

MATERIAL SAFETY DATA SHEET**PRODUCT IDENTIFIER Carbon Dioxide, Refrigerated Liquid****SECTION I- Product Information***

MANUFACTURER:	EPCO Carbon Dioxide Products, Inc.
EPCO-Various Locations	1811 Auburn Avenue
	Monroe, LA 71201
OFFICE PHONE:	(318) 361-0870
24-HOUR EMERGENCY:	(800) 388-1051
SHIPPING NAME:	Carbon Dioxide, Refrigerated Liquid
UN NUMBER:	2187
CAS NUMBER:	124-38-9
TDG CLASSIFICATION:	2.2
WHMIS CLASSIFICATION:	A
CHEMICAL NAME:	Carbon Dioxide
MOLECULAR WEIGHT:	44.01
CHEMICAL FAMILY:	Oxide of Carbon
FACT NAME & SYNONYMS:	Carbonic Acid Gas
CHEMICAL FORMULA:	CO ₂
Uses:	Various

SECTION II – Composition

Ingredients	Approx. Conc. %		
Carbon Dioxide	>99%		

SECTION III – Physical Data

APPEARANCE & ODOR:	Colorless and odorless.
PHYSICAL STATE (AT N.P.T.):	Gas
ODOR THRESHOLD (ppm):	Not Available
BOILING POINT:	Not Applicable
FREEZING POINT:	Sublimates at 1 atm at -78.5°C / -109.3°F
SPECIFIC GRAVITY (AIR = 1):	1.52 (@ 21°C / 70°F)
GAS DENSITY (lb/cu ft):	0.1234 (@ 0°C / 32°F)
VAPOR PRESSURE:	5778 kPa. 838 psig (@ 21.1°C / 70°F)
pH:	Not Applicable

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% VOLATILE (BY VOLUME):	100
LIQUID DENSITY (g/ml):	0.713 (@ 25°C / 77°F)
EVAPORATION RATE:	Not Applicable
SOLUBILITY IN WATER (vol./vol.):	0.9 (@ 20°C / 68°F)
COEFFICIENT OF WATER/OIL DISTRIBUTION:	Not Available

SECTION IV – Fire and Explosion Hazard of Material**FLAMMABILITY**

	If yes, under which conditions?	Non flammable
☐ Yes	☒ No	Will not support combustion.

MEANS OF EXTINCTION

If containers are exposed to fire, evacuate all personnel from danger area. Cool containers with water spray from maximum distance. Fight source fire with media appropriate to it.

SPECIAL PROCEDURES *

Do not direct water at source of leak or venting safety device, as icing may occur.

FLASHPOINT (°C) AND METHOD:	None
LOWER EXPLOSION LIMIT (% BY VOLUME):	None
UPPER EXPLOSION LIMIT (% BY VOLUME):	None
AUTO IGNITION TEMPERATURE (°C):	None
TDG FLAMMABILITY CLASSIFICATION:	Non Flammable
HAZARDOUS COMBUSTION PRODUCTS:	None
SENSITIVITY TO MECHANICAL IMPACT:	None
RATE OF BURNING:	Non Applicable
SENSITIVITY TO STATIC DISCHARGE:	None

SECTION V – Reactivity Data**Chemical Stability**

☒ Yes	☐ No	If no, under what conditions?	Stable at normal temperatures and pressures.
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MATERIAL SAFETY DATA SHEET**PRODUCT IDENTIFIER Carbon Dioxide, Refrigerated Liquid****SECTION V – Reactivity Data (Cont'd)**Incompatibility to Other Substances☐ Yes ☒ NoIf yes,
which ones?Reactivity☒ Yes ☐ NoIf yes, under
which conditions?In the presence of moisture, will
form carbonic acid which may
corrode some metals.**SECTION VI – Toxicological Properties of Material**ROUTE OF ENTRY☒ Skin Contact☐ Skin Absorption☒ Eye Contact☒ Inhalation Acute☐ Inhalation Chronic☒ IngestionEFFECTS OF ACUTE EXPOSURE TO MATERIALSkin

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

Eye

Escaping liquid transforms to very cold solid and gas (-78°C/-109°F) which may cause frostbite.

Inhalation

Carbon Dioxide is present in air at 0.03% and, at higher levels in exhaled breath. Low concentrations (1-2%) can increase the respiration rate and cause headache. Levels of 3% to 5% cause headache, nausea, vomiting and may lead to unconsciousness. Higher concentrations can cause coma and death.

Ingestion

Swallowing of solid will cause severe burns. Keep out of reach of children.

EFFECTS OF CHRONIC EXPOSURE TO MATERIAL

No known chronic effects to repeated exposures of low concentrations (1-3%)

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MATERIAL SAFETY DATA SHEET**PRODUCT IDENTIFIER Carbon Dioxide, Refrigerated Liquid****SECTION VI – Toxicological Properties of Material (Cont'd)**

EXPOSURE LIMIT (S): OSHA, NIOSH, and ACGIH:

STEL 30,000 ppm (3%)

TWA 5,000 ppm (.5%)

IDLH 40,000 ppm (4%)

IRRITANCY OF MATERIAL:

Sharp sensation on nasal membranes at higher Concentration.

SENSITIZATION OF MATERIAL:

None

CARCINOGENICITY:

None

REPRODUCTIVE EFFECTS:

None

TERATOGENICITY:

None

MUTAGENICITY:

None

SYNERGISTIC MATERIALS:

None

SECTION VII – Preventive Measures

Gloves:

Insulated gloves

Respiratory:

SCBA in case of suspected leak or oxygen-deficient atmosphere.

Eyes:

Goggles of full faceshield.

Footwear:

Safety shoes for container handling, if applicable.

Clothing:

Long sleeves/trousers recommended.

ENGINEERING CONTROLS

Provide good ventilation to maintain more than 18% oxygen and less than 0.5% CO₂ (TWA). Air monitoring device is recommended.

LEAK AND SPILL PROCEDURE

Major: Evacuate danger area. Use SCBA to return to shutoff source. Allow gas to dissipate. Verify CO₂ and oxygen concentration of enclosed or low areas before permitting re-entry.

WASTE DISPOSAL

No residual waste.

STORAGE REQUIREMENTS

Replace container cap, if applicable.

Protect containers from physical damage.

Store in cool, dry, well ventilated area.

Do not allow temperature to exceed 52°C (125°F).

Store secured in upright position with full and empty containers segregated.

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MATERIAL SAFETY DATA SHEET**PRODUCT IDENTIFIER Carbon Dioxide, Refrigerated Liquid****SECTION VII – Preventive Measures (Cont'd)****SPECIAL SHIPPING INFORMATION**

Replace container cap, if supplied.

Transport secured upright in well-ventilated truck.

Never transport in passenger compartment, trunk or enclosed vehicle.

HANDLING PROCEDURES AND EQUIPMENT

When withdrawing gaseous CO₂ use only regulating equipment designed for CO₂ service and source pressure.

Use only in well ventilated areas.

Do not move container without its cap in place, if applicable.

Use a suitable hand truck for container movement, 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 a safety relief device between any two valves.

CORROSIVITY

In presence of moisture, will form carbonic acid which may corrode some metals.

SECTION VIII -First Aid Measures

- | | | |
|-------------|---|--|
| Eyes: | - | For frostbite, rinse with warm water for 15 minutes. |
| | - | Obtain medical attention. |
| Skin: | - | For frostbite, allow affected body parts to thaw. |
| | - | Obtain medical attention. |
| Inhalation: | - | Rescue personnel should be equipped with SCBA. |
| | - | Move victim to fresh air. |
| | - | Give oxygen, if breathing is difficult. |
| | - | Give artificial respiration, if breathing has stopped. |
| | - | Ensure that vomit does not obstruct airway. |
| | - | Obtain medical attention. |
| Ingestion: | - | Maintain breathing. |
| | - | Obtain medical attention immediately. |

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MATERIAL SAFETY DATA SHEET**PRODUCT IDENTIFIER Carbon Dioxide, Refrigerated Liquid****SECTION IX – Preparation of M.S.D.S.**

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

EPCO Carbon Dioxide Products, Inc. shall not be liable for any loss of 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.

Prepared By:

Production Department
EPCO Carbon Dioxide
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Phone Number

800-388-1051 or
800-259-3726

Date

November 9, 2007

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