

# Material Safety Data Sheet

Printing date 07/28/2011

Version 6

Reviewed on 07/28/2011

## 1 Identification of substance

· **Product details**

· **Trade name:** Carbon Dioxide (Dry Ice)

· **Article number:** 060-01-0001

· **Creation date:** 04/20/2007

· **Manufacturer/Supplier:**

Linde Canada Limited

5860 Chedworth Way

Mississauga, Ontario L5R 0A2

Telephone (905) 501-1700

24-HOUR EMERGENCY TELEPHONE NUMBER:

(905) 501-0802

Linde

575 Mountain Avenue

Murray Hill, NJ 07974

Telephone (908) 464-8100

24-HOUR EMERGENCY TELEPHONE NUMBER :

CHEMTREC (800) 424-9300 OR

Linde National Operations Center (800) 232-4726

Pse ensure that this MSDS is received by the appropriate person.

· **Information department:** Customer Service Centre: 1-866-385-5349

## 2 Composition/Data on components

· **Chemical characterization:**

· **CAS No. Description**

124-38-9 Carbon Dioxide

· **Identification number(s)**

· **EINECS Number:** 204-696-9

## 3 Hazards identification

· **Hazard description:** Refrigerated solid. May cause cold burns or frostbite.

· **WHMIS-symbols:** A - Compressed gas

· **HMIS-ratings (scale 0 - 4)**

 Health = 0

 Fire = 0

 Reactivity = 0

· **NFPA ratings (scale 0 - 4)**

 Health = 0

 Fire = 0

 Reactivity = 0

· **Information pertaining to particular dangers for man and environment:** Not applicable.

· **Classification system:**

The classification is in line with internationally approved calculation standards. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

· **GHS label elements** Void

# Material Safety Data Sheet

Printing date 07/28/2011

Version 6

Reviewed on 07/28/2011

**Trade name: Carbon Dioxide (Dry Ice)**

(Contd. of page 1)

## 4 First aid measures

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
May cause cold burn or frostbite. Place contacted area in warm water 37.8°C - 40.6°C (100°F - 105°F). Do not rub. Seek medical attention.
- **After eye contact:** Seek medical attention immediately. Apply a sterile pad over eye.
- **After swallowing:** Not applicable

## 5 Fire fighting measures

- **Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:** Wear self-contained respiratory protective device.

## 6 Accidental release measures

- **Person-related safety precautions:**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation.  
Stop leak - ONLY if possible to do so without risk.
- **Measures for environmental protection:** Prevent seepage into sewage system, workpits and/or cellars.
- **Measures for cleaning/collecting:** Ensure adequate ventilation.
- **Additional information:** No dangerous substances are released.

## 7 Handling and storage

- **Handling:**
- **Information for safe handling:**  
Handle with care. Avoid jolting, friction, and impact.  
Use only in well ventilated areas.  
Store container in a secured area. Limit access to authorized personnel only. Report any incidents involving thefts, misuse, or inventory shortages to law enforcement and the supplier. Security shall be provided in accordance with all local, state (provincial) and federal regulations.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Do not expose cylinder to temperatures higher than 50°C (122 °F)
- **Information about storage in one common storage facility:**  
Sources of ignition should be removed from storage area.
- **Further information about storage conditions:**  
Keep cylinder valve tightly closed.  
Protect from dust and insects.

## 8 Exposure controls and personal protection

- **Additional information about design of technical systems:**  
Adequate local ventilation.

(Contd. on page 3)

CDN

## Material Safety Data Sheet

Printing date 07/28/2011

Version 6

Reviewed on 07/28/2011

Trade name: Carbon Dioxide (Dry Ice)

(Contd. of page 2)

Safety showers and eyewash stations should be nearby.

· **Components with limit values that require monitoring at the workplace:****124-38-9 Carbon Dioxide (23 - 100%)**

EL	Short-term value: 15000 ppm Long-term value: 5000 ppm
EV	Short-term value: 54.000 mg/m <sup>3</sup> , 30.000 ppm Long-term value: 9.000 mg/m <sup>3</sup> , 5.000 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.· **Personal protective equipment:**· **General protective and hygienic measures:**

Protective clothing and PPE should be kept free of oil and grease, generally in clean condition  
PPE should be inspected and maintained regularly to retain effectiveness.

