

# MATERIAL SAFETY DATA SHEET

## Carbon Dioxide, Refrigerated Liquid

MSDS DATE: 2/14/13

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### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

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PRODUCT NAME: Carbon Dioxide, Refrigerated Liquid  
SYNONYMS: Carbonic Acid Gas

MANUFACTURER: EPCO Carbon Dioxide Products, Inc.  
ADDRESS: 1811 Auburn Avenue, Suite K, Monroe, LA 71201

EMERGENCY PHONE: 1-800-259-8095  
CHEMTREC PHONE: 1-800-424-9300  
OTHER CALLS: 1-800-259-3726

CHEMICAL NAME: Carbon Dioxide  
CHEMICAL FAMILY: Oxide of Carbon  
CHEMICAL FORMULA: CO<sub>2</sub>

PRODUCT USE: Various

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### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

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**INGREDIENT:**  
Carbon Dioxide

<u>CAS NO.</u>	<u>% WT</u>	<u>% VOL</u>	<u>SARA 313 REPORTABLE</u>
124-38-9	100%	100%	NO
	<u>ppm</u>	<u>mg/m3</u>	
OSHA PEL-TWA:	5,000	N/A	
OSHA PEL STEL :	N/A	N/A	
OSHA PEL CEILING:	N/A	N/A	
ACGIH TLV-TWA:	5,000	N/A	
ACGIH TLV STEL:	30,000	N/A	
ACGIH TLV CEILING:	N/A	N/A	

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### SECTION 3: HAZARDS IDENTIFICATION

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**EMERGENCY OVERVIEW:** Caution! High-pressure liquid and gas. Can cause rapid suffocation. May cause frostbite. Can increase respiration and heart rate. May cause nervous system damage. May cause dizziness and drowsiness. Self-contained breathing apparatus may be required by rescue workers. This product is a colorless, odorless gas at normal temperature and pressure. The gas is slightly acidic and may be felt to have a slight, pungent odor and biting taste.

**ROUTES OF ENTRY:** Skin contact, Inhalation, Eye contact, and Ingestion

#### POTENTIAL ACUTE HEALTH EFFECTS

**EYES:** Escaping liquid transforms to very cold solid and gas (-78 degrees C/-109 degrees F) which may cause frostbite. Solid sublimates and can cool materials it is in contact with to -78 degrees C (-109 degrees F) which can cause frostbite if touched.

**SKIN:** Escaping liquid transforms to very cold solid and gas (-78 degrees C/-109 degrees F) which may cause frostbite

**INHALATION:** Carbon dioxide is present in air at 0.03% and, at the higher levels in exhaled breath. Low concentrations (3-5%) increase the respiration rate and can cause headache. Levels of 8% to 15% cause headache, nausea, vomiting, and may lead to unconsciousness. Higher concentrations can cause coma and death.

**INGESTION:** Swallowing of solids will cause severe burns. Keep out of reach of children.

**CHRONIC HEALTH HAZARDS:** No harm expected

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** Unlikely to aggravate existing medical conditions

#### CARCINOGENICITY

Carbon dioxide is not listed by NTP, OSHA, or IARC.

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### SECTION 4: FIRST AID MEASURES

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**EYES:** For frostbite, rinse with warm water for 15 minutes. Obtain medical attention.

**SKIN:** For frostbite, allow affected body part to thaw. Obtain medical attention.

**INGESTION:** Maintain breathing. Obtain medical attention immediately.

**INHALATION:** Move victim to fresh air. Give oxygen, if breathing is difficult. Give artificial respiration, if breathing has stopped.

**NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:** There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

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### SECTION 5: FIRE-FIGHTING MEASURES

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**FLAMMABLE PROPERTIES:** Nonflammable

**FLASH POINT:** None

**AUTOIGNITION TEMPERATURE:** None

**NFPA HAZARD CLASSIFICATION**

HEALTH: 1                      FLAMMABILITY: 0                      REACTIVITY: 0  
OTHER: SA (CGA recommends this to designate Simple Asphyxiant)

**HMIS HAZARD CLASSIFICATION**

HEALTH: 1                      FLAMMABILITY: 0                      REACTIVITY: 0  
PROTECTION: 3

**EXTINGUISHING MEDIA:** N/A

**SPECIAL FIRE FIGHTING PROCEDURES:** Use extinguishing media appropriate for surrounding fire

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** N/A

**HAZARDOUS DECOMPOSITION PRODUCTS:** N/A

**SECTION 5 NOTES:** Do not direct water at source of leak or venting safety device, as icing may occur

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### SECTION 6: ACCIDENTAL RELEASE MEASURES

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**ACCIDENTAL RELEASE MEASURES:** CAUTION! High pressure liquid and gas.

**Personal Precautions:**

Carbon dioxide is an asphyxiant. Lack of oxygen can kill. Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off leak if you can do so without risk. Ventilate area or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry.

**Environmental Precautions:**

Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposal container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations.

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### SECTION 7: HANDLING AND STORAGE

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**HANDLING AND STORAGE:** When withdrawing gaseous CO<sub>2</sub>, use only regulating equipment designed for CO<sub>2</sub> service and source pressure. Use only in well ventilated areas. Do not move container without its caps in place, if applicable. Secure container when in use. Use a backflow preventive device to prevent suck-back. Keep container away from heat, flames, and sparks. Close valve after each use and when empty. Provide safety relief device between any 2 valves.

