

## CO 0.0001% to 0.0999%, CH4 0.0001% to 2.5%, O2 2.0% to 23.5%, in N2

SDS Number: NLB 2280

Revision Date: 9/10/2015

Page 1 of 6

1

### PRODUCT AND COMPANY IDENTIFICATION

#### Manufacturer

NorLab  
898 W. Gowen Rd.  
Boise, ID 83705

Contact: Quality Dept.  
Phone: 208-336-1643  
Web: www.norlab-gas.com

Product Name: CO 0.0001% to 0.0999%, CH4 0.0001% to 2.5%, O2 2.0% to 23.5%, in N2  
Revision Date: 9/10/2015  
Version: 1  
SDS Number: NLB 2280  
Common Name: Carbon Monoxide 0.0001% to 0.999%, Methane 0.0001% to 2.5%, Oxygen 2.0 to 23.5%, in Nitrogen  
CAS Number: Not Available - Gas Mixture  
EPA Number: Not Available  
RCRA Number: Not Applicable  
Chemical Family: Gas Mixture  
Chemical Formula: CO, CH4, O2, in N2  
Synonyms: Calibration Gas  
Product Use: Calibration of analytical instrumentation

For Transportation Emergency Contact CHEMTREC: 800-424-9300

2

### HAZARDS IDENTIFICATION

#### Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):  
Physical, Gases Under Pressure, Compressed Gas  
Health, Acute toxicity, 5 Inhalation

#### GHS Label elements, including precautionary statements

GHS Signal Word: **WARNING**

GHS Hazard Pictograms:



#### GHS Hazard Statements:

H280 - Contains gas under pressure; may explode if heated  
H333 - May be harmful if inhaled  
OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.

#### GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.  
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.  
P271 - Use only outdoors or in a well-ventilated area.  
P281 - Use personal protective equipment as required.  
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P314 - Get Medical advice/attention if you feel unwell.

**CO 0.0001% to 0.0999%, CH4 0.0001% to 2.5%, O2 2.0% to 23.5%, in N2**

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Revision Date: 9/10/2015

Page 2 of 6

- P403+233 - Store in a well ventilated place. Keep container tightly closed.
- P410+412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F
- CGA-PG05 - Use a back flow preventive device in the piping.
- CGA-PG06 - Close valve after each use and when empty.
- CGA-PG10 - Use only with equipment rated for cylinder pressure.
- CGA-PG29 - Do not depend on odor to detect presence of gas.

Hazards not otherwise classified (HNOC) or not covered by GHS

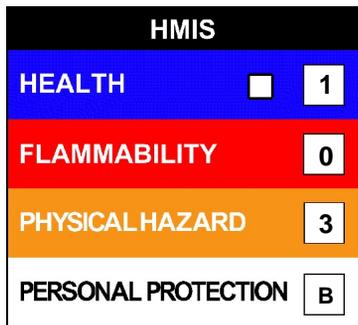
**Route of Entry:** Inhalation;  
**Target Organs:** Respiratory system;  
**Inhalation:** This product contains carbon monoxide. Inhalation of relative high concentrations of this gas may cause symptoms of carbon monoxide exposure.

Carbon monoxide is odorless and colorless. There may be no warning of overexposure until symptoms occur. 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:** None anticipated. Contact with rapidly expanding gas near the point of release may cause frostbite.

NFPA: Health = 1, Fire = 0, Reactivity = 0, Specific Hazard = n/a  
 HMIS III: Health = 1, Fire = 0, Physical Hazard = 3  
 HMIS PPE: B - Safety Glasses, Gloves



**3 COMPOSITION/INFORMATION ON INGREDIENTS**

**Ingredients:**

Cas#	%	Chemical Name
630-08-0	0.0001-0.0999%	Carbon monoxide
74-82-8	0.0001-2.5%	Methane
7782-44-7	2.0-23.5%	Oxygen
7727-37-9	73.9001-97.9998%	Nitrogen

## CO 0.0001% to 0.0999%, CH4 0.0001% to 2.5%, O2 2.0% to 23.5%, in N2

SDS Number: NLB 2280

Revision Date: 9/10/2015

Page 3 of 6

4

### FIRST AID MEASURES

- Inhalation:** PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO PRODUCT. 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, given assisted (artificial) respiration and supplemental oxygen. The administering of 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 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 a direct hazard.

5

### FIRE FIGHTING MEASURES

- Flammability:** Not Flammable
- Flash Point:** None
- Flash Point Method:** Not Applicable
- Burning Rate:** Not Applicable
- Autoignition Temp:** None
- LEL:** None
- UEL:** None

**Fire and Explosion Hazards:**

Nonflammable. Cylinders may rupture violently or vent rapidly from pressure when involved in a fire situation.

**Extinguishing Media:**

None required. Use as appropriate for surrounding materials

**Fire Fighting Instructions:**

Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. Continue to cool fire-exposed cylinders until well after flames are extinguished.

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.

7

### HANDLING AND STORAGE

**Handling Precautions:**

Use only in well-ventilated areas. Valve protection caps must remain in place unless the cylinder 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 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 backflow into the cylinder.

For additional recommendations, consult Compressed Gas Association Pamphlets P-1.

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

**Storage Requirements:**

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavy traffic areas and emergency exits. Do not allow the temperature where cylinders are stored to

## CO 0.0001% to 0.0999%, CH4 0.0001% to 2.5%, O2 2.0% to 23.5%, in N2

SDS Number: NLB 2280

Revision Date: 9/10/2015

Page 4 of 6

exceed 125 degrees F (52 degrees 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" sign in the storage or use area.

