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	CARBON DIOXIDE in non-refillable gas cylinders	Last modified: December 2014

1 Identification of the substance/mixture and of the company/undertaking
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Product identifier

Trade name : Carbon dioxide in non-refillable gas cylinders
Safety data sheet no. : INA.SD.001.e.02
Chemical description of gas : Carbon dioxide
CAS-No.: 000124-38-9
Chemical formula : CO₂
UN number : UN 1013
Usage : For various industrial applications
Perform risk assessment prior to use.
Company name : iSi North America, Inc. Website: www.isi.com/components
175 Route 46 West E-mail: info@isinorthamerica.com
Fairfield, NJ 07004 Tel.: 1-973-227-2426
Emergency telephone number : Chemtrec Tel.: 1-800-424-9300

2 Hazards identification

OSHA/HCS Status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910:1200)

Classification of the substance or mixture

Classification : Gases under pressure - Liquefied gas
Simple Asphyxiant

Label elements

• **Hazard pictograms**



• **Signal word**

: Warning

• **Hazard statements**

: Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.
May increase respiration and heart rate.
May cause nervous system damage.
May cause frostbite.


• **Precautionary statements**

: Store in a well ventilated place.
Protect from direct sunlight.

Other hazards

Other hazards

: May cause asphyxiation in high concentrations.
Contact with solid CO₂ (dry ice) or liquid CO₂ may cause cold burns, severe injury and/or frostbite.

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3 Composition/information on ingredients

Substance/Preparation : **Substance**

Substance name	CAS no.	Concentration	Classification
Carbon dioxide	124-38-9	>99%	Liq. gas (H280)

Does not contain any other components or impurities which could affect the classification of this product.

Material does not meet the criteria of a mixture.

4 First-aid measures

- Inhalation** : Remove Victim to fresh air and keep at rest in a comfortable position for breathing. If breathing is irregular or difficult, provide artificial respiration or oxygen by trained personnel. If signs/symptoms continue, get medical attention.
- Eye Contact** : For exposure to cold vapor or solid carbon dioxide, immediately flush eyes thoroughly with warm water for at least 15 minutes. Hold eyelids open and away from eyeballs to ensure that all surfaces are flushed thoroughly. See a physician, preferably an ophthalmologist immediately.
- Skin Contact** : Flush contaminated skin with warm water. If massive exposure / frostbite has occurred, contact a physician immediately.
- Ingestion** : Ingestion is not seen as a possible method of exposure.

Notes to Physician: All treatments should be based on the observed signs and symptoms of the patient.

5 Fire-fighting measures

- Flammable Properties** : Non-flammable.
- Suitable Extinguishing media** : Use extinguishing media appropriate for surrounding fire.
- Specific Risk / Hazards** : Contains gas / liquefied gas under pressure. Heat of fire can build pressure in the cylinder and cause it to rupture / explode.
- Specific methods** : Move away from cylinder and cool with water from a safe position.
- Special protective equipment for fire fighters** : Fire-fighters should wear the appropriate protective equipment and self contained breathing apparatus.

6 Accidental release measures

- Warning** : High pressure liquid and gas. Rapid release of gaseous carbon dioxide can result in the formation of dry ice which can cause frostbite.
- Personnel precautions** : Ensure adequate ventilation.
- Environmental precautions** : Attempt to stop gas release, if possible without risk.
- Cleaning up methods** : Ventilate area.



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7 Handling and storage

- Handling** : Only use equipment suitable for this product and its pressure and temperature specified.
Never use direct flame or electrical heating devices to raise the pressure of a cylinder.
Do not attempt to alter or modify the cylinder.
Never attempt to refill an empty cylinder.
Emerging gas will cause the cylinder to freeze.
Do not touch a discharging or recently discharged cylinder with bare hands.
Never attempt to transfer gases from one cylinder to another.
Do not use cylinder as roller or support, or for any other purpose than to contain the gas as supplied.
Do not subject cylinder to mechanical shocks which may cause damage to their integrity.
- Storage** : Keep out of reach of children.
Store cylinder in a well ventilated place at less than 50°C.
Store cylinder in a location free from risk of fire and away from sources of heat and ignition.
Periodically check cylinder for general conditions and leakage.
Do not store cylinder in conditions likely to encourage corrosion.

8 Exposure controls/personal protection

- Personal protection** : Ensure adequate ventilation.
Protect eyes, face and skin from liquid splashes.
Wearing of protective gloves is recommended.

