

**Carbon Monoxide In Air 0.0001% to 6.0%**

(M)SDS Number: NLB 2060

Revision Date: 2/7/2014

Page 1 of 7

**1 PRODUCT AND COMPANY IDENTIFICATION**

**Manufacturer**

NorLab  
898 W. Gowen Rd  
Boise, ID 83705

**Contact:** Quality Dept.  
**Phone:** 208-336-1643  
**Fax:** 208-433-6160  
**Web:** www.norlabgas.com

**Product Name:** Carbon Monoxide In Air 0.0001% to 6.0%  
**Revision Date:** 2/7/2014  
**Version:** 1  
**(M)SDS Number:** NLB 2060  
**Common Name:** Carbon Monoxide in Air  
**CAS Number:** Not Applicable, Gas Mixture  
**EPA Number:** Not Applicable  
**RCRA Number:** Not Applicable  
**Chemical Family:** Nonflammable Gas Mixture  
**Synonyms:** Cal Gas, 2 Part Mix  
**Product Use:** Calibration of analytical instrumentation

For Transportation Emergency Contact CHEMTREC 800-424-9300

**2 HAZARDS IDENTIFICATION**

**Route of Entry:** Inhalation

**Target Organs:** Cardiovasular system, lungs, blood, central nervous system.

**Inhalation:** This product contains up to 6% carbon monoxide. Inhalation of relative high concentrations of this gas may cause symptoms of carbon monoxide exposure.

Carbon monoxide is a chemical asphyxiant. Inhaled carbon monoxide binds with blood hemoglobin to form carboxyhemoglobin. Carboxyhemoglobin cannot take part in normal oxygen transport, greatly reducing the blood's ability to transport oxygen. Depending on concentration of carbon monoxide and duration of exposure, symptoms may include headache, dizziness, heart palpitations, weakness, confusion, nausea, and even convulsions, eventual unconsciousness and death. Lack of oxygen from carbon monoxide over exposure may produce immediate as well as delayed neurological effects. Carbon monoxide may also adversely affect fetal development.

**Skin Contact:** Contact with rapidly expanding gas near the point of release may cause frostbite with redness, skin color change to gray or white, and blistering.

**Eye Contact:** Contact with rapidly expanding gas near the point of release may cause frostbite.

**Ingestion:** None known. Ingestion is unlikely as product is a gas at room temperature.

**Carbon Monoxide In Air 0.0001% to 6.0%**

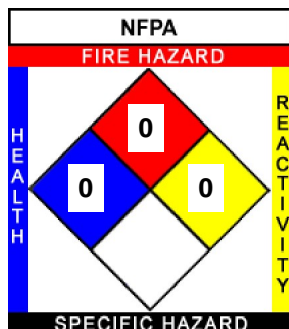
(M)SDS Number: NLB 2060

Revision Date: 2/7/2014

Page 2 of 7

NFPA:  
 HMIS III:

Health = 0, Fire = 0, Reactivity = 0  
 H0/F0/PH3



HMIS III	
HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARDS	3
PERSONAL PROTECTION	

GHS Signal Word:  
 DANGER

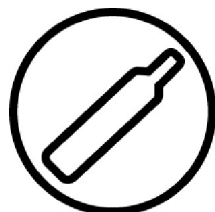
GHS Hazard Pictograms:



GHS Classifications:  
 Physical, Gases Under Pressure, Compressed Gas  
 Health, Germ cell mutagenicity, 1

GHS Phrases:  
 H280 - Contains gas under pressure; may explode if heated  
 H340 - May cause genetic defects

GHS Precautionary Statements:  
 P260 - Do not breathe dust/fume/gas/mist/vapours/spray.  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
 P412 - Do not expose to temperatures exceeding 50 °C/122 °F  
 P304+341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.



