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Material Safety Data Sheet  
CO<sup>2</sup> Cartridges

Date of preparation 07/13/06

**SUBSTANCE IDENTITY:**

SUBSTANCE: Carbon Dioxide, Gas

CAS # 124-38-9

UN1013

MOLECULAR FORMULA: C-0<sup>2</sup>

MOLECULAR WT: 44.01

CHEMICAL FAMILY: Oxide of Carbon

CERCLA RATINGS (SCALE 0-3): HEALTH = 3 FIRE = 0 REACTIVITY = 0 PERSISTENCE = 0

NFPA RATINGS (SCALE 0-4): HEALTH = U FIRE = 0 REACTIVITY = 0

**COMPONENTS AND CONTAMINANTS**

COMPONENT: Carbon Dioxide, Gas (CAS # 124-38-9)

PERCENT: 100.0

OTHER CONTAMINANTS: None

**PHYSICAL DATA**

DESCRIPTION: Odorless, Colorless Gas, with a Slight Acidic Taste.

BOILING POINT: -109 F (-79 C) (SUBLIMES)

MELTING POINT: -70.6 F (-57 C) @ 4000 mmHg

SPECIFIC GRAVITY: 1.52 @ 21 C

VAPOR PRESSURE: 43700 mmHg @ 21 C

PH: Acidic in Solution

SOLUBILITY IN WATER: Soluble

VAPOR DENSITY: 1.5

SOLVENT SOLUBILITY: Soluble in alcohol, acetone, hydrocarbons, most organic liquids.

VAPOR DENSITY: 1.977 G/L @ 750 mmHg and 0 C

**FIRE AND EXPLOSION DATA**

FIRE/EXPLOSION HAZARD: GAS – Negligible fire hazard when exposed to heat or flame.

CYLINDER – May rupture in heat of fire.

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, or halon. For larger fires, use water spray, fog or standard foam.

FIREFIGHTING: Cool fire-exposed cylinders with water from the side until well after the fire is out. Use agents suitable for type of fire. Cool cylinders with flooding amounts of water, applied from as far a distance as possible.

**CONDITIONS TO AVOID**

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.

**STORAGE AND DISPOSAL**

Store in accordance with 29 CFR 1910.101. For assistance, contact the district director of the EPA.

## **REACTIVITY**

Stable under normal temperatures and pressures.

### **INCOMPATIBILITIES:**

*Acrylaldehyde*: Exothermic Polymerization; *Barium Peroxide*: Incandescent Reaction; *Cesium Oxide*: Ignition; *Diethyl Magnesium*: Ignition; *Ethyleneimine*: Explosive Polymerization; *Hydrazine*: Decomposition; *Metal Acetylides*: Ignition or Incandescence; *Metal Hydrides*: Reduction Reaction; *Metals*: Dusts of many metal suspended in Carbon Dioxide atmospheres are ignitable and explosive. Some bulk metals will burn in the gas at elevated temperatures; *Potassium*: Mixtures of the Solids are Impact-Sensitive; *Potassium-Sodium Alloy*: Mixtures of the Solids are Impact-Sensitive; *Sodium*: Mixtures of the Solids are Impact Sensitive; *Sodium Peroxide*: 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.

## **HEALTH HAZARD DATA**

CARCINOGEN STATUS: None

ACUTE TOXICITY LEVEL: Insufficient data available.

TARGET EFFECTS: Simple Asphyxiant. Poisoning may affect heart, respiratory and nervous system.

### **INHALATION:**

**SIMPLE ASPHYXIANTS:** Multiple cylinders released in a confined space may cause asphyxia.

**ACUTE EXPOSURE:** Initially, exposure to increased Carbon Dioxide concentrations results in a compensatory increase in both rate and depth of ventilation. Beyond a certain point, however, this may reverse to hypoventilation resulting in respiratory acidosis. Death from asphyxia may occur if the concentration and duration of exposure are sufficient.

**FIRST AID:** 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:**

**ACUTE EXPOSURE:** No adverse effects have been reported from the gas. Due to rapid evaporation, the liquid may cause frostbite with redness, tingling pain, or numbness. In severe cases, the skin may become hard, white, and develop blisters.

**FIRST AID:** In case of frostbite, warm affected skin in warm water (107 F). If warm water is unavailable, gently wrap affected area in blankets. Allow circulation to return naturally. Get medical attention immediately.

### **EYE CONTACT:**

**ACUTE EXPOSURE:** At high concentrations in air, may cause stinging sensations; may cause irritation.

**FIRST AID:** If contact with liquefied or compressed gas occurs, wash with large amounts of warm water (approximately 15-20 minutes). Get medical attention immediately.

### **INGESTION:**

**ACUTE EXPOSURE:** Unlikely. If liquid is swallowed, frostbite damage to lips, mouth and mucous membranes may occur.

**FIRST AID:** Treat symptomatically and get medical attention.

**PROTECTIVE EQUIPMENT:** is not required unless multiple cylinders release in confined spaces.

**VENTILATION:** Provide general dilution ventilation.

**RESPIRATOR:** SCBA only required in confined spaces.

**CLOTHIN/GLOVES:** Protective clothing is not required.

**EYE PROTECTION:** Not required, but advisable.