

### SECTION 1: Identification

#### 1.1. Product identifier

Product form : Substance  
Substance name : Carbon Dioxide (Solid)  
CAS-No. : 124-38-9  
Product code : CA-1001-05274  
Formula : CO<sub>2</sub>  
Synonyms : Dry Ice

#### 1.2. Recommended use and restrictions on use

Recommended uses and restrictions : For refrigeration of perishable foods while in transit; as a cooling agent in many industrial processes; as a coolant in vacuum cold traps and laboratories, hospitals and airplanes; to produce theatrical smoke or fog; and, for general analytical/synthetic chemical uses

#### 1.3. Supplier

Air Liquide Canada Inc.  
1250, René Lévesque West Blvd. Suite 1700  
H3B 5E6 Montreal, QC - Canada  
T 1-800-817-7697  
[www.airliquide.ca](http://www.airliquide.ca)

#### 1.4. Emergency telephone number

Emergency number : 514-878-1667

### SECTION 2: Hazard identification

#### 2.1. Classification of the substance or mixture

##### Classification (GHS-CA)

Not classified

#### 2.2. GHS Label elements, including precautionary statements

##### GHS-CA labelling

Hazard statements (GHS-CA) : OSHA-H01 - May displace oxygen and cause rapid suffocation  
CGA-HG01 - May cause frostbite  
Precautionary statements (GHS-CA) : P271 - Use only outdoors or in a well-ventilated area  
P282 - Wear cold insulating gloves and either face shield or eye protection

#### 2.3. Other hazards

Other hazards not contributing to the classification : Asphyxiant in high concentrations. Refrigerated solidified gas. Contact with product may cause cold burns or frostbite.

#### 2.4. Unknown acute toxicity (GHS-CA)

No data available

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Name	Chemical name/Synonyms	Product identifier	%	Classification (GHS-CA)
Carbon Dioxide (Solid) (Main constituent)	Dry Ice	(CAS-No.) 124-38-9	100	Not classified

Full text of hazard classes and H-statements : see section 16

#### 3.2. Mixtures

Not applicable

### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

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according to the Hazardous Products Regulation (February 11, 2015)

First-aid measures after inhalation	: Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped.
First-aid measures after skin contact	: In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
First-aid measures after eye contact	: Adverse effects not expected from this product.
First-aid measures after ingestion	: Get immediate medical attention.

### 4.2. Most important symptoms and effects (acute and delayed)

Most important symptoms and effects, both acute and delayed	: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Low concentrations of CO <sub>2</sub> cause increased respiration and headache.
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### 4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment	: None.
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## SECTION 5: Fire-fighting measures

### 5.1. Suitable extinguishing media

Suitable extinguishing media	: Water spray or fog.
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### 5.2. Unsuitable extinguishing media

Unsuitable extinguishing media	: Do not use water jet to extinguish.
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### 5.3. Specific hazards arising from the hazardous product

Reactivity	: None. None.
Hazardous combustion products	: None

### 5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Exposure to fire may cause containers to rupture/explode.
Specific methods	: Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems. Use water spray or fog to knock down fire fumes if possible.
Special protective equipment for fire fighters	: Use self-contained breathing apparatus. Standard protective clothing and equipment (e.g. Self Contained Breathing Apparatus) for fire fighters. Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Use protective clothing. Ensure adequate air ventilation.
Personal Precautions, Protective Equipment and Emergency Procedures	: EVACUATE ALL PERSONNEL FROM AFFECTED AREA. Use appropriate protective equipment. If leak is on user's equipment, be certain to purge piping before attempting repairs. If leak is on a container or container valve contact the closest Air Liquide Canada location.

### 6.2. Methods and materials for containment and cleaning up

Methods and material for containment and cleaning up	: Ventilate area.
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### 6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Safe use of the product	: The product must be handled in accordance with good industrial hygiene and safety procedures. Refer to supplier's container handling instructions. Do not smoke while handling product. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
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Safe handling of the gas receptacle : Refer to supplier's container handling instructions. Do not allow backfeed into the container. Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Keep container valve outlets clean and free from contaminants particularly oil and water. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to transfer gases from one cylinder/container to another. Never use direct flame or electrical heating devices to raise the pressure of a container. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