**Carbon Monoxide In Air 0.0001% to 6.0%**

(M)SDS Number: NLB 2060

Revision Date: 2/7/2014

Page 3 of 7

**3 COMPOSITION/INFORMATION ON INGREDIENTS**

**Ingredients:**

Cas #	Percentage	Chemical Name
630-08-0	0.0001-6.0%	Carbon monoxide
N/A	Balance	Air

**4 FIRST AID MEASURES**

**Inhalation:** PROMPT REMOVAL FROM THE CONTAMINATED AREA AND IMMEDIATE MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Conscious persons should be assisted to an uncontaminated area and be treated with supplemental oxygen. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area and be given artificial respiration and oxygen at the same time. 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 hyperbaric chamber. The physician should be informed that the patient has inhaled toxic quantities of carbon monoxide.

**Skin Contact:** None required for gas. For frostbite, immerse skin in lukewarm water. DO NOT USE HOT WATER. Obtain immediate medical attention.

**Eye Contact:** None required for gas. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

**Ingestion:** Not anticipated, product is a gas at normal conditions

**5 FIRE FIGHTING MEASURES**

**Flammability:** Not Flammable  
**Flash Point:** None

Nonflammable This product contains concentrations of carbon monoxide (up to 6.0%) below the LEL of 12.5% for carbon monoxide in air. This gas mixture contains sufficient oxygen to support combustion. Cylinder may vent rapidly or rupture violently from pressure when involved in a fire situation.

**Extinguishing Media:**  
 None Required. Use media appropriate for surrounding materials.

**Fire Fighting Instructions:**  
 If possible, stop the flow of gas supply. Use water spray to cool adjacent cylinders and areas well after flames are extinguished. Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear.

**6 ACCIDENTAL RELEASE MEASURES**

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or valve, contact the appropriate emergency telephone number listed in section 1, or call your closest Norco/NorLab location.

**Carbon Monoxide In Air 0.0001% to 6.0%**

(M)SDS Number: NLB 2060

Revision Date: 2/7/2014

Page 4 of 7

**7 HANDLING AND STORAGE**

**Handling Precautions:**

Carbon monoxide can be handled in all commonly used metals up to approximately 500 psig (3450 kPa). Above that pressure it forms toxic and corrosive carbonyl compounds with some metals. Carbon steels, aluminum alloys, copper and copper alloys, low carbon stainless steels and nickel-based alloys such as Hastelloy A, B & C are recommended for higher pressure applications.

Use only in well ventilated areas. Valve protection caps must remain in place unless cylinder is secured with valve outlet piped to use point. Do no drag, slide, or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure 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 cylinder.

**Storage Requirements:**

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non-combustible construction, away from heavy traffic areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125 deg. F (52 deg. C). 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 from being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" signs in the storage or use area.

For additional recommendations, consult Compressed Gas Association's Pamphlet P-1.

**8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Engineering Controls:**

Use local exhaust to prevent accumulation above the exposure limit. Use general mechanical ventilation in accordance with electrical codes.

**Personal Protective Equip:**

Gloves; Safety spectacles with unperforated sideshields; For emergency release, use a positive pressure NIOSH approved air-supplying respirator system (SCBA or airline/escape bottle) using at a minimum Grade D air.

Carbon Monoxide  
 OSHA PEL: 50 PPM TWA  
 ACGIH PEL: 25 PPM TWA  
 LC<sub>50</sub> or LD<sub>50</sub> : 3760 PPM Inhalation/rat 1 Hr. time adj.  
 RTECS #: FG3500000  
 IDLH:1200 PPM

Air  
 OSHA PEL: Not Applicable  
 ACGIH PEL: Not Applicable  
 LC<sub>50</sub> or LD<sub>50</sub> : Not Applicable  
 RTECS #: Not Available  
 IDLH: Not Available

**9 PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:**

Colorless Gas

**Physical State:**

Gas

**Odor:  
Solubility:**

Odorless  
Very Slight

**Carbon Monoxide In Air 0.0001% to 6.0%**

(M)SDS Number: NLB 2060

Revision Date: 2/7/2014

Page 5 of 7

10

**STABILITY AND REACTIVITY**

**Stability:** Stable  
**Materials to Avoid:** Strong Oxidizers, bromine trifluoride, chlorine trifluoride, lithium  
**Hazardous Decomposition:** None Known  
**Hazardous Polymerization:** Will not occur

11

**TOXICOLOGICAL INFORMATION**

**Inhalation:**

The 4 hour LC 50 for carbon monoxide is 1807 ppm (rat)

**Skin and Eye:**

Does not cause skin or eye irritation.

