



DRY ICE & GASES CO.

# MATERIAL SAFETY DATA SHEET

**PRODUCT IDENTIFIER: DRY ICE**

## I. PRODUCT INFORMATION

**SHIPPING NAME:** Dry Ice  
**UN #:** 1845 **CAS NO.:** 124-38-91  
**MOLECULAR WEIGHT:** 44.01  
**FACTNAME & SYNONYMS:** Dry Ice  
Carbonice  
**WHMIS CLASSIFICATION:** None  
**24 HOUR TELEPHONE NO.:** 416-252-8451  
**CANUTEC EMERGENCY NO.:** 613-996-6666

**CHEMICAL NAME:** Carbon Dioxide,  
Solid  
**CHEMICAL FAMILY:** Oxide of Carbon  
**TDG CLASSIFICATION:** 9.1  
**CHEMICAL FORMULA:** CO<sub>2</sub>  
**USE(S):** Food Cooling, Cooling

## II. HAZARDOUS INGREDIENTS OF MATERIAL

<b>HAZARDOUS INGREDIENTS</b>	<b>APPROX. CONC. %</b>	<b>LD50</b>	<b>LC50</b>
Carbon Dioxide	100%	None	None

## III. PHYSICAL DATA

### APPEARANCE & ODOUR;

White solid in the form of snow, blocks, slices, chunks or nuggets. Very cold, causing a fog in air. Sublimes giving off CO<sub>2</sub> vapour which produces a sharp nasal sensation at high concentration.

**PHYSICAL STATE (AT N.P.T.)**  
**SPECIFIC GRAVITY: (WATER = 1)**  
**ODOUR THRESHOLD (ppm):**  
**BOILING POINT:**  
**FREEZING POINT:**  
**SPECIFIC GRAVITY (AIR = 1):**  
**GAS DENSITY (g/ml):**  
**VAPOR PRESSURE:**  
**pH:**

Solid  
1.35  
Not Available  
Not Applicable  
Sublimates at 1 atm at -78.5°C/-109.3°F  
1.52 (@ 21°C/70°F)  
0.00197 (@ 0°C/32°F)  
0 kPa, 0 psig @ -78.5°C/-109.3°F  
Not Applicable

### III PHYSICAL DATA (CONT'D)

% VOLATILE (BY VOLUME): 100  
LIQUID DENSITY (g/ml): 1.35 (Solid)  
EVAPORATION RATE: Slow sublimation rate  
SOLUBILITY IN WATER (vol/vol): 0.9 (@ 20°C/68°F)  
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not Available

### IV FIRE AND EXPLOSION HAZARD OF MATERIAL

#### FLAMMABILITY

\_\_\_\_\_ Yes  No If yes, under which conditions? Non Flammable.  
Will not support combustion.

#### MEANS OF EXTINCTION

Not Applicable.

#### SPECIAL PROCEDURES:

Not Applicable.

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: Not Applicable  
SENSITIVITY TO STATIC DISCHARGE: None

### V REACTIVITY DATA

#### CHEMICAL STABILITY

Yes \_\_\_\_\_ No If no, under which conditions Stable at normal temperatures and pressures.

**REACTIVITY DATA (CONT'D)**

**INCOMPATIBILITY TO OTHER SUBSTANCES**

Yes  No      If yes, which ones?      Very cold temperature may embrittle some materials.

**REACTIVITY**

Yes  No      If yes, under which conditions?      In the presence of moisture, will form carbonic acid which may corrode some metals.

**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**

Very cold solid (-78°C/-109°F) which may cause frostbite. Solid sublimates and can cool materials it is in contact with to -78°C (-109°F) which can cause frostbite if touched.

**Eye**

Very cold solid (-78°C/-109°F) which may cause frostbite.

**Inhalation**

Sublimed vapour is carbon dioxide.

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.

