

# Material Safety Data Sheet



## Carbon Dioxide (Dry Ice)

### Section 1. Chemical product and company identification

**Commercial name(s)** : Carbon Dioxide (Dry Ice)  
**Material uses** : Refrigerant.  
**Supplier/Manufacturer** : Air Liquide Canada Inc. 1250, René-Lévesque West, Suite 1700,  
Montreal, QC H3B 5E6  
**In case of emergency** : (514) 878-1667

### Section 2. Hazards identification

**Physical state** : Solid.  
**Emergency overview** : USE WITH CARE.  
Please also refer to the MSDS for carbon dioxide (Gas/Liquid) for more information on the gaseous form of this product.  
Solid can cause burns similar to frostbite.  
Gas may accumulate in confined areas.  
**Routes of entry** : Inhalation. Dermal contact. Eye contact.  
**Potential acute health effects**  
**Inhalation** : Inhalation of this product may cause dizziness, an irregular heartbeat, narcosis, nausea or asphyxiation.  
**Skin** : Dermal contact with the solid could result in freezing of the tissues or frostbite.  
**Eyes** : Solid can cause burns similar to frostbite.  
**Ingestion** : Ingestion of solid can cause burns similar to frostbite.  
**Potential chronic health effects** : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.  
Mutagenic effects: Not available.  
Teratogenic effects: Not available.

See toxicological information (section 11)

### Section 3. Composition, Information on Ingredients

	CAS number	mole %
<b>Canada</b> Carbon Dioxide (Dry Ice)	124-38-9	> 99

This material is classified hazardous under the WHMIS Controlled Product Regulation in Canada.

See Chapters 8, 11, 14 and 15 for details.

### Section 4. First aid measures

Prompt medical attention is mandatory in all cases of overexposure to this product. Rescue personnel should wear a self-contained breathing apparatus.

**Inhalation** : In case of inhalation, conscious persons should be assisted to an uncontaminated area and inhale fresh air. The person should be kept warmed and calm. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given assisted resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.  
**Skin contact** : Remove contaminated clothing and rinse affected skin with lukewarm water. Do not rinse with hot water. Provide medical prompt attention, frozen tissue is painless and appear waxy, with a possible yellow color. Frozen tissue will become swollen, painful and prone to infection when thawed.  
**Eye contact** : Individual in contact with this product should not wear contact lenses. Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 20 minutes. Get medical attention if symptoms occur.

- Ingestion** : If potentially dangerous quantities of this material have been swallowed, call a physician immediately. Do not induce vomiting unless directed to do so by medical personnel.
- Notes to physician** : The medical doctor must be warned that the person may suffer from anoxia.

## Section 5. Fire fighting measures

- Flammability of the product** : Non-flammable.
- Explosion hazards in the presence of various substances** : Not considered to be a product presenting a risk of explosion.
- Fire-fighting media and instructions** : Use an extinguishing agent suitable for the surrounding fire.
- Special protective equipment for fire-fighters** : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) operated in positive pressure mode, with a full facepiece.

## Section 6. Accidental release measures

- Personal precautions** : EVACUATE ALL PERSONNEL FROM AFFECTED AREA.  
Use appropriate protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material.
- Methods for cleaning up** : Place spilled material in an appropriate container for disposal.

## Section 7. Handling and storage

- Handling** : Avoid contact with eyes, skin and clothing. Carbon dioxide is generally delivered as blocks or pellets and should be placed in isolated containers with an upward opening so that sublimation vapors of CO<sub>2</sub> may be released. Dry ice should always be manipulated with pliers (blocks) or with appropriate tools.
- Storage** : Store in a dry, cool and well-ventilated area.

## Section 8. Exposure controls, personal protection

- Engineering controls** : Use only in well-ventilated areas. Gas may accumulate in confined areas.
- Personal protection**
- Respiratory** : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Wear insulated gloves.
- Eyes** : Safety glasses with side shields.
- Skin/Body** : Not applicable.



Some applications of this product may require additional or other specific protective clothing. Please consult your supervisor.

**Personal protection in case of a major leak** : Safety glasses, goggles or face shield. Impervious gloves. Full suit. Metal cap, safety boots. Wear MSHA/NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.

**Product name****Exposure limits**

Canada

Carbon Dioxide

**ACGIH TLV (Canada, 1/2004).**STEL: 54000 mg/m<sup>3</sup> 15 minute/minutes. Form: All forms.

STEL: 30000 ppm 15 minute/minutes. Form: All forms.

TWA: 9000 mg/m<sup>3</sup> 8 hour/hours. Form: All forms.

TWA: 5000 ppm 8 hour/hours. Form: All forms.

Consult local authorities for acceptable exposure limits.

**Section 9. Physical and chemical properties**

<b>Physical state</b>	: Solid.
<b>Color</b>	: White.
<b>Odor</b>	: Odorless.
<b>Molecular weight</b>	: 44.01 g/mole
<b>Molecular formula</b>	: CO <sub>2</sub>
<b>Melting/freezing point</b>	: Sublimation temperature: -78.5°C (-109.3°F)
<b>Critical temperature</b>	: 30.9°C (87.6°F)
<b>Specific gravity</b>	: 1.014 (Water = 1)
<b>Vapor density</b>	: 1.53 (Air = 1)
<b>Solubility</b>	: Partially soluble in cold water.

**Section 10. Stability and reactivity**

**Stability and reactivity** : The product is stable.

**Hazardous polymerization** : Will not occur.

**Section 11. Toxicological information****Toxicity data**

**IDLH** : 40000 ppm

**Acute Effects**

**Inhalation** : Inhalation of this product may cause dizziness, an irregular heartbeat, narcosis, nausea or asphyxiation.

**Skin** : Dermal contact with the solid could result in freezing of the tissues or frostbite.

**Eyes** : Solid can cause burns similar to frostbite.

**Ingestion** : Ingestion of solid can cause burns similar to frostbite.

**Potential chronic health effects** : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.  
Mutagenic effects: Not available.  
Teratogenic effects: Not available.

**Section 12. Ecological information**

**Products of degradation** : This gas is released as is in the atmosphere.

## Section 13. Disposal considerations

**Disposal** : Do not attempt to dispose of the container or of its content. For emergency disposal, contact the closest Air Liquide Canada location.

## Section 14. Transport information

### Classification

TDG/ IMDG/ IATA: UN number	Proper shipping name	Class	Packing group
UN1845	CARBON DIOXIDE, Solid (Dry ice)	9	III

NAERG : 120

### Label

UN/Other regulations



### Additional information

## Section 15. Regulatory information

### Canada

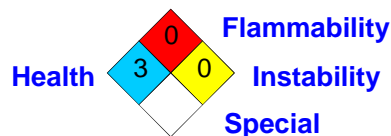
**WHMIS (Canada)** : Not controlled under WHMIS (Canada).  
CEPA DSL: Carbon Dioxide (Dry Ice)

## Section 16. Other information

### Hazardous Material Information System (U.S.A.)

Health	3
Fire hazard	0
Reactivity	0
Personal protection	C

### National Fire Protection Association (U.S.A.)



### References

: ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2002. CGA C-7 Guide to the Preparation of Precautionary Labels and Marking of Compressed Gas Containers. CGA P-20 Standard for Classification of Toxic Gas Mixtures. CGA P-23 Standard for Categorizing Gas Mixtures Containing Flammable and Nonflammable Components.

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**Notice to reader**

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