

# Material Safety Data Sheet

## Dry Ice

**Identity:** Carbon Dioxide – Solid

### General Information

**Date MSDS Prepared:** December 12, 2011

**Safety Data Review Date:** May 13, 2012

**Company Identification:**

Continental Carbonic Products, Inc.  
3985 East Harrison Avenue  
Decatur, IL 62526  
800-DRY ICE2

**Haz Mat Identification System**

**H 1**  
**F 0**  
**R 1**  
**PPE B**

### Ingredients/Identity Information

| CAS#     | Chemical Name  | Percent | EINECS/ELINCS |
|----------|----------------|---------|---------------|
| 124-38-9 | Carbon Dioxide | 100     |               |

**Proprietary:** No

**NIOSH (RTECS) Number:** FF6400000

**Exposure Limits:**

**Carbon Dioxide:**

|            |                             |       |  |
|------------|-----------------------------|-------|--|
| 5000 ppm   | (9000 mg/m <sup>3</sup> )   | OSHA  | TWA  |
| 5000 ppm   | (9000 mg/m <sup>3</sup> )   | ACGIH | TWA: 30,000 ppm (54,000 mg/me) ACGIH STREL |
| 5000 ppm   | (9000 mg/m <sup>3</sup> )   | NIOSH | recommended 10 hour TWA:                   |
| 30,000 ppm | (54,000 mg/m <sup>3</sup> ) | NIOSH | recommended STEL                           |
| 5000 ppm   | (9000 mg/m <sup>3</sup> )   | DFG   | MAK TWA:                                   |
| 10,000 ppm | (18,000 mg/m <sup>3</sup> ) | DFG   | MAK 60 minute peak, momentary value        |

Measurement method: Gas collection bag: Gas chromatography with thermal conductivity

Detector: (NIOSH III #S2491)

### Physical/Chemical Characteristics

**Appearance and Odor:** colorless, odorless to slightly pungent

**Boiling Point:** -109.4 F

**Melting Point:** -69.9 F

**Vapor Pressure (MM hg/70F):** 831 PSIA

**Solubility In Water:** APPRECIABLE

### Fire Fighting Measures

|  |                              |                              |
|--|------------------------------|------------------------------|
| <b>FLASH POINT</b> (test method):            | Not applicable               |                              |
| <b>AUTOIGNITION TEMPERATURE</b>              | Not applicable               |                              |
| <b>FLAMMABLE LIMITS IN AIR</b> , % by volume | <b>LOWER:</b> Not applicable | <b>UPPER:</b> Not applicable |

**EXTINGUISHING MEDIA:** Carbon dioxide cannot catch fire: Use media appropriate for surrounding fire

**SPECIAL FIRE FIGHTING PROCEDURES: WARNING! Frozen carbon dioxide – extremely cold solid. Vapor can cause rapid suffocation.** Evacuate all personnel from danger area. Do not discharge sprays onto solid carbon dioxide. Solid carbon dioxide will freeze water rapidly. Never handle solid carbon dioxide with your bare hands. Use insulated, loose-fitting gloves and dry ice tongs, or use a dry shovel or scoop. Move packages away from fire area if without risk. Self-contained breathing apparatus may be required by rescue workers. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** None Known

**HAZARDOUS COMBUSTION PRODUCTS:** Not applicable. Thermal decomposition releases carbon monoxide and oxygen.

## Reactivity Data

**Dry ice sublimes;** if confined in a gas tight container, it will build up a pressure of 850 psig at 70° F. Do not put dry ice in an airtight container or confined space

**Stability:** Yes

**Conditions To Avoid (Stability):** Moisture

**Materials to Avoid:** Carbonic acid/salt/corrosive chemicals

**Hazardous Polymerization Occurrence:** No

## Health Hazard Data

**Route of Entry-Inhalation:** Yes

**Route of Entry-Skin:** No

**Route of entry-Ingestion:** No

**Health Hazard Acute and Chronic:** Concentration in excess of 1.5% carbon dioxide may cause death. At higher concentrations, displaces oxygen in air below levels necessary to support life.

**Carcinogenicity-NTP:** No

**Carcinogenicity-IARC:** No

**Carcinogenicity-OSHA:** No

**Explanation Carcinogenicity:** None

**Signs/Symptoms of Overexposure:** At concentrations >1.5%: Hyperventilation/headaches/dyspnea/perspiration. At 6-10%: Headaches/dyspnea/perspiration, tremors, visual disturbances. >10%: Unconsciousness without warning. Cryogenic burns.

**Emergency/first Aid Procedures:** Inhalation: Remove to fresh air. Assisted respirant and supplemental oxygen should be given if not breathing. Frozen tissues should be flooded/soaked with tepid water. Don't use hot water. Obtain medical attention in all cases.

## Precautions for Safe Handling and Use

**Steps if Material Released/Spill:** Ventilate indoor areas well to avoid hazardous CO<sub>2</sub> concentrations. Ventilate area well and avoid contact with cold vapors/dry ice. CO<sub>2</sub> is heavy gas and will remain in low spots without assisted ventilation.

**Special Precautions for Handling of Solid Carbon Dioxide:** Do not handle solid Carbon Dioxide with bare hands. Use heavy gloves, dry ice tongs or plastic scoop or shovel. Handle blocks of dry ice carefully, as injuries can occur if one is accidentally dropped on the feet. Containers of solid Carbon Dioxide should be stored upright and be firmly secured to prevent falling or being knocked over. Containers should be vented, to prevent the build-up of Carbon Dioxide gas. Carbon Dioxide sublimates at -78.5°C (-109.3°F); containers should be thermally insulated and kept at the lowest possible temperature to maintain the solid and avoid generation of Carbon Dioxide gas. Storage containers and equipment used with Carbon Dioxide should not be located in sub-surface or enclosed areas, unless engineered to maintain a concentration of Carbon Dioxide below the TLV (TLV=5000 ppm) in the event of a release. Solid consignment of dry ice in a gas-tight vessel can lead to catastrophic failure of the vessel by over-pressurization. Storage of dry ice should never occur in a gas-tight container.

## Control Measures

**Respiratory Protection:** SCBA in oxygen deficient atmospheres where CO<sub>2</sub> >1.5%. Do not use air purifying respirators.

**Ventilation:** Local Exhaust: At point sources of CO<sub>2</sub> vapors. Mechanical (general): Low lying areas are not naturally ventilated.

**Protective Gloves:** Impermeable/loose fitting (leather)

**Eye Protection:** Safety glasses

## Transportation Data

**Shipping information:** Packages should be transported in a secure position in a well ventilated vehicle. Product transported in an enclosed, non ventilated compartment of a vehicle can present serious safety hazards.

## Disposal Data

**WASTE DISPOSAL METHOD:** Place outside in a protected area with good ventilation and allow to sublime. Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state and local regulations. If necessary, call your local supplier for assistance.

## Label Data

**Label Required:** Yes

**Technical Review Date:** September 1, 2004

**Label Date:** September 1, 2004

**Common Name:** Solid Carbon Dioxide/Dry Ice

**Chronic Hazard:** Yes

**Acute Health Hazard:** Severe

**Contact Hazard:** Slight

**Fire Hazard:** Minimal

**Reactivity Hazard:** None

**Special Hazard Precautions:** Concentration in excess of 1.5% carbon dioxide may cause death. At higher concentrations, displaces oxygen in air below levels necessary to support life.

**Target organs:** Respiratory system, skin

**Protect Eye:** Y

**Protect Skin:** Y

**Protect Respiratory:** Y

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination or suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.