



UN 1013
HAZCHEM 2RE
CLASS 2.2

PI 07/16/E

COMPRESSED CARBON DIOXIDE

TECHNICAL SPECIFICATION

SPECIFICATION

Carbon Dioxide > 99.9%

Moisture < 20 ppm

PHYSICAL DATA

Chemical Symbol CO₂

Vapour Pressure (kPa @ 15°C) 5090

Relative Density (Air = 1) 1.53

Molecular Weight 44.01

Sublimation Point -78.5°C

Critical Temperature 31.0°C

Specific Volume (@101.3 kPa & 15°C) 0.535 m³/kg

PROPERTIES

Carbon Dioxide is a colorless, odorless, non-flammable gas. It is heavier than air. Does not support life.

USES

The food industries consume most of the carbon dioxide produced. It is employed for:

- carbonation of soft drinks, lemonade, soda, fruit juices, etc, recharging of natural mineral waters with carbon dioxide, conservation of wine, unfermented grape juice and various fruit juices, tapping of beer and prevention of oxidation through contact with the air, accelerating the growth of farm produce as an atmospheric additive.

It is employed in the chemical industry for many applications.

- preparation of sodium carbonate, alkaline bicarbonates, lead carbonate and various organic substances (e.g. salicylic acid), neutralization of sedentary alkalis, manufacture of foam rubber, precipitation of lime after clarification of juices in the sugar industry, dehydration of penicillin, tanning of hides, production of paints and varnishes.

It is employed as a protective atmosphere for arc welding and in reactor cooling circuits in nuclear power plants.

Pressurized carbon dioxide is employed in fire extinguishers. It serves to inflate buoys and pneumatic rescue dinghies. It is also used as a propellant gas in aerosols.

Carbon dioxide is employed in the laboratory as a carrier gas for gas analysis, and as a standard gas. Owing to its stimulating effect on the nerve centres, carbon dioxide is employed in medicine in mixtures with oxygen, for reviving victims of asphyxiation (drowning, electrocution, carbon dioxide poisoning, diphtheric toxin morphine, scopolamine). It also serves in the treatment of certain skin lesions. Mixed with ethylene oxide, it is employed as a fumigant in the destruction of insects in grain silos, and in leguminous plants, dates and dried figs

SUPPLY & STORAGE

In high pressure cylinders

HANDLING & SAFETY

HAZARDS

Inhalation of carbon dioxide in high concentration is dangerous to respiration. At very high concentrations lead to loss of consciousness, and eventually death. Mental alertness (narcotic effect) and respiration begin to become affected at a concentration of 2% in air. Above 7%, loss of consciousness can occur very rapidly.

There is a risk of accumulation in low points (pits, culverts, basements, etc.) where it will create hazardous conditions.

MATERIALS COMPATIBILITY

Carbon dioxide is non-corrosive and so any common metal is acceptable, provided equipment is designed to withstand process pressure.

PRECAUTIONS IN USE

Use only in well-ventilated area to prevent accumulation of high concentration of argon. Ensure that oxygen content of air is maintained above 18%.

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits

PERSONAL PROTECTION

Safety eyewear complying with an approved standard & use a properly fitted, air-purifying or air-fed respirator complying with an approved standard when a risk assessment indicates this is necessary

FIRST AID

If victim is conscious:

- Move to uncontaminated area to breathe fresh air, Keep warm and quiet, Call doctor.

If victim is unconscious:

- Move to uncontaminated area and give assisted respiration, when breathing is restored, treatment as above. Continued treatment should be symptomatic and supportive.

ADDITIONAL INFORMATION

The information, recommendations and data contained in this publication are intended to give basic guidance to users for their safe handling and use.

For Further information please refer Material Safety Data Sheets (MSDS)

It is essential for the safe use of gases that personnel are properly trained and are fully aware of the possible hazards.