

## MSDS REQUIREMENTS

### Calibrating Gas Products

The following is an inventory of the hazardous ingredients at a reportable level used in the formulations of the gases listed below. These gases are intended for use as calibrating gas products.

Attached are the Material Safety Data Sheets (MSDSs) required for those ingredients which are present in a significant concentration as defined in the OSHA Hazard Communication Standard.

Reagent Products				
Catalog #	Product Name	Hazardous Ingredients at a Reportable Level	Conc. (%)	scf
05222000	10% CO <sub>2</sub> , 90% N <sub>2</sub>	Carbon Dioxide Nitrogen	10% 90%	20 scf
05231000	5% CO <sub>2</sub> , 12% O <sub>2</sub> , 83% N <sub>2</sub>	Carbon Dioxide Oxygen Nitrogen	5% 12% 83%	20 scf
05232100	5% CO <sub>2</sub> , 20% O <sub>2</sub> , 75% N <sub>2</sub>	Carbon Dioxide Oxygen Nitrogen	5% 20% 75%	20 scf
05522000	10% CO <sub>2</sub> , 90% N <sub>2</sub>	Carbon Dioxide Nitrogen	10% 90%	180 scf
05522001	10% CO <sub>2</sub> , 90% N <sub>2</sub>	Carbon Dioxide Nitrogen	10% 90%	90 scf
05531001	5% CO <sub>2</sub> , 12% O <sub>2</sub> , 83% N <sub>2</sub>	Carbon Dioxide Oxygen Nitrogen	5% 12% 83%	90 scf
05531701	7% CO <sub>2</sub> , 7% O <sub>2</sub> , 86% N <sub>2</sub>	Carbon Dioxide Oxygen Nitrogen	7% 7% 86%	90 scf
05532100	5% CO <sub>2</sub> , 20% O <sub>2</sub> , 75% N <sub>2</sub>	Carbon Dioxide Oxygen Nitrogen	5% 20% 75%	180 scf



# MATERIAL SAFETY DATA SHEET

## LABGAS CALIBRATION GASES

### HEALTH EFFECTS AND FIRST AID

**INHALATION:** Since calibration gases are odorless, colorless and tasteless, there may not be adequate warning of high levels. Symptoms of lack of oxygen may include rapid respiration, dizziness, fatigue, nausea, drowsiness, blue discoloration of skin and lips, unconsciousness and death. **FIRST AID:** Remove from exposed area. Give oxygen or artificial respiration if necessary. Get medical attention.

**SKIN/EYE CONTACT AND INGESTION:** No evidence of adverse effects from available information.

### REACTIVITY

High temperatures and pressures must be avoided. Avoid flammable and combustible materials, especially greases and oils.

### PROTECTIVE EQUIPMENT

Safety glasses, safety shoes and heavy gloves should be worn when handling cylinders.

### STORAGE

Protect cylinders from excessive heat or pressure. Oxygen monitors may be necessary in closed or poorly ventilated areas. Valve protection caps should always be in place when not in use. Cylinders should be located or secured so that they can not be knocked over. Proper cylinder carts should be used during transporting.

### REFERENCE SOURCE

Code of Federal Regulations (CFR), Title 49  
Compressed Gas Association, Handbook of Compressed Gases-Second Edition

### DISPOSABLE (NON-RETURNABLE) CYLINDERS

A disposable cylinder is any container that under the Department of Transportation Laws cannot be filled and transported more than once. These cylinders are non-refillable containers that are not hazardous when empty. The following guidelines should be followed:

- 1) Attach appropriate regulator and allow the controlled release of any residual gas.
- 2) Close cylinder valve and remove regulator.
- 3) Open cylinder valve slowly and leave open.
- 4) Dispose of cylinder with solid waste. **DO NOT INCINERATE.**
- 5) Any customer not having access to a solid waste refuse can return the empty cylinder to IL for proper disposal.