**Other:**

Mice exposed to concentrations of carbon monoxide at 65 ppm and higher demonstrated dose-dependent effects on the fetus (i.e.: increased mortality and decreased weight) with no signs of maternal toxicity. Off spring of rats exposed to 150 ppm carbon monoxide had minor reductions in birth weight and persistent memory deficits which became more pronounced in adulthood. Fetal carboxyhemoglobin levels are generally 10 - 15% higher than maternal levels. Overexposure to carbon monoxide may also decrease the likelihood of successful pregnancy. In rats treated with carbon monoxide, the rate of successful pregnancy in the control group was 100% whereas the rate of successful pregnancy in animals treated with 30 and 90 ppm carbon monoxide was 69% and 38% respectively.

Genetic changes were observed in mammalian cell assay systems at exposures of 1500 to 2500 ppm carbon monoxide for 10 minutes and degenerative changes to the brain were noted in rats chronically exposed to 26 ppm (30 mg/m<sup>3</sup>).

12

**ECOLOGICAL INFORMATION**

Product does not contain Class I or Class II ozone depleting substances. Not toxic. Will not bioconcentrate.

13

**DISPOSAL CONSIDERATIONS**

Dispose of in accordance with local regulations. Do not attempt to dispose of waste or unused quantities in returnable cylinders. Return in the shipping container, properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place to NorLab for proper disposal. Non-refillable containers should be vented in a well-ventilated area then disposed of in compliance with local regulations, or returned to NorLab.

**Carbon Monoxide In Air 0.0001% to 6.0%**

(M)SDS Number: NLB 2060

Revision Date: 2/7/2014

Page 6 of 7

14

**TRANSPORT INFORMATION**

DOT Class: Non-Flammable Gas (2.2) #2.2  
UN #: UN 1956

Proper Shipping Name US:  
UN 1956, Compressed Gas N.O.S., (Carbon Monoxide, Air), 2.2

Proper Shipping Name Canada:  
UN1956, Compressed Gas, N.O.S., 2.2



15

**REGULATORY INFORMATION**

COMPONENT / (CAS/PERC) / CODES

\*Carbon monoxide (630080 0.0001-6.0%) MASS, NJEHS, OSHAWAC, PA, PROP65, TSCA, TXAIR

All ingredients for this product are listed on the TSCA inventory.  
SARA Title III chemicals: This product does not contain toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and 40 CFR 372.

SARA Title III - Hazard Classes:  
Acute Health Hazard  
Sudden Release of Pressure Hazard

California Prop 65 chemicals: This product contains ingredient(s) (carbon monoxide) known to the State of California to cause birth defects or other reproductive harm.

CERCLA reportable quantity: Not Applicable

RCRA hazardous waste no: Not Applicable

REGULATORY KEY DESCRIPTIONS

MASS = MA Massachusetts Hazardous Substances List  
NJEHS = NJ Extraordinarily Hazardous Substances  
OSHA = OSHA workplace Air Contaminants  
PA = PA Right-To-Know List of Hazardous Substances  
PROP65 = CA Prop 65  
TSCA = Toxic Substances Control Act  
TXAIR = TX Air Contaminants with Health Effects Screening Level

**Carbon Monoxide In Air 0.0001% to 6.0%**

(M)SDS Number: NLB 2060

Revision Date: 2/7/2014

Page 7 of 7

16

**OTHER INFORMATION**

**Disclaimer:**

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).