Carbon Dioxide is denser than air and can displace air forming low level pockets of higher concentration. Solid carbon dioxide gives off very cold vapour which can cause a fog in air, but this may not be sufficient warning of dangerous concentrations. If the oxygen concentration is reduced below 18% it is an asphyxiation hazard.

## VI TOXICOLOGICAL PROPERTIES OF MATERIAL (CONT'D)

### 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%).

<b>EXPOSURE LIMIT(S);</b>	STEL	30,000 ppm (3%) ACGIH
	TWA	5,000 ppm (.5%) ACGIH, OSHA
	LCLo	90% 5 min. human
<b>IRRITANCY OF MATERIAL;</b>		Sharp sensation on nasal membranes at higher concentration.
<b>SENSITIZATION OF MATERIAL:</b>		None
<b>CARCINOGENICITY:</b>		None
<b>REPRODUCTIVE EFFECTS:</b>		None
<b>TERATOGENICITY:</b>		None
<b>MUTAGENICITY:</b>		None
<b>SYNERGISTIC MATERIALS:</b>		None

## VII PREVENTIVE MEASURES

### PERSONAL PROTECTIVE EQUIPMENT

<b>GLOVES;</b>	Insulated gloves.
<b>RESPIRATORY:</b>	SCBA in case of suspected leak or oxygen-deficient atmosphere.
<b>EYES:</b>	Safety glasses.
<b>FOOTWEAR:</b>	Safety shoes for container handling, if applicable.
<b>CLOTHING:</b>	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

Do not enter enclosed or low areas unless wearing SCBA or ventilation is verified to have maintained 18% oxygen and less than 0.5% carbon dioxide. Allow gas to dissipate. Provide additional ventilation, if without risk. Verify CO<sub>2</sub> and oxygen concentration of enclosed or low areas before permitting re-entry.

## **VII PREVENTIVE MEASURES (CONT'D)**

### **WASTE DISPOSAL**

No residual waste.

### **STORAGE REQUIREMENTS**

Keep in its wrapper, if applicable, and supply ventilation.  
Protect wrapping from physical damage.  
Store in cool, dry, well ventilated area.  
Do not store in sealed containers.

### **SPECIAL SHIPPING INFORMATION**

Do not place next to material that may be damaged by cold.  
Transport secured in well ventilated truck.  
Never transport in passenger compartment, trunk or enclosed vehicle.  
If small quantities are transported in trunk of passenger vehicle, one window must be fully open at all times.  
Do not transport in same compartment as pets, livestock or plants.

### **HANDLING PROCEDURES AND EQUIPMENT**

Keep in its wrapper, if applicable, as long as possible.  
Use only in well ventilated areas.  
Dry ice and any solid or liquid it has been in contact with are extremely cold and may cause frostbite. Bare skin may stick to such surfaces and cause severe frostbite.  
Insulated gloves must be worn at all times.

Materials or tools may become brittle at these cold temperatures.  
Moisture from the air may condense or freeze on surface of dry ice making it slippery.

Always support or lift it from the bottom.  
Use a suitable hand truck for container movement, if applicable.

If placed on a flat nearly level surface, sublimed gas between dry ice and the surface may prevent actual physical contact and allow the dry ice to glide downhill.

Do not allow to fall.

Do not put dry ice in sealed or stoppered containers as sublimed vapours can develop high pressure which may rupture containers (unless container is specifically designed for this).

If dry ice is put in a liquid, the sublimed vapours will cause bubbling and may cause splashing or boil over. Add dry ice slowly and avoid direct skin contact with dry ice or the liquid.

Keep out of reach of children.

**VII PREVENTIVE MEASURES (CONT'D)**

**CORROSIVITY**

Not applicable.

**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:** 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.

**IX PREPARATION OF M.S.D.S.**

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

Soda-Carb shall not be liable for any loss or damages 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:**

**Phone Number:**

**Date:**

Safety Department  
Soda-Carb

(416) 252-8451

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