8

### EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:**

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use local exhaust at filling zones and where leakage and dust formation is probable. Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure limits in Air below TLV & PEL limits. Maintain atmospheric Oxygen content at or above 19.5%

**Personal Protective Equipment:**

HMIS PP, B | Safety Glasses, Gloves  
Eye/Face Protection:  
Safety goggles or glasses as appropriate for the job.

**Skin Protection:**  
Protective gloves of material appropriate for the job.

**Respiratory Protection:**  
Positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.

**Other/General Protection:**  
Safety shoes.

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

Methane  
OSHA PEL: None Established  
ACGIH PEL: 1000 PPM  
LC<sub>50</sub>: Not Available  
RTECS #: TX2275000  
IDLH: Not Available

Oxygen  
OSHA PEL: Not Available  
ACGIH PEL: Not Available  
LC<sub>50</sub> : Not Available  
RTECS#: RO206000  
IDLH: Not Available

Nitrogen  
OSHA PEL: None Established  
ACGIH PEL: Simple Asphyxiant  
LC<sub>50</sub> or LD<sub>50</sub>: Not Available  
RTECS#: QW9700000  
IDLH: None Established

**CO 0.0001% to 0.0999%, CH4 0.0001% to 2.5%, O2 2.0% to 23.5%, in N2**

SDS Number: NLB 2280

Revision Date: 9/10/2015

Page 5 of 6

**9 PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance:</b>	Colorless Gas	<b>Odor:</b>	Odorless
<b>Physical State:</b>	Gas	<b>Molecular Formula:</b>	CO, CH4, O2, in N2
<b>Odor Threshold:</b>	Not Applicable	<b>Solubility:</b>	Slightly Soluble
<b>Particle Size:</b>	Not Applicable	<b>Softening Point:</b>	Not Applicable
<b>Spec Grav./Density:</b>	Not Applicable	<b>Percent Volatile:</b>	100%
<b>Viscosity:</b>	Not Applicable	<b>Freezing/Melting Pt.:</b>	Not Determined
<b>Sat. Vap. Conc.:</b>	Not Determined	<b>Flash Point:</b>	Not Applicable
<b>Boiling Point:</b>	Not Determined	<b>UFL/LFL:</b>	None
<b>Flammability:</b>	Not Flammable		

**10 STABILITY AND REACTIVITY**

<b>Chemical Stability:</b>	Product is stable under normal conditions.
<b>Conditions to Avoid:</b>	Avoid open flames and high temperatures.
<b>Materials to Avoid:</b>	Strong oxidizing agents, Sodium/sodium oxides, Potassium.
<b>Hazardous Decomposition:</b>	Combustion will produce carbon dioxide and, possibly toxic chemicals such as carbon monoxide.
<b>Hazardous Polymerization:</b>	Will not occur.

**11 TOXICOLOGICAL INFORMATION**

**Reproductive:**  
Inhalation of 150 ppm carbon monoxide for 24 hours by pregnant rats produced cardiovascular and behavioral defects in offspring. Toxic effects to fertility were observed in female rats exposed to 1 mg/m<sup>3</sup> for 24 hours. Similar effects observed in other mammalian species.

**Mutagenic:**  
Genetic changes observed in mammalian cell assay systems at exposure of 1500 to 2500 PPM carbon monoxide for 10 minutes.

**Other:**  
Degenerative changes were observed in the brain of rats chronically exposed to 30 mg/m<sup>3</sup> carbon monoxide.

High concentrations of aliphatic hydrocarbon gases may cause CNS depression. Recent information suggests that C1 - C4 aliphatic (alkane) hydrocarbon gases can cause potentially fatal cardiac arrhythmias. Cardiac sensitization to adrenalin in dogs has been noted following inhalation. In dogs, the heart was more sensitive to epinephrine induced ventricular fibrillations following exposure to 15 - 90% propane for 10 minutes. Ventricular fibrillations have been reported in a 15 year old girl and a 14 year old boy following inhalation of n-butane (concentration not reported).

**12 ECOLOGICAL INFORMATION**

Product does not contain Class I or Class II oxone 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.

**CO 0.0001% to 0.0999%, CH4 0.0001% to 2.5%, O2 2.0% to 23.5%, in N2**

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Revision Date: 9/10/2015

Page 6 of 6

**14 TRANSPORT INFORMATION**

**UN1956**

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

Proper Shipping Name Canada:  
UN1956, Compressed Gas, N.O.S., (Carbon Monoxide, Nitrogen), 2.2



**15 REGULATORY INFORMATION**

Component (CAS#) [%] - CODES

Carbon Monoxide (630-08-0) [0.0001-0.0999%] MASS, NJEHS, NJHS, OSHAWAC, PA, PROP65, SARA311/312, TSCA, TXAIR

Methane (74-82-8) [0.0001-2.5%] MASS, NJHS, PA, TSCA, TXAIR

Oxygen (7782-44-7) [2.0-23.5%] MASS, PA, TSCA

Nitrogen (7727-37-9) [73.9001-97.9998%] MASS, PA, TSCA

Regulatory CODE Descriptions

- MASS = MA Massachusetts Hazardous Substances List
- NJEHS = NJ Extraordinarily Hazardous Substances
- NJHS = NJ Right-to-Know Hazardous Substances
- OSHA WAC = OSHA Workplace Air Contaminants
- PA = PA Right-To-Know List of Hazardous Substances
- PROP65 = CA Prop 65
- SARA311/312 = SARA 311/312 Toxic Chemicals
- TSCA = Toxic Substances Control Act
- TXAIR = TX Air Contaminants with Health Effects Screening Level

**16 OTHER INFORMATION**

**Disclaimer:**

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