



MATERIAL SAFETY DATA SHEET  
CARBON DIOXIDE GAS CYLINDERS

REPORT DATE PRINTED: 18/Oct/2016





## 1. Product Name **CARBON DIOXIDE CYLINDER**

### IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Supplier Name** KegLand Distribution PTY LTD

**Telephone** +61390187935

**Uses** DISPENSING GAS, SHIELDING GAS, INERT GAS, COMPRESSED GAS REFRIDGERANT, CARBONATION

## 2. HAZARDS IDENTIFICATION

**NOT CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA**

**CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE**

**CONCENTRATION:** CARBON DIOXIDE CO<sub>2</sub> > 99.9%

## 4. FIRST AID MEASURES

**Eye:** Treatment for cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.

**Inhalation:** Remove from area of exposure immediately. If assisting a victim avoid becoming a casualty, wear an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. If victim is not breathing apply artificial respiration and seek urgent medical attention. Give oxygen if available. Keep warm and rested.

**Skin:** Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30 C) for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.

**Ingestion:** Ingestion is considered unlikely. However, if ingestion occurs, drink large volumes of water. Seek medical attention. For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor.

**Advice To Doctor:** Treat for asphyxia and cold burns.

## 5. FIRE FIGHTING MEASURES

**Flammability:** Non flammable.

**Fire and Explosion:** Non flammable. Temperatures in a fire may cause cylinders to rupture. Call fire brigade. Cool cylinders exposed to fire by applying water from a protected location. Do not approach cylinders suspected of being hot. Remove cool cylinders from the path of the fire. Evacuate the area if unable to keep cylinders cool. Ensure work area is thoroughly ventilated before re-entry.

**Extinguishing:** Non flammable. Use water fog to cool containers from protected area.



**Hazchem Code:** 2RE

## 6. ACCIDENTAL RELEASE MEASURES

**Spillage:** GAS CYLINDERS: If the cylinder is leaking, eliminate all potential ignition sources and evacuate area of personnel.

Inform manufacturer/supplier of leak. Wear appropriate PPE and carefully move it to a well ventilated remote area, then allow to discharge. Do not attempt to repair leaking valve or cylinder fusible plugs.

## 7. HANDLING AND STORAGE Handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas (eg. if container is damaged).

**Storage** Do not store near sources of ignition or incompatible materials. Cylinders should be stored below 50 C in a secure area, cylinders with diameter greater than 180mm should be stored in upright position, cylinders with diameter less than 180mm may be laid on their side for transport. All cylinders should be restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Ventilation** Use with adequate natural ventilation. Open windows and doors where possible. In poorly ventilated areas, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

### Exposure

### Standards

CARBON DIOXIDE (124-38-9)

ES-TWA : 5000 ppm (9000 mg/m<sup>3</sup>)

ES-STEL : 30000 ppm (54000 mg/m<sup>3</sup>)

WES-TWA : 5000 ppm (9000 mg/m<sup>3</sup>)

**PPE** Wear safety glasses, safety boots and leather or cotton gloves. Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** COLOURLESS GAS

**Odour:** ODOURLESS

**pH:** NOT AVAILABLE

**Vapour Pressure:** 6300 kPa @ 25 C (Approximately)

**Vapour Density:** NOT AVAILABLE

**Boiling Point:** NOT AVAILABLE

**Melting Point:** NOT AVAILABLE

**Evaporation Rate:** NOT AVAILABLE

**Solubility (water):** 0.759 cm<sup>3</sup>/cm<sup>3</sup>

**Specific Gravity:** NOT AVAILABLE

**% Volatiles:** NOT AVAILABLE

**Flammability:** NON FLAMMABLE

**Flash Point:** NOT RELEVANT

**Upper Explosion Limit:** NOT RELEVANT

**Lower Explosion Limit:** NOT RELEVANT



**Autoignition Temperature:** NOT AVAILABLE  
**Density:** 1.53 (Air = 1)  
**Cylinder pressure (when full):** 6300 kPa @ 25 C (Approximately)  
**Sublimation Temperature:** -78 C (Approximately)  
**Critical Temperature:** 31 C (Approximately)  
**Critical Pressure:** 7,380 kPa (Approximately)

## 10. STABILITY AND REACTIVITY

**Reactