

MSDS	MATERIAL SAFETY DATA SHEET
American Recorder Technologies, Inc. 1872 Angus Avenue Simi Valley, CA 93063 Voice: 805-527-9580 M-F, PST Fax: 805-527-1433 Email: info@americanrecorder.com MODEL NUMBER & CAPACITY: CO-2, CO-2/6, CO-SOFTD, DSCK-117, DSCK-120, DSCK-124, DSCK-217, DSCK-220, DSCK-224, CO-51100, CO-51101, CO-54200, CO-54201	Emergency Contact Information: PERS-ER DOMESTIC SHIPMENTS: 800 633-8253 INTERNATIONAL: (1) 801 629-0667
	Carbon Dioxide (Gas) UN# 1013 Carbon Dioxide

Section 1. Product Information

Product Name: Carbon Dioxide
Product Description: Odorless, colorless, compressed liquefied gas with a slight acidic taste.

Section 2. Composition and Information on Ingredients

Name	CAS#	Concentration*
Carbon Dioxide	124-38-9	100%

*All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

Section 3. Hazards Identification

Overview	Do not permit physical damage or overheating of cylinders. Contents are under pressure; cylinders may rupture and travel a considerable distance. Contact of liquefied gases with water may cause explosions due to rapid temperature fluctuations
Potential Acute Health Effects	Moderately irritating to the eyes, to the skin, and to the respiratory system. Ingestion is not normal route of exposure for gases.
Potential Chronic Health Effects	Acute or chronic respiratory conditions may be aggravated by overexposure to this gas.
NFPA Hazard ID	Health 1 Flammability 0 Reactivity 0

Section 4. First Aid Measures

Inhalation	Immediately remove from exposure area to fresh air. If breathing has stopped, give artificial respiration. Maintain airway and blood pressure. Keep affected person warm. Get medical attention immediately.
Skin Contact	In case of frostbite, warm affected skin in warm water. If warm water is unavailable, gently wrap affected area in blankets. Allow circulation to return naturally. Get medical attention immediately.
Eye Contact	If contact with liquefied or compressed gas occurs, wash with large amounts of warm water (approximately 15-20 minutes). Get medical attention immediately.
Ingestion	Treat symptomatically and get medical attention.

Section 5. Fire Fighting Measures

Flammable

Flammability Properties	Non-flammable
Appropriate Extinguishing Media	Use an extinguishing agent suitable for surrounding fires.
Explosion Hazards	Do not permit physical damage or overheating of cylinders. Contents are under pressure; cylinders may rupture and travel a considerable distance. Contact of liquefied gases with water may cause explosions due to rapid temperature fluctuations.

Section 6. Accidental Release Measures

Environmental Precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers
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Section 7. Handling and Storage

Precautions	High pressure gas. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop.
Storage	Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Store in accordance with 29 CFR 1910.101 For assistance, contact the district director of the EPA.

Section 8. Exposure Controls / Personal Protection

Exposure Limit Values

Carbon Dioxide	STEL: 54000 mg/m ³ ACGIH (TLV) [U.S.] [2004] STEL: 30000 ppm ACGIH (TLV) [U.S.] [2004] TWA: 9000 mg/m ³ ACGIH (TLV) [U.S.] [2004] TWA: 5000 ppm ACGIH (TLV) [U.S.] [2004] STEL: 54000 mg/m ³ from NIOSH STEL: 30000 ppm from NIOSH TWA: 9000 mg/m ³ from NIOSH TWA: 5000 ppm from NIOSH TWA: 9000 mg/m ³ from OSHA (PEL) [U.S.] TWA: 5000 ppm from OSHA (PEL) [U.S.]
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Consult local authorities from acceptable exposure limits.

Engineering Controls	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.
Personal Protection	Respirator: Any self contained breathing apparatus Clothing/Gloves: Protective clothing is not required. Eye Protection: Not required, but advisable.

Section 9. Physical and Chemical Properties

General Information	Physical State: Gas Color: colorless Odor: N/A Taste: Slightly acidic
Properties	Molecular Weight: 44.01 g/mol Boiling Point: -78.5°C (-109.4°F) Melting Point: -57°C (-70.6°F) Critical Temperature: 30.9°C (87.6°F) Specific Gravity: 1.52 at 21°C (Water=1) Vapor Density (Air=1): 1.53 Vapor Pressure: 830 PSIG pH: Acidic in solution Solubility in water: Soluble

Section 10. Stability and Reactivity

Stability	Material is stable under normal conditions
Incompatibility with Various Substances	<i>Acrylaidehyde</i> : exothermic polymerization; <i>Barium Peroxide</i> : Incandescent reaction; <i>Cesium Oxide</i> : Ignition; <i>Diethyl Magnesium</i> : Ignition; <i>Ethyleneimine</i> : Explosive polymerization; <i>Hydrazine</i> : Decomposition; <i>Metal Aceylides</i> : Ignition or incandescence; <i>Metal Hydride</i> : Reduction reaction; <i>Metals</i> : Dusts of many metal suspended in carbon dioxide atmospheres are ignitable and explosive. Some bulk metals will burn in the gas at elevated temperatures; <i>Potassium</i> : Mixtures of the solids are impact-sensitive; <i>Potassium-Sodium Alloy</i> : Mixtures of the solids are impact-sensitive; <i>Sodium</i> : Mixtures of the solids are impact-sensitive; <i>Sodium Peroxide</i> : Highly exothermic reaction, may be explosive in presence of metals.
Decomposition	Temperatures above 1700°C may cause decomposition and the release of oxygen and highly toxic carbon monoxide
Polymerization	Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

Section 11. Toxicological Information

Carcinogen Status	N/A
Acute Toxicity Level	Insufficient data available
Target Effects	Simple asphyxiant. Poisoning may affect heart, respiratory and nervous systems.

Section 12. Ecological Information

Ecotoxicity	Not available.
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Products of Biodegradation	These products are carbon oxides (CO, CO ₂)
Toxicity of the Products of Biodegradation	The product itself and its products of degradation are not toxic.

Section 13. Disposal Considerations

Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Section 14. Transport Information

Proper Shipping Name	Carbon Dioxide
Hazard Class & Division	Class 2.2
UN ID#	1013
Packing Group	N/A (gas)

Section 15. Regulatory Information

U.S. Federal Regulations	<p>TSCA 8(b) inventory: Carbon Dioxide SARA 302/304/311/312 extremely hazardous substances: No products were found. SARA 302/304 emergency planning and notification: No products were found. SARA 302/304/311/312 hazardous chemicals: Carbon Dioxide SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Carbon Dioxide: Sudden Release of Pressure, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard Clean Water Act (CWA) 307: No products were found. Clean Water Act (CWA) 311: No products were found. Clean air act (CAA) 112 accidental release prevention: No products were found. Clean air act (CAA) 112 regulated flammable substances: No products were found. Clean air act (CAA) 112 regulated toxic substances: No products were found.</p>
State Regulations	<p>Pennsylvania RTK: Carbon Dioxide: (generic environmental hazard) Massachusetts RTK: Carbon Dioxide New Jersey: Carbon Dioxide</p>

Section 16. Other Information

N/D=Not Determined, N/A= Not Applicable