CALL CHEMTEC AT (800) 424-2200

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.			
VENTILATION	LOCAL EXHAUST	To prevent accumulation above the TWA for carbon monoxide	SPECIAL N/A
	MECHANICAL (Gen.)	N/A	OTHER N/A
PROTECTIVE GLOVES Plastic or rubber			
EYE PROTECTION Safety goggles or glasses			
OTHER PROTECTIVE EQUIPMENT Safety shoes			

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION		DOT Shipping Name: Compressed Gas, n.o.s.	DOT Hazard Class: Nonflammable Gas
		DOT Shipping Label: Nonflammable Gas	I.D. No.: UN 1956

SPECIAL HANDLING RECOMMENDATIONS

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 (<3,000 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 cylinder. Do not tamper with (valve) safety device. Close valve after each use and when empty.

For additional handling recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.

SPECIAL STORAGE RECOMMENDATIONS

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130F (54C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in - first out" inventory system to prevent full cylinders being stored for excessive periods of time.

For additional storage recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.

SPECIAL PACKAGING RECOMMENDATIONS

This mixture is noncorrosive and may be used with all materials of construction. Moisture causes metal oxides which are formed with air to be hydrated so that they increase in volume and lose their protective role (rust formation). Concentrations of SO₂, Cl₂, salt, etc. in the moisture enhances the rusting of metals in air.

OTHER RECOMMENDATIONS OR PRECAUTIONS

Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment 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).

Always secure cylinders in an upright position before transporting them. NEVER transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.



ADDITIONAL DATA

CHEMICAL NAME AND SYNONYMS: 100 Molar PPM Carbon Monoxide in Air

FORMULA: 100 Molar PPM CO in Air

NOTE: Atmospheric air which is compressed is composed of the following concentrations of gases:

<u>Gas</u>	<u>Molar %</u>
Nitrogen	78.09
Oxygen	20.94
Argon	0.93
Carbon Dioxide	0.033*
Neon	18.18×10^{-4}
Helium	5.239×10^{-4}
Krypton	1.139×10^{-4}
Hydrogen	0.5×10^{-4}
Xenon	0.086×10^{-4}
Radon	6×10^{-18}
Water Vapor	Varying concentrations

*Concentrations may have slight variations.

Compressed air is also produced by reconstitution using only oxygen and nitrogen. This product contains 79 molar percent nitrogen and 21 molar percent oxygen plus trace amounts of other atmospheric gases which are present in the oxygen and nitrogen.

PHYSICAL DATA

LIQUID DENSITY AT BOILING POINT:

Air = 54.7 lb/ft³ (876.21 kg/m³) CO = 49.23 lb/ft³ (688.6 kg/m³)

GAS DENSITY AT 70°F 1 atm:

Gas Mixture = .07493 lb/ft³ (1.2003 kg/m³)

FREEZING POINT:

Air = Bubble Point @ 1 Atmosphere = -317.3°F (-194.35°C)
 CO = -337.02°F (-205.01°C)