

# International Chemical Safety Cards

## CARBON DIOXIDE

ICSC: 0021



Carbonic acid gas  
Carbonic anhydride  
CO<sub>2</sub>  
Molecular mass: 44.0  
(cylinder)

ICSC # 0021  
CAS # 124-38-9  
RTECS # [FF6400000](#)  
UN # 1013  
October 10, 2006 Validated



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
<b>FIRE</b>	Not combustible.		In case of fire in the surroundings: use appropriate extinguishing media.
<b>EXPLOSION</b>	Containers may burst in the heat of a fire!		In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.
<b>EXPOSURE</b>			
<b>•INHALATION</b>	Dizziness. Headache. Elevated blood pressure, increased heart rate. Suffocation. Unconsciousness.	Ventilation.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
<b>•SKIN</b>	ON CONTACT WITH LIQUID: FROSTBITE.	Cold-insulating gloves. Protective clothing.	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention.
<b>•EYES</b>	On contact with liquid: frostbite.	Safety goggles or face shield .	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
<b>•INGESTION</b>			

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Personal protection: self-contained breathing apparatus. Ventilation. NEVER direct water jet on liquid.	Fireproof if in building. Cool. Ventilation along the floor.	UN Hazard Class: 2.2 Signal: Warning Cylinder May be harmful if inhaled Contains refrigerated gas; may cause cryogenic burns or injury

### SEE IMPORTANT INFORMATION ON BACK

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Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the

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<b>I M P O R T A N T D A T A</b>	<b>PHYSICAL STATE; APPEARANCE:</b> ODOURLESS, COLOURLESS COMPRESSED LIQUEFIED GAS.	<b>ROUTES OF EXPOSURE:</b> The substance can be absorbed into the body by inhalation.	
	<b>PHYSICAL DANGERS:</b> The gas is heavier than air and may accumulate in low ceiling spaces causing deficiency of oxygen. Build up of static electricity can occur at fast flow rates and may ignite any explosive mixtures present. Free-flowing liquid condenses to form extremely cold dry ice.	<b>INHALATION RISK:</b> On loss of containment this liquid evaporates very quickly causing supersaturation of the air with serious risk of suffocation when in confined areas.	
	<b>CHEMICAL DANGERS:</b> The substance decomposes on heating above 2000°C producing toxic carbon monoxide.	<b>EFFECTS OF SHORT-TERM EXPOSURE:</b> Rapid evaporation of the liquid may cause frostbite. Inhalation of at high levels may cause unconsciousness. Suffocation.	
	<b>OCCUPATIONAL EXPOSURE LIMITS:</b> TLV: 5000 ppm as TWA; 30000 ppm as STEL; (ACGIH 2006). MAK: 5000 ppm, 9100 mg/m <sup>3</sup> ; Peak limitation category: II(2); (DFG 2006). OSHA PEL†: TWA 5000 ppm (9000 mg/m <sup>3</sup> ) NIOSH REL: TWA 5000 ppm (9000 mg/m <sup>3</sup> ) ST 30,000 ppm (54,000 mg/m <sup>3</sup> ) NIOSH IDLH: 40,000 ppm See: <a href="#">124389</a>	<b>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:</b> The substance may have effects on the metabolism.	

<b>PHYSICAL PROPERTIES</b>	Sublimation point: -79°C Solubility in water, ml/100 ml at 20°C: 88 Vapour pressure, kPa at 20°C: 5720	Relative vapour density (air = 1): 1.5 Octanol/water partition coefficient as log Pow: 0.83
<b>ENVIRONMENTAL DATA</b>		

### NOTES

Carbon dioxide is given off by many fermentation processes (wine, beer, etc.) and is a major component of flue gas. High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death. Check oxygen content before entering area. No odour warning if toxic concentrations are present. Turn leaking cylinder with the leak up to prevent escape of gas in liquid state. Other UN classification numbers for transport are: UN 1845 carbon dioxide, solid (Dry ice); UN 2187 carbon dioxide refrigerated liquid.

Transport Emergency Card: TEC (R)-20S1013 or 20G2A

### ADDITIONAL INFORMATION

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(C) IPCS, CEC, 1994

<b>IMPORTANT LEGAL NOTICE:</b>	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.
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