

# MATERIAL SAFETY DATA SHEET

**PRODUCT IDENTIFIER Carbon Dioxide, Refrigerated Liquid**

**SECTION I - Product Information**

**MANUFACTURER:**

**OFFICE PHONE:**

**24-HOUR EMERGENCY:**

**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<sub>2</sub>

**Uses:**

Various

**SECTION II - Hazardous Ingredients or Material**

Hazardous Ingredients	Approx. Conc. %	LD30	LD50
Carbon Dioxide	100%	None	None

**SECTION III - Physical Data**

**APPEARANCE & ODOR:**

Colorless and odorless.  
Sharp nasal sensation at high concentration.

**PHYSICAL STATE (AT N.P.T.):**

Gas

**SPECIFIC GRAVITY (WATER = 1):**

0.713

**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 (g/ml):**

0.00197 (@ 0°C / 32°F)

**VAPOR PRESSURE:**

5778 kPa, 838 psig (@ 21.1°C / 70°F)

**pH:**

Not Applicable

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**SECTION III - Physical Data (Cont.)**

<b>% VOLATILE (BY VOLUME):</b>	100
<b>LIQUID DENSITY (g/ml):</b>	0.713 (@ 25°C / 77°F)
<b>EVAPORATION RATE:</b>	Not Applicable
<b>SOLUBILITY IN WATER (vol./vol.):</b>	0.9 (@ 20°C / 68°F)
<b>COEFFICIENT OF WATER/OIL DISTRIBUTION:</b>	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 Stable at normal temperatures and pressures.  
 If no, under what conditions?

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### SECTION V - Reactivity Data (Cont'd)

Incompatibility to Other Substances  
 Yes  No If yes, which ones?

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Reactivity  
 Yes  No If 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  Ingestion

EFFECTS OF ACUTE EXPOSURE TO MATERIAL

Skin  
 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 (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 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 (3-5%)

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### PRODUCT IDENTIFIER Carbon Dioxide, Refrigerated Liquid

#### SECTION VI - Toxicological Properties of Material (Cont'd)

EXPOSURE LIMIT (S):	STEL	30,000 ppm (3%) ACGIH
	TWA	5,000 ppm (5%) ACGIH, OSHA
	LCLo	90% 5 min. human
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 or 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% CO<sub>2</sub> (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 CO<sub>2</sub> 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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**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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**PRODUCT IDENTIFIER** Carbon Dioxide, Refrigerated Liquid

**SECTION IX - Preparation of MSDS**

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

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:** A+ Dist.      **Phone Number** 800-920-0242 **Date**

**Production Department** For CHEMICAL Emergency Call  
Products, Inc. CHEMTREC Day or Night at 800-424-9300

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**Production Department**

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