



## Safety Data Sheet

50ppm Carbon Monoxide, 50% LEL  
Propane Simulant; balance Air

**Ideal Calibrations, LLC**

2750 Oakwood Blvd.

Melvindale, MI 48122

(734) 956-0539

<http://www.idealcalibrations.com/>

### Section 1: Product and Company Identification

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Product Code: 50ppm Carbon Monoxide, 50% LEL Propane Simulant; balance Air

Part Number: 0281

**Synonyms:**

**Recommended Use:** Calibration of gas detection devices

**Usage Restrictions:** Do not use if current date is past expiration date on cylinder

### Section 2: Hazards Identification



**Warning**

**Hazard Classification:**

Gases Under Pressure

**Hazard Statements:**

Contains gas under pressure; may explode if heated

**Precautionary Statements**

**Storage:**

Protect from sunlight.

Store in well-ventilated place.

## Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Carbon Monoxide	630-08-0	0.005
Propane	74-98-6	1.05
Air	Not applicable	98.945

	Chemical Substance	Chemical Family	Trade Names
Carbon Monoxide	CARBON MONOXIDE	Inorganic gases	CARBON OXIDE; CARBON OXIDE (CO); UN 1016; CO
Propane	PROPANE	Hydrocarbons, Aliphatic, Saturated	N-PROPANE; DIMETHYLMETHANE; PROPYL HYDRIDE; R-290; PROPYLHYDRIDE; LIQUEFIED PETROLEUM GAS; LPG; >96% NATURAL GRADE; >99.9% PURE GRADE; UN 1978; C3H8
Air	AIR, COMPRESSED	Inorganic gases	AIR; UN 1002 Nitrogen CAS: 7727-37-9 Oxygen CAS: 7782-44-7

## Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Carbon Monoxide	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Propane	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.
Air	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Get medical attention.	

## Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Carbon Monoxide	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon dioxide	<ul style="list-style-type: none"> <li>Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.</li> <li>Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.</li> </ul>
Propane	Regular dry chemical, high expansion foam Large fires: Flood with fine water spray.	Carbon monoxide, carbon dioxide, water and toxic and irritating fumes	<ul style="list-style-type: none"> <li>Any self-contained breathing apparatus with a full facepiece.</li> <li>Any self-contained breathing apparatus with a full facepiece.</li> </ul>
Air	Use extinguishing agents appropriate for surrounding fire.		<ul style="list-style-type: none"> <li>No respirator is required under normal conditions of use.</li> </ul>

## Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
<b>Carbon Monoxide</b>	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition. Keep out of water supplies and sewers.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
<b>Propane</b>	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Do not touch spilled material.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
<b>Air</b>			Stop leak if possible without personal risk.

	Methods for Cleanup	Other Information
<b>Carbon Monoxide</b>	Stop leak, evacuate area. Wear protective equipment.	Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).
<b>Propane</b>	Contact emergency personnel	None
<b>Air</b>		

## Section 7: Handling and Storage

	Handling	Storage
<b>Carbon Monoxide</b>	Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.
<b>Propane</b>	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
<b>Air</b>	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	

## Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
<b>Carbon Monoxide</b>	CARBON MONOXIDE: 50 ppm (55 mg/m <sup>3</sup> ) OSHA TWA 35 ppm (40 mg/m <sup>3</sup> ) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 200 ppm (229 mg/m <sup>3</sup> ) OSHA ceiling (vacated by 58 FR 35338, June 30, 1993) 25 ppm ACGIH TWA 35 ppm (40 mg/m <sup>3</sup> ) NIOSH recommended TWA 10 hour(s) 200 ppm (229 mg/m <sup>3</sup> ) NIOSH recommended ceiling
<b>Propane</b>	PROPANE: 1000 ppm (1800 mg/m <sup>3</sup> ) OSHA TWA 1000 ppm (1800 mg/m <sup>3</sup> ) NIOSH recommended TWA 10 hour(s) LIQUIFIED PETROLEUM GAS (LPG): 1000 ppm (1800 mg/m <sup>3</sup> ) OSHA TWA 1000 ppm ACGIH TWA 1000 ppm (1800 mg/m <sup>3</sup> ) NIOSH recommended TWA 10 hour(s) ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA
<b>Air</b>	AIR, COMPRESSED: No occupational exposure limits established.

### Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
<b>Carbon Monoxide</b>	Eye protection not required, but recommended.	Protective clothing is not required.	Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
<b>Propane</b>	For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.	Any self-contained breathing apparatus with a full facepiece.
<b>Air</b>	Eye protection not required under normal conditions.	Protective clothing is not required under normal conditions.	No respirator is required under normal conditions of use.

## General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

## Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
<b>Carbon Monoxide</b>	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
<b>Propane</b>	Gas	Clear	Colorless	N/A	Gas	Gasoline odor	N/A
<b>Air</b>	Gas	Clear	Colorless		Gas	Not available	

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
<b>Carbon Monoxide</b>	Flammable	Not available	1479.11 (log = 3.17) (estimated from water solubility)	1128-1202 F (609-650 C)	0.74	12.0-12.5%
<b>Propane</b>	-157 F (-105 C)	Not available	Not available	842 F (450 C)	0.095	0.021
<b>Air</b>						

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
<b>Carbon Monoxide</b>	-312.7 F (-191.5 C)	-326 F (-199 C)	760 mmHg @ -191 C gas; cannot be liquefied at room temperature	0.968 (Air=1)	Not applicable	2.3% @ 20 C	Not applicable	Not available	Not applicable	0.01657 cP @ 0 C
<b>Propane</b>	-40 F (-40 C)	-310 F (-190 C)	6398 mmHg @ 21.1 C	1.55 (Air=1)	0.5853 @ -45 C	Very slightly soluble	Not applicable	5000-20000 ppm	Not applicable	Not available
<b>Air</b>	-317 F (-194 C)	Not available	760 mmHg @ -194 C	1	Not applicable	Slightly soluble	Not applicable	Not available	Not applicable	0.01853 cP @ 26.85 C

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
<b>Carbon Monoxide</b>	28.01	C-O	1.250 g/L @ 0 C	Not available	100%	Not applicable	Soluble: Alcohol, benzene, acetic acid, ethyl acetate, chloroform, cuprous chloride solutions
<b>Propane</b>	44.11	C-H3-C-H2-C-H3	0.116	Not available	Not available	Not applicable	Soluble: Absolute alcohol, ether, chloroform, benzene, turpentine
<b>Air</b>			1.29 g/L @ 0 C			Not applicable	Slightly Soluble

## Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
<b>Carbon Monoxide</b>	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials, halogens, metal oxides, metals, combustible materials, lithium
<b>Propane</b>	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Oxidizing materials, combustible materials, halogen compounds,
<b>Air</b>	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	None known

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
<b>Carbon Monoxide</b>	Oxides of carbon	Will not polymerize.
<b>Propane</b>	Oxides of carbon	Will not polymerize.
<b>Air</b>	No hazard expected.	Will not polymerize.

## Section 11: Toxicology Information

### Acute Effects

	Oral LD50	Dermal LD50	Inhalation
<b>Carbon Monoxide</b>	LC50 Inhalation Gas. Rat 1807 ppm 4 hours	Not available	Changes in body temperature, changes in blood pressure, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hallucinations, pain in extremities, tremors, loss of coordination, hearing loss, visual disturbances, eye damage, suffocation, blood disorders, convulsions, coma
<b>Propane</b>	LC50 Inhalation Gas. Rat >800000 ppm 15 minutes	Not available	Central nervous system depression, difficulty breathing, nausea, vomiting, irregular heartbeat, headache, symptoms of drunkenness, disorientation, suffocation, convulsions, coma
<b>Air</b>	Not available	Not available	