· **Breathing equipment:**

Use atmosphere-supplying respirators (e.g. supplied-air: demand, pressure-demand, or continuous-flow or self-contained breathing apparatus: demand or pressure-demand or combination supplied-air with auxiliary self-contained air supply atmosphere-supplying respirator) in case of insufficient ventilation.

· **Protection of hands:**

Protective gloves.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Eye protection:** Safety glasses\* **9 Physical and chemical properties**· **General Information**

<b>Form:</b>	Gaseous.
<b>Color:</b>	Colorless
<b>Odor:</b>	Odorless

· **Change in condition**

Melting point/Melting range: -56.6°C

Boiling point/Boiling range: -78°C

· **Flash point:** Not applicable.· **Flammability (solid, gaseous):** Product is not flammable.· **Danger of explosion:** Product does not present an explosion hazard.· **Solubility in / Miscibility with**

Water at 20°C: 2000 g/l

**10 Stability and reactivity**· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.· **Materials to be avoided:**· **Dangerous reactions** No dangerous reactions known.

(Contd. on page 4)

-CDN

## Material Safety Data Sheet

Printing date 07/28/2011

Version 6

Reviewed on 07/28/2011

Trade name: Carbon Dioxide (Dry Ice)

(Contd. of page 3)

· **Dangerous products of decomposition:** No dangerous decomposition products known.**11 Toxicological information**

- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:** LC50 - None available
- **Primary irritant effect:**
- **on the skin:** No irritating effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.  
The substance is not subject to classification.

**12 Ecological information**

- **Additional ecological information:**
- **General notes:** Generally not hazardous for water.

**13 Disposal considerations**

- **Product:**
- **Recommendation:** Unused product should be returned to vendor.
- **Uncleaned packagings:**
- **Recommendation:**  
Disposal must be made according to official regulations.  
Cylinder and unused product should be returned to vendor. Disposable cylinder must be disposed of in accordance with local regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**· **TDG and DOT regulations:**

- **Identification number:** UN1845
- **Proper shipping name (technical name):** CARBON DIOXIDE, SOLID
- **Label:** 2.2

· **Maritime transport IMDG:**

- **IMDG Class:** 9
- **UN Number:** 1845

(Contd. on page 5)

## Material Safety Data Sheet

Printing date 07/28/2011

Version 6

Reviewed on 07/28/2011

Trade name: Carbon Dioxide (Dry Ice)

(Contd. of page 4)

· **Label** 2.2  
 · **Marine pollutant:** No  
 · **Proper shipping name:** CARBON DIOXIDE, SOLID

· **Air transport ICAO-TI and IATA-DGR:**

· **ICAO/IATA Class:** 2  
 · **UN/ID Number:** 1845  
 · **Label** 2.2  
 · **Proper shipping name:** CARBON DIOXIDE, SOLID

· **UN "Model Regulation":** UN1845, CARBON DIOXIDE, SOLID, 2.2

## 15 Regulations

· **Sara**· **Section 355 (extremely hazardous substances):**

Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **Proposition 65**· **Chemicals known to cause cancer:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity:**

Substance is not listed.

· **Carcinogen categories**· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

(Contd. on page 6)

CDN

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**Trade name: Carbon Dioxide (Dry Ice)**

(Contd. of page 5)

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

Substance is listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

Substance is not listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

Substance is listed.

· **Product related hazard informations:**

Observe the general safety regulations when handling chemicals.

The substance is not subject to classification according to the sources of literature known to us.

The product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

· **Safety phrases:**

Keep container tightly closed in a cool place.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Please refer to the section 3 for NFPA and HMIS Hazard Codes.

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### GENERAL DISCLAIMER

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· **Department issuing MSDS:**

BOC Canada Technical Services

Customer Service Centre: 1-866-385-5349

· **Abbreviations and Acronyms:**

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstract Service (Division of the American Chemical Society)

DOT: US Department of Transportation

EINECS: European Inventory of Existing Commercial Chemical Substances

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

HMIS: Hazardous Material Identification System

IATA: International Air Transportation Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transportation Association"

ICAO: International Civil Aviation Association

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization (ICAO)"

IMDG: International Marine Code for Dangerous Goods

WHIMS: Workplace Hazardous Material Information System

LC50: Lethal Concentration, 50 Percent

LD50: Lethal Dose, 50 Percent

N/A: Not Applicable