# MSDS REQUIREMENTS

## Calibrating Gas Products (Continued)

Reagent Products				
Catalog #	Product Name	Hazardous Ingredients at a Reportable Level	Conc. (%)	scf
05532101	5% CO <sub>2</sub> , 20% O <sub>2</sub> , 75% N <sub>2</sub>	Carbon Dioxide Oxygen Nitrogen	5% 20% 75%	90 scf
05902000	10% CO <sub>2</sub> , 90% N <sub>2</sub>	Carbon Dioxide Nitrogen	10% 90%	20 scf
05903000	5% CO <sub>2</sub> , 20% O <sub>2</sub> , 75% N <sub>2</sub>	Carbon Dioxide Oxygen Nitrogen	5% 20% 75%	20 scf
05903500	5% CO <sub>2</sub> , 12% O <sub>2</sub> , 83% N <sub>2</sub>	Carbon Dioxide Oxygen Nitrogen	5% 12% 83%	20 scf
05904000	7% CO <sub>2</sub> , 7% O <sub>2</sub> , 86% N <sub>2</sub>	Carbon Dioxide Oxygen Nitrogen	7% 7% 86%	20 scf
05904500	100% CO <sub>2</sub>	Carbon Dioxide	100%	20 scf

# MATERIAL SAFETY DATA SHEET

## LABGAS CALIBRATION GASES

CHEMICAL NAME:	FAMILY NAME:	FORMULA:	CAS#:	%:
Carbon Dioxide	Nonmetallic Oxide	CO <sub>2</sub>	124-38-9	5-10%
Oxygen	Oxidizing Gas	O <sub>2</sub>	7782-44-7	7-20%
Nitrogen	Inert Gas	N <sub>2</sub>	7727-37-9	75-90%

The above gases are used as ingredients in all IL Labgas calibration gas products at various concentrations.

05222000	10% CO <sub>2</sub> , 90% N <sub>2</sub>	20 scf	05532100	5% CO <sub>2</sub> , 20% O <sub>2</sub> , 75% N <sub>2</sub>	180 scf
05231000	5% CO <sub>2</sub> , 12% O <sub>2</sub> , 83% N <sub>2</sub>	20 scf	05532101	5% CO <sub>2</sub> , 20% O <sub>2</sub> , 75% N <sub>2</sub>	90 scf
05232100	5% CO <sub>2</sub> , 20% O <sub>2</sub> , 75% N <sub>2</sub>	20 scf	05902000	10% CO <sub>2</sub> , 90% N <sub>2</sub> *	20 scf
05522000	10% CO <sub>2</sub> , 90% N <sub>2</sub>	180 scf	05903000	5% CO <sub>2</sub> , 20% O <sub>2</sub> , 75 N <sub>2</sub> *	20 scf
05522001	10% CO <sub>2</sub> , 90% N <sub>2</sub>	90 scf	05903500	5% CO <sub>2</sub> , 12% O <sub>2</sub> , 83% N <sub>2</sub> *	20 scf
05531001	5% CO <sub>2</sub> , 12% O <sub>2</sub> , 83% N <sub>2</sub>	90 scf	05904000	7% CO <sub>2</sub> , 7% O <sub>2</sub> , 86% N <sub>2</sub> *	20 scf
05531701	7% CO <sub>2</sub> , 7% O <sub>2</sub> , 86% N <sub>2</sub>	90 scf	05904500	100% CO <sub>2</sub> *	20 scf

\* = Disposable

These calibration gases are *in vitro* diagnostic products labeled as defined in 21CFR809.10 and in 16CFR1500 and in a manner prescribed by the U.S. Department of Transportation (DOT) in 18CFR172.

### SUBSTANCE IDENTIFICATION

DESCRIPTION: Colorless, odorless, nonflammable gas at normal temperature and pressure.  
EXPOSURE LIMITS: CO<sub>2</sub> 5000 ppm OSHA and ACGIH TWA, 30000 ppm ACGIH STEL.  
DOT LABELED: Nonflammable. DOT I.D. Number: UN1956. BOILING POINT: N/A.  
VAPOR DENSITY (air = 1): 0.968-1.244. VAPOR PRESSURE: Gas @ 20°C. SOLUBILITY  
IN WATER % BY WEIGHT: Negligible. PERCENT VOLATILES BY VOLUME: 100.

### FIRE AND EXPLOSION HAZARDS

Calibration gas mixtures are nonflammable. Mixtures containing 16-20% O<sub>2</sub> will support combustion. FIRE FIGHTING MEDIA: Use water spray to cool cylinders.

### TOXICITY

Humans can not breathe air containing more than 10% CO<sub>2</sub> without losing consciousness. CO<sub>2</sub> and N<sub>2</sub> will act as simple asphyxiant by displacing O<sub>2</sub>. Normal activity requires a minimum of 18% O<sub>2</sub>. CARCINOGEN STATUS: None.