

# MATERIAL SAFETY DATA SHEET CARBON DIOXIDE, SOLID

## SECTION I — PRODUCT IDENTIFICATION

CHEMICAL NAME: Carbon Dioxide, Solid  
COMMON NAME AND SYNONYMS: Dry Ice (Nuggets, Pellets or Blocks), Carbonice, Carbonic Anhydride  
CHEMICAL FAMILY: Carbonate  
FORMULA: CO<sub>2</sub>

## SECTION II — HAZARDOUS INGREDIENTS

MATERIAL	VOLUME %	CAS NO.	THRESHOLD LIMIT VALUES
Solid Carbon Dioxide	99+	124-38-9	1993-1994 ACGIH TWA — 5,000 Molar PPM STET. = 30,000 Molar PPM OSHA 1993 PEL — 5,000 Molar PPM

## SECTION III — PHYSICAL DATA

SPECIFIC GRAVITY (1-120)=1): Solid density = 95.6 lb/0  
SUBLIMATION POINT (IT): -109.3  
% VOLATILE BY VOLUME: 100%  
VAPOR PRESSURE: N/A (Solid)  
VAPOR DENSITY (Ait=i): @ 70°F = L65  
EVAPORATION RATE (butyl acetate-1): N/A (Solid)  
SOLUBILITY IN WATER: Vapor is soluble  
APPEARANCE AND ODOR: White, opaque solid emitting colorless gas with slight, pungent  
o d o r .

## SECTION IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABLE LIMITS: LEL: N/A UEL: N/A  
FLASH POINT (Method used): N/A  
EXTINGUISHING MEDIA: Nonflammable solid  
SPECIAL FIRE FIGHTING PROCEDURES: Nonflammable solid  
UNUSUAL FIRE AND EXPLOSION HAZARDS: Nonflammable solid

## SECTION V — HEALTH HAZARD DATA

ROUTE(S) OF ENTRY:	Inhalation? Yes	Skin? Yes	Ingestion? No
CARINOGENICITY:	NI? No	IARC Monographs? No	OSHA? No

EFFECTS OF OVEREXPOSURE: Inhalation: At 2 to 3% concentration symptoms of simple asphyxia occur, 3 to 5% causes increased respiration and headache; up to 15% causes headache, nausea, vomiting and unconsciousness. Higher concentrations cause rapid circulatory insufficiency leading to coma and death. CO<sub>2</sub> is the most powerful cerebral vasodilator known,

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SECTION V — HEALTH HAZARD DATA (Continued)

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**EFFECTS OF OVEREXPOSURE:**

**Skin Contact:** Continuous dermal contact with solid CO<sub>2</sub> could cause frostbite or cryogenic "burns". Persons in ill health where such illness would be aggravated by exposure to solid carbon dioxide should not be allowed to work with or handle this product.

**EMERGENCY AND FIRST AID PROCEDURE:**

**If Inhaled:** Conscious persons should be assisted to an uncontaminated area and inhale fresh air. If unconscious, provide assisted respiration and supplemental oxygen. Further treatment should be symptomatic and supportive. Self-contained breathing apparatus should be available for rescue personnel.

**Skin Contact:** (Frostbite) Flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic "burn" has resulted in blistering of the dermal surface or deep tissue freezing.

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SECTION VI — REACTIVITY DATA

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<b>STABILITY:</b>	Unstable <input type="checkbox"/> Stable
<b>CONDITIONS TO AVOID:</b>	N/A
<b>INCOMPATIBILITY (Materials to avoid):</b>	Reacts with alkaline materials to form carbonates and bicarbonates. Can be explosive with reactive metal (sodium, potassium, magnesium) and their hydrides.
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	Carbon monoxide at high temperatures.
<b>HAZARDOUS POLYMERIZATION:</b>	May Occur <input type="checkbox"/> Won't Occur <input checked="" type="checkbox"/>
<b>CONDITIONS TO AVOID:</b>	N/A

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SECTION VII — SPILL OR LEAK PROCEDURES

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**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:**

Be certain there is adequate ventilation. Place outside in a protected area with good ventilation and allow to sublime. Avoid prolonged contact with skin.

**WASTE DISPOSAL METHOD:**

See above.

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SECTION VIII — SPECIAL PROTECTION INFORMATION

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<b>RESPIRATORY PROTECTION:</b>	Self-contained breathing apparatus should be available for emergency use.
<b>VENTILATION:</b>	Local Exhaust <input checked="" type="checkbox"/> To prevent accumulation above the TWA
<b>PROTECTIVE GLOVES:</b>	Mechanical (General) <input checked="" type="checkbox"/> Et STEL or PEL
<b>EYE PROTECTION:</b>	Loose fitting, insulated
<b>OTHER PROTECTIVE EQUIPMENT:</b>	Safety glasses Safety shoes, portable CO <sub>2</sub> analyzer

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## SECTION IX. SPECIAL PRECAUTIONS

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### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Solid carbon dioxide is generally delivered to customers in kraft-paper wrapped blocks that weigh approximately 50 pounds and are approximately one half a cubic foot in volume. The products should be stored in insulated containers that open from the top having loose-fitting lids so that the carbon dioxide vapor from sublimation of the solid may be allowed to escape into the atmosphere.

### OTHER PRECAUTIONS:

The insulated storage container should be located in an area where there is adequate ventilation so as to prevent the accumulation of carbon dioxide vapors above the TWA. Carbon dioxide vapors are approximately one and one-half times heavier than air.

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Reporting under SARA, Title III, Section 313 not required.

NFPA 704 No. for solid carbon dioxide = 2 0 0

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