### 7.2. Conditions for safe storage, including any incompatibilities

Conditions for safe storage, including any incompatibilities : Observe all regulations and local requirements regarding storage of containers. Keep container below 50°C in a well ventilated place.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Carbon Dioxide (Solid) (124-38-9)		
USA - ACGIH	ACGIH TWA (ppm)	5000 ppm
USA - ACGIH	ACGIH STEL (ppm)	30000 ppm
USA - OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	9000 mg/m <sup>3</sup>
USA - OSHA	OSHA PEL (TWA) (ppm)	5000 ppm
Canada (Quebec)	VECD (mg/m <sup>3</sup> )	54000 mg/m <sup>3</sup>
Canada (Quebec)	VECD (ppm)	30000 ppm
Canada (Quebec)	VEMP (mg/m <sup>3</sup> )	9000 mg/m <sup>3</sup>
Canada (Quebec)	VEMP (ppm)	5000 ppm
Alberta	OEL STEL (mg/m <sup>3</sup> )	54000 mg/m <sup>3</sup>
Alberta	OEL STEL (ppm)	30000 ppm
Alberta	OEL TWA (mg/m <sup>3</sup> )	9000 mg/m <sup>3</sup>
Alberta	OEL TWA (ppm)	5000 ppm
British Columbia	OEL STEL (ppm)	15000 ppm
British Columbia	OEL TWA (ppm)	5000 ppm
Manitoba	OEL STEL (ppm)	30000 ppm
Manitoba	OEL TWA (ppm)	5000 ppm
New Brunswick	OEL STEL (mg/m <sup>3</sup> )	54000 mg/m <sup>3</sup>
New Brunswick	OEL STEL (ppm)	30000 ppm
New Brunswick	OEL TWA (mg/m <sup>3</sup> )	9000 mg/m <sup>3</sup>
New Brunswick	OEL TWA (ppm)	5000 ppm
New Foundland & Labrador	OEL STEL (ppm)	30000 ppm
New Foundland & Labrador	OEL TWA (ppm)	5000 ppm
Nova Scotia	OEL STEL (ppm)	30000 ppm
Nova Scotia	OEL TWA (ppm)	5000 ppm
Nunavut	OEL STEL (ppm)	30000 ppm
Nunavut	OEL TWA (ppm)	5000 ppm
Northwest Territories	OEL STEL (ppm)	30000 ppm
Northwest Territories	OEL TWA (ppm)	5000 ppm
Ontario	OEL STEL (ppm)	30000 ppm
Ontario	OEL TWA (ppm)	5000 ppm
Prince Edward Island	OEL STEL (ppm)	30000 ppm
Prince Edward Island	OEL TWA (ppm)	5000 ppm

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Saskatchewan	OEL STEL (ppm)	30000 ppm
Saskatchewan	OEL TWA (ppm)	5000 ppm
Yukon	OEL STEL (mg/m <sup>3</sup> )	27000 mg/m <sup>3</sup>
Yukon	OEL STEL (ppm)	15000 ppm
Yukon	OEL TWA (mg/m <sup>3</sup> )	9000 mg/m <sup>3</sup>
Yukon	OEL TWA (ppm)	5000 ppm

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Ensure exposure is below occupational exposure limits (where available). Oxygen detectors should be used when asphyxiating gases may be released. Consider the use of a work permit system e.g. for maintenance activities.

Environmental exposure controls : None necessary.

### 8.3. Individual protection measures/Personal protective equipment

#### Personal protective equipment:

Gloves. Safety glasses. Protective clothing. Safety shoes.

#### Hand protection:

Wear working gloves when handling gas containers. Standard EN 388 - Protective gloves against mechanical risk.

#### Eye protection:

Wear safety glasses with side shields. Standard EN 166 - Personal eye-protection - specifications

#### Respiratory protection:

Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.

Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.



#### Thermal hazard protection:

Wear cold insulating gloves. Standard EN 511 - Cold insulating gloves.

#### Other information:

Wear safety shoes while handling containers. Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Colorless gas.
Colour	: White.
Odour	: No odour warning properties.
Odour threshold	: No data available
pH	: Not applicable.
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable for gases and gas mixtures.
Molecular mass	: 44 g/mol
Melting point	: -78.5 °C
Freezing point	: -56.6 °C
Boiling point	: -78.5 °C
Flash point	: Not applicable for gases and gas mixtures.
Critical temperature	: 30 °C
Auto-ignition temperature	: Not applicable.

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Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 5730 kPa
Vapour pressure at 50 °C	: No data available
Critical pressure	: 7375 kPa
Relative density	: 0.82
Relative gas density	: 1.52
Solubility	: Water: 2000 mg/l Completely soluble.
Log Pow	: 0.83
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Explosive properties	: Not applicable.
Oxidising properties	: None.
Explosive limits	: Non flammable.