	Eye Irritation	Skin Irritation	Sensitization
<b>Carbon Monoxide</b>	No information on significant adverse effects	No information on significant adverse effects	Acute toxicity, Category 3, inhalation; H331: Toxic if inhaled. Reproductive toxicity, Category 1A; H360D: May damage the unborn child. Specific Target Organ Toxicity (repeated exposure), Category 1; H372: Causes damage to organs through prolonged or repeated exposure.
<b>Propane</b>	Liquid: frostbite, blurred vision	Liquid: blisters, frostbite	No health hazards classified.
<b>Air</b>	No information is available	No information is available	No significant target effects reported.

### Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
<b>Carbon Monoxide</b>	Not available	Available.	Available.	No data
<b>Propane</b>	Not available	Not available	Not available	No data
<b>Air</b>	Not available	Not available	No data	No data

## Section 12: Ecological Information

### Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
<b>Carbon Monoxide</b>	Fish toxicity: 75000 ug/L 1 day(s) LC100 (Mortality) Orangespotted sunfish ( <i>Lepomis humilis</i> ) Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Highly volatile from water.	Not available	Not expected to leach through the soil or the sediment.
<b>Propane</b>	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available
<b>Air</b>	Fish toxicity: Not available	Not available	Not available	Not available

## Section 13: Disposal Considerations

<b>Carbon Monoxide</b>	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
<b>Propane</b>	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
<b>Air</b>	Dispose in accordance with all applicable regulations.

## Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

### DOT Information For This Mixture

Shipping Name	Compressed gas, n.o.s. (Air, Propane)
UN Number	UN1956
Hazard Class	2.2
Hazard Information	Non-Flammable Gas

### Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3	Not applicable	2.3; 2.1	Forbidden	25 kg	Toxic-Inhalation Hazard Zone D
Propane	Propane	UN1978	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Air	Air, compressed	UN1002	2.2	Not available	2.2	Not available	Not available	Not available

### Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3; 2.1	Not applicable
Propane	Propane	UN1978	2.1	Not applicable
Air	Air, compressed	UN1002	2.2	Not available

## Section 15: Regulatory Information

### U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
Carbon Monoxide	Not regulated.	Not regulated.	Not regulated.
Propane	Not regulated.	Not regulated.	Not regulated.
Air	Not regulated.	Not regulated.	Not regulated.

### SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Carbon Monoxide	Yes	No	Yes	No	Yes
Propane	Yes	No	Yes	No	Yes
Air	No	No	No	No	Yes

### SARA 372.65

Carbon Monoxide	Not regulated.
Propane	Not regulated.
Air	Not regulated.

### OSHA Process Safety

Carbon Monoxide	Not regulated.
Propane	Not regulated.
Air	Not regulated.

### State Regulations

	CA Proposition 65
Carbon Monoxide	WARNING: This product can expose you to chemicals including Carbon Monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> .

<b>Propane</b>	Not regulated.
<b>Air</b>	Not regulated.

### Canadian Regulations

	<b>WHMIS Classification</b>
<b>Carbon Monoxide</b>	A, B1, D1A, D2A.
<b>Propane</b>	A, B1.
<b>Air</b>	A

### National Inventory Status

	<b>US Inventory (TSCA)</b>	<b>TSCA 12b Export Notification</b>	<b>Canada Inventory (DSL/NDSL)</b>
<b>Carbon Monoxide</b>	Listed on inventory.	Not listed.	Listed on inventory.
<b>Propane</b>	Listed on inventory.	Not listed.	Listed on inventory.
<b>Air</b>	Not listed on inventory.	Not listed.	Not determined.

## Section 16: Other Information

	<b>NFPA Rating</b>
<b>Carbon Monoxide</b>	HEALTH=2 FIRE=4 REACTIVITY=0
<b>Propane</b>	HEALTH=2 FIRE=4 REACTIVITY=0
<b>Air</b>	HEALTH=0 FIRE=0 REACTIVITY=0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard