

# MATERIAL SAFETY DATA SHEET

## IDENTITY- CARBON DIOXIDE (CO<sub>2</sub>)

### SECTION I. Chemical Product and Company Identification

Product Name: Carbon Dioxide  
Synonym: CO<sub>2</sub>, Carbonic Anhydride  
Distributor: Buckeye Fire Equipment Company  
Manufacturer: Linde Gas LLC  
PO Box 94737  
Cleveland, OH 44101  
Telephone: 216.642.6600  
Emergency: CHEMTREC 1.800.424.9300

Revision Date: 07/13/04

### SECTION II. Hazard Identification and Emergency Overview

*Emergency Overview:* Colorless gas. In low concentrations carbon dioxide is odorless, at high concentrations it has a sharp acidic odor.

*Adverse Health Effects and Symptoms:* At concentrations between 2% and 10% carbon dioxide can cause nausea, dizziness, headache, mental confusion, increased blood pressure and respiratory rate. At concentrations of 10% or more, suffocation and death can occur within minutes. Contact with the cold gas can cause freezing of exposed tissue.

*Exposure Guidelines:*

	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Carbon Dioxide	5000 ppm	5000 ppm

*Hazard Symbols:*

#### HMIS RATINGS:

Health 1  
Flammability 0  
Reactivity 0

Personal Protective Equipment: Appropriate gloves and eye protection. (See Section 8)

WHMIS (Canadian Workplace Hazardous Materials Identification)  
Class A: Compressed gas



### SECTION III. Composition/Information on Ingredients

	<u>Weight %*</u>	<u>CAS #</u>
Carbon dioxide	> 99.8	124-38-9
Impurities	< 0.2	N/A

\* % is rounded to the nearest appropriate number. Values are not to be considered product specifications

### SECTION IV. First Aid Measures

*NOTE: Rescuers should not attempt to retrieve a victim of exposure to this product without adequate personal protective equipment. At a minimum, self-contained breathing apparatus should be worn.*

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Remove victim to fresh air as quickly as possible. Trained personnel should administer supplemental oxygen and /or cardio-pulmonary resuscitation if necessary. Only trained personnel should administer supplemental oxygen.

In case of frostbite, place the frostbitten part in warm water. *Do Not Use Hot Water.* If warm water is not available or is impractical to use, wrap the affected part gently in a blanket. If fingers or hands are frostbitten, place the affected part in the armpit. Have victim gently exercise the affected part while being warmed. Seek immediate medical attention. Take a copy of this MSDS to the attending physician or health professional.

### SECTION V. Firefighting Measures

*Extinguishing Media:* N/A. This product is an extinguishing agent. It is nonflammable and noncombustible.

*Special Firefighting Procedures:* Structural firefighters must wear self-contained breathing apparatus and full protective equipment. Move fire exposed cylinders if it can be done without risk to firefighters. Otherwise cool containers with hose stream and protect personnel. Withdraw immediately in case of rising sounds from venting safety device or any discoloration of tanks due to fire.

*Unusual Fire and Explosion Hazards:* Containers of carbon dioxide, when involved in fire, may rupture or burst from the heat of the fire.

*Sensitivity to Mechanical Impact or Static Discharge:* None

### SECTION VI. Accidental Release Measures

In case of accidental release, use the appropriate respiratory and personal protection. Evacuate the area and allow the gas, which is heavier than air, to dissipate. Monitor the surrounding area for carbon dioxide and oxygen levels. The levels of carbon dioxide must be below those listed in Section II and the atmosphere must have at least 19.5% oxygen before personnel are allowed back into the area.

### SECTION VII. Handling and Storage

Avoid eye, respiratory, and skin exposure. Use the appropriate personal protective equipment when handling. Be aware of any signs of dizziness, fatigue, or any exposure symptom described in Section II. Product should be stored in dry, well-ventilated areas away from sources of heat. Store in its original container or extinguisher. Containers are under pressure and present significant safety hazards. Store away from heavily trafficked areas and paths for ingress/egress. Protect containers from possible damage and falling. Secure cylinders to prevent accidental knock over.

### SECTION VIII. Exposure Controls and Personal Protection

Use adequate ventilation to prevent unacceptable concentration levels noted in Section II.

*Respiratory Protection:* Use self-contained breathing apparatus

*Eye Protection:* Wear chemical goggles or full-face air-purifying respirator.

*Skin Protection:* Use low-temperature protective gloves and appropriate body protection.

### SECTION IX. Physical and Chemical Properties

*Appearance and Odor:* Carbon dioxide is a colorless gas that is odorless at low concentrations. At high concentrations it will have a sharp acidic odor.

*Gas Density @ 21°C and 1 atm:* 0.1144 lb/ft<sup>3</sup>

*Solubility:* 0.90%

*Flash Point:* N/A

*Flammability:* N/A

*Boiling Point @ 1 atm:* -78.5°C

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## IDENTITY- CARBON DIOXIDE (CO<sub>2</sub>)

### SECTION X. Stability and Reactivity

*Stability:* Normally stable

*Incompatibles:* Will ignite and explode when heated with powdered aluminum, beryllium, cerium alloys, chromium, magnesium-aluminum alloys, manganese, thorium, titanium, and zirconium. In the presence of moisture, will ignite with cesium oxide. Metal acetylides will also ignite and explode on contact with carbon dioxide.

*Decomposition Products:* In an electrical discharge, yields carbon monoxide and oxygen. In the presence of moisture, carbon dioxide will form carbonic acid.

*Hazardous Polymerization:* Will not occur, however carbon dioxide acts as to catalyze the polymerization of acryldehyde and aziridine.

### SECTION XI. Toxicological Information

*Toxicity:* Carbon dioxide is an asphyxiant gas, which has physiological effects at high concentrations.

*LCLo (inhalation, humans)= 9 pph/5 minutes*

*Reproductive Toxicity:* This product is not known to have any reproductive effects in humans.

### SECTION XII. Ecological Information

*Ecotoxicity:* Occurs naturally in the environment.

*Dissipation:* Dissipates rapidly in well-ventilated areas.

Any adverse effect on animals would be related to overexposure and oxygen deficient environments. No adverse effect to plant life except for frost caused by rapidly expanding gases.

### SECTION XIII. Considerations for Disposal

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal regulations.

### SECTION XIV. Transportation Information

This product is hazardous as defined by U.S. Department of Transportation 49 CFR 172, and dangerous goods as defined by Transport Canada "Transportation of Dangerous Goods" regulations.

Proper Shipping Name: Carbon Dioxide

Hazard Class Number and Description: 2.2 (non-flammable gas)

UN Identification Number: UN1013

Packing Group: N/A

DOT Label Required: Non-Flammable Gas

### SECTION XV. Regulatory Information

*International Inventory Status:* All ingredients are on the following inventories

<u>Country</u>	<u>Agency</u>
U.S.A.	TSCA
Canada	DSL
Europe	EINECS/ELINCS
Australia	AICS
Japan	MITI
South Korea	KECL

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### *U.S. Federal Regulatory Information:*

This product is not subject to the SARA reporting requirements or has SARA Threshold Planning Quantities or CERCLA Reportable Quantities.

### *State Regulatory Information:*

Chemicals in this product are covered under the specific State regulations noted:

Alaska	Designated Toxic and Hazardous Substances- Carbon Dioxide
California	Permissible Exposure Limits for Chemical Contaminants- Carbon Dioxide
Florida	Substance list- Carbon Dioxide
Illinois	Toxic Substance List- Carbon Dioxide
Kansas	Section 302/303 List- No
Massachusetts	Substance list- Carbon Dioxide
Minnesota	List of Hazardous Substances- Carbon Dioxide
Missouri	Employer Information/Toxic Substance List- Carbon Dioxide
New Jersey	Right to Know Hazardous Substance List- Carbon Dioxide
North Dakota	List of Hazardous Chemicals, Reportable Quantities- No
Pennsylvania	Hazardous Substance List- Carbon Dioxide
Rhode Island	Hazardous Substance List- Carbon Dioxide
Texas	Hazardous Substance List- No
West Virginia	Hazardous Substance List- Carbon Dioxide
Wisconsin	Toxic and Hazardous Substances- Carbon Dioxide

California Proposition 65- Carbon Dioxide is not listed on the California Proposition 65 List

### **SECTION XVI. Other Information**

This MSDS conforms to the requirements under U.S. and Canadian Regulations or Standards. It conforms to the proposed 2003 ANSI Z400.1 format.

The information contained herein is given in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made.