**Control Parameters:
Exposure Limits**

- : Carbon dioxide:
- | | |
|------------------|-------------------------------|
| ACIGH TLV (2012) | : 5,000 ppm TWA |
| | 30,000 ppm 15min STEL |
| NIOSH REL (2013) | : 5,000 ppm TWA |
| | 9,000 mg/m ³ TWA |
| | 30,000 ppm STEL |
| | 54,000 mg/m ³ STEL |
| OSHA PEL (2010) | : 5,000 ppm TWA |
| | 9,000 mg/m ³ TWA |

9 Physical and chemical characteristics

- Physical state at 20°C** : Gaseous
- Color** : Colorless
- Odor** : Odorless
- Odor Threshold** : Not available
- pH** : Not Available
- Molecular weight** : 44
- Melting point** : Sublimation point -109.3°F (-78.5°C)
- Boiling point** : Sublimation point -109.3°F (-78.5°C)
- Boiling Range** : No Applicable
- Critical temperature** : 87.5°F (31°C)
- Vapour pressure** : 830 psig @ 68°F (57.3bar @ 20°C)
- Relative density, gas (air=1)** : 1.52
- Relative density, liquid (water=1)** : 0.82
- Solubility in water [mg/l]** : 2000

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Flash point [vol.% in air] : Non-flammable.
Other information : Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 Stability and reactivity

Reactivity : Non Reactive
Chemical Stability : Stable
Possibility of Hazardous Reactions : Under normal conditions, hazardous reactions will not occur
Conditions to Avoid : High temperatures / excess heat.
Incompatible Materials : Material is mildly acidic and will react with alkaline materials to form carbonates and bicarbonates
Hazardous decomposition products : Under normal conditions, hazardous decomposition products should not be produced.

11 Toxicological information

Toxicological information

Acute Toxicity : Criteria not met
Aspiration Hazard : Criteria not met
Carcinogenicity : Criteria not met
Germ Cell Mutagenicity : Criteria not met
Skin Corrosion/Irritation : Criteria not met
Skin Sensitization : Criteria not met
STOT RE : Criteria not met
STOT SE : Criteria not met
Toxicity for Reproduction : Criteria not met
Respiratory Sensitization : Criteria not met
Serious Eye Damage/Irritation : Criteria not met


Routes of Entry/Exposure : Inhalation, Skin, Eye
Inhalation : Carbon Dioxide gas is an asphyxiant. It is also physiologically active, affecting circulation and breathing. Moderate concentrations may cause headache, drowsiness, dizziness, stinging of the nose and throat, excitation, rapid breathing and hear rate, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.
Skin Contact : No harm expected from vapor. Cold gas, liquid and solid carbon dioxide may cause severe frostbite
Eye Contact : No harm expected from vapor. Cold gas, liquid and solid carbon dioxide may cause severe frostbite
Swallowing : This product is a gas at normal temperatures. Unlikely route of exposure.

Effects of Chronic Exposure : Under normal conditions of use, no harm expected

Carcinogenic Effects : Carbon Dioxide is not listed by NTP, OSHA, or IARC

12 Ecological information

Ecotoxicity : No known effects
Persistence and Degradability : Not Applicable
Bioaccumulative Potential : Not Applicable

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Mobility in Soil : Not applicable
Other Adverse Effects : Not Applicable

13 Disposable considerations

General : Do not discharge into any place where its accumulation could be dangerous.
 Release into the atmosphere in a well-ventilated place.
 Avoid releasing large quantities into the atmosphere.
 Consult your supplier if you require advice.

Disposal methods : Dispose of emptied cylinders only.
 Cylinders are made of recyclable steel and hence a valuable resource.
 Emptied cylinders should therefore always be recycled.
 Adhere to local waste regulations when disposing of emptied cylinders.

14 Transport information

UN Number (DOT, DTG, IMDG, IATA) : UN1013

Proper Shipping Name : Carbon Dioxide

Transport Hazard Class : 2.2

Packing Group : Not Applicable

Environmental Hazards : Not Applicable

Shipping Labels : Non-Flammable Gas

Placard (when required) : Non-Flammable Gas

Please refer to CFR 49 (or Authority having jurisdiction) to determine information required for shipment

15 Regulatory information

Inventories

TSCA : Complies
DSL : Complies

U.S. Federal Regulations


SARA 313 : Not subject to the reporting requirements of the Act and Title 40 of the code of Federal regulations, Part 372

SARA 311/312 Hazard Categories (>99%)

Acute Health Hazard	:	Yes
Chronic Health Hazard	:	No
Fire Hazard	:	No
Sudden Release of Pressure Hazard	:	Yes
Reactive Hazard	:	No

SARA 302/304 : Not Applicable
SARA 304 RQ : Not Applicable

Clean Water Act (40 CFR 122.21 and 122.42) : Not Listed

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Clean Air Act Section 112 (40 CFR 61) : Not Listed

CERCLA : Not Listed

State Regulations Right To Know : Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island

California (Proposition 65) : Not Listed as a substance known to cause cancer, birth defects or any other harm

Canada

WHIMS : Class A . Compressed Gas

16 Other information

Hazardous Material Information (HMIS)

Health : 1
Flammability : 0
Physical Hazards : 3

National Fire Protection Association

Health : 2
Flammability : 0
Reactivity : 0
Special : Simple asphyxiant

DISCLAIMER OF LIABILITY

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