### 9.2. Other information

Additional information	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level
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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reactivity	: None.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: None.
Conditions to avoid	: None under recommended storage and handling conditions (see section 7).
Incompatible materials	: For additional information on compatibility refer to ISO 11114.
Hazardous decomposition products	: Under normal conditions of storage and use hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

#### Carbon Dioxide (Solid) ( f )124-38-9

LC50 inhalation rat (ppm)	820000 ppm/4h
ATE CA (gases)	820000.00000000 ppmv/4h

Skin corrosion/irritation	: Not classified pH: Not applicable.
Serious eye damage/irritation	: Not classified pH: Not applicable.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general	: No ecological damage caused by this product.
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### 12.2. Persistence and degradability

#### Carbon Dioxide (Solid) (124-38-9)

Persistence and degradability	No ecological damage caused by this product.
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### 12.3. Bioaccumulative potential

#### Carbon Dioxide (Solid) (124-38-9)

BCF fish 1	(no bioaccumulation)
Log Pow	0.83
Bioaccumulative potential	No ecological damage caused by this product.

### 12.4. Mobility in soil

#### Carbon Dioxide (Solid) (124-38-9)

Log Pow	0.83
Ecology - soil	No ecological damage caused by this product.

### 12.5. Other adverse effects

Other adverse effects : Can cause frost damage to vegetation.  
Effect on global warming : When discharged in large quantities may contribute to the greenhouse effect.  
GWP 100 years : 1  
Effect on ozone layer : None.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods : Consult supplier for specific recommendations. Discharge to atmosphere in large quantities should be avoided. Do not discharge into any place where its accumulation could be dangerous.  
Additional information : None.  
List of hazardous wastes : 16 05 05 : Gases in pressure containers other than those mentioned in 16 05 04.

## SECTION 14: Transport information

### 14.1. Basic shipping description

In accordance with TDG

#### Transportation of Dangerous Goods

UN-No. (TDG) : UN1845  
TDG Primary Hazard Classes : 9 - Class 9 - Miscellaneous Products, Substances or Organisms  
Transport Document Description : UN1845 DRY ICE, 9  
Proper Shipping Name : DRY ICE

Hazard labels (TDG) : 9 - Miscellaneous dangerous substances and articles



TDG Special Provisions : 18 - These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to UN1845, CARBON DIOXIDE, SOLID, or DRY ICE that is in a means of containment that is transported by a road vehicle or a railway vehicle if the means of containment is designed and constructed to permit the release of carbon dioxide in order to prevent the build-up of pressure that could rupture the means of containment. SOR/2014-306

Explosive Limit and Limited Quantity Index : 0  
Excepted quantities (TDG) : E0  
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 200 kg

### 14.2. Transport information/DOT - USA

#### Department of Transport

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DOT NA no.	: UN1845
UN-No.(DOT)	: 1845
DOT Symbols	: A - Material is regulated as a hazardous material only when transported by air,W - Material is regulated as a hazardous material only when transported by water
Transport Document Description	: UN1845 Dry ice, 9
Proper Shipping Name (DOT)	: Dry ice
Contains Statement Field Selection (DOT)	:
Class (DOT)	: 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140
Division (DOT)	: 9
Dangerous for the environment	: No
DOT Packaging Exceptions (49 CFR 173.xxx)	: 217
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 217
DOT Packaging Bulk (49 CFR 173.xxx)	: 240
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 200 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 200 kg
DOT Vessel Stowage Location	: C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"
Emergency Response Guide (ERG) Number	: 120
Other information	: No supplementary information available.

### 14.3. Air and sea transport

#### IMDG

UN-No. (IMDG)	: 1845
Proper Shipping Name (IMDG)	: CARBON DIOXIDE, SOLID (DRY ICE)
Transport Document Description (IMDG)	: UN 1845 CARBON DIOXIDE, SOLID (DRY ICE), 9
Class (IMDG)	: 9 - Miscellaneous dangerous substances and articles

#### IATA

UN-No. (IATA)	: 1845
Proper Shipping Name (IATA)	: Dry ice
Transport Document Description (IATA)	: UN 1845 Dry ice, 9
Class (IATA)	: 9 - Miscellaneous Dangerous Goods

## SECTION 15: Regulatory information

### 15.1. National regulations

#### Carbon Dioxide (Solid) (124-38-9)

Listed on the Canadian DSL (Domestic Substances List)

### 15.2. International regulations

#### Carbon Dioxide (Solid) (124-38-9)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on Turkish inventory of chemical

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### SECTION 16: Other information

Date of issue	: 05/17/2017
Training advice	: The hazard of asphyxiation is often overlooked and must be stressed during operator training.
Other information	: This Safety Data Sheet has been established in accordance with the applicable European Union legislation.

#### SDS Canada (GHS)

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