International Chemical Safety Cards

CARBON DIOXIDE

ICSC: 0021

CARBON DIOXIDE
Carbonic acid gas
Carbonic anhydride
(cylinder)
CO_2
Molecular mass: 44.0

CAS # 124-38-9
RTECS # FF6400000
ICSC # 0021
UN # 1013

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible.		In case of fire in the surroundings: all extinguishing agents allowed.
EXPLOSION	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.
EXPOSURE			
• **INHALATION**	Dizziness. Headache. Elevated blood pressure. Tachycardia.	Ventilation.	Fresh air, rest. Artificial respiration if indicated. Refer for medical attention.
• **SKIN**	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.
• **EYES**	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.
• **INGESTION**			

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. NEVER direct water jet on liquid (extra personal protection: self-contained breathing apparatus).	Fireproof if in building. Cool.	UN Hazard Class: 2.2

SEE IMPORTANT INFORMATION ON BACK

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I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
ODOURLESS, COLOURLESS, COMPRESSED LIQUEFIED GAS.

PHYSICAL DANGERS:
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.

CHEMICAL DANGERS:
The substance decomposes on heating above 2000°C producing toxic carbon monoxide. Reacts violently with strong bases and alkali metals. Various metal dusts such as magnesium, zirconium, titanium, aluminium, chromium and manganese are ignitable and explosive when suspended and heated in carbon dioxide.

OCCUPATIONAL EXPOSURE LIMITS (OELs):
TLV: 5000 ppm; 9000 mg/m^3 (as TWA); 30,000 ppm; 54,000 mg/m^3 (as STEL) (ACGIH 1994-1995).
MAK: 5000 ppm; 9000 mg/m^3 (1993).

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation.

INHALATION RISK:
On loss of containment this liquid evaporates very quickly causing supersaturation of the air with serious risk of suffocation when in confined areas.

EFFECTS OF SHORT-TERM EXPOSURE:
Inhalation of high concentrations of this gas may cause hyperventilation and unconciousness. Rapid evaporation of the liquid may cause frostbite.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the metabolism.

PHYSICAL PROPERTIES

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

ENVIRONMENTAL DATA

N O T E S

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, dry ice; UN 2187 carbon dioxide refrigerated liquid.

Transport Emergency Card: TEC (R)-11-1 (in cylinders); 11-2 (refrigerated gas)

ADDITIONAL INFORMATION

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