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### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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**VENTILATION :** Provide good ventilation to maintain more than 18% oxygen and less than 0.5% CO<sub>2</sub> (TWA). Air monitoring device recommended.

**RESPIRATORY PROTECTION:** SCBA in case of suspected leak of unknown concentration or oxygen deficient atmosphere.

**EYE PROTECTION:** Goggles or full faceshield with safety glasses

**SKIN PROTECTION:** Long sleeves and trousers recommended

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:** Insulated gloves, safety shoes for container handling if applicable.

#### EXPOSURE GUIDELINES:

	<u>ppm</u>		<u>mg/m3</u>	
OSHA PEL-TWA:	5,000			N/A
OSHA PEL STEL :	N/A			N/A
OSHA PEL CEILING:	N/A			N/A
ACGIH TLV-TWA:	5,000			N/A
ACGIH TLV STEL:	30,000			N/A
ACGIH TLV CEILING:	N/A			N/A

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### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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**APPEARANCE:** Colorless

**ODOR:** Odorless

**PHYSICAL STATE at NTP:** Gas

**pH AS SUPPLIED:** Not applicable

**BOILING POINT:** Not applicable

**FREEZING POINT:** Sublimates at 1 atm at -78.5 degrees C/-109.3 degrees F

**VAPOR PRESSURE:** 5778 kPa, 838 psig (@21.1 degrees C / 70 degrees F)

**VAPOR DENSITY (AIR = 1):** 0.00197 (@ 0 degrees C / 32 degrees F)

**SPECIFIC GRAVITY (Air = 1):** 1.52 (@21 degrees C / 70 degrees F)

**EVAPORATION RATE:** Not applicable

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### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (con't)

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**SOLUBILITY IN WATER:** 0.9 (@20 degrees C / 68 degrees F)

**PERCENT VOLATILE BY VOL:** 100

**MOLECULAR WEIGHT:** 44.01

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### SECTION 10: STABILITY AND REACTIVITY

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**STABILITY:** Stable under normal temperatures and pressures

**CONDITIONS TO AVOID (STABILITY):** Contact with incompatible materials, exposure to electrical discharges, and/or high temperatures as stated below.

**INCOMPATIBILITY (MATERIAL TO AVOID):** Alkali metals, alkaline earth metals, metal acetylides, chromium, titanium above 1022 degrees F (550 degrees C), uranium above 1382 degrees F (750 degrees C), magnesium above 1427 degrees F (775 degrees C)

**HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:** Electrical discharges and high temperatures decompose carbon dioxide into carbon monoxide and oxygen.

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### SECTION 11: TOXICOLOGICAL INFORMATION

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**ACUTE EXPOSURE:** LC50 = 90,000 ppm, 5 min., human

Carbon dioxide is an asphyxiant. It initially stimulates respiration and then causes respiratory depression. High concentrations result in narcosis.

**CHRONIC EXPOSURE:** No known chronic effects to repeated exposures of low concentrations.

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### SECTION 12: ECOLOGICAL INFORMATION

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**ECOLOGICAL TOXICITY:** No known effects

**SECTION 12 NOTES:** Carbon dioxide does not contain any Class I or Class II ozone-depleting chemicals.

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### SECTION 13: DISPOSAL CONSIDERATIONS

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**WASTE DISPOSAL METHOD:** No residual waste

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### SECTION 14: TRANSPORT INFORMATION

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**U.S. DEPARTMENT OF TRANSPORTATION**

**PROPER SHIPPING NAME:** Carbon Dioxide

**HAZARD CLASS:** 2.2

**ID NUMBER:** UN1013

**PACKING GROUP:** N/A

**LABEL STATEMENT:** NONFLAMMABLE GAS

**MARINE POLLUTANTS:** Carbon dioxide is not listed as a marine pollutant by DOT.

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### SECTION 15: REGULATORY INFORMATION

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**U.S. FEDERAL REGULATIONS**

**TSCA (TOXIC SUBSTANCE CONTROL ACT):** Carbon dioxide is listed on the TSCA inventory.

**CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT):** Reportable Quantity (RQ) = none

**SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):**

**311/312 HAZARD CATEGORIES:** IMMEDIATE = Yes, DELAYED = No, PRESSURE = Yes, Reactivity = No, FIRE = No

**313 REPORTABLE INGREDIENTS:** Carbon dioxide is not subject to reporting under Section 313

**STATE REGULATIONS:**

**California:** Carbon dioxide is not listed by California under the SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (Proposition 65)

**Pennsylvania:** Carbon dioxide is subject to the Pennsylvania Worker and Community Right to Know Act (35 P.S. Sections 7301-7320)

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### SECTION 16: OTHER INFORMATION

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**OTHER INFORMATION:** Use, handling, or storage of the product described in the MSDS is at the users sole risk.

**PREPARED BY:** EPCO Production Department, phone number 1-800-259-3726

**DISCLAIMER:** EPCO Carbon Dioxide Products, Inc. shall not be liable for any loss or damage of any nature whatsoever, however arising, relating to the use, handling or storage of the product, of the statements and information contained in or omitted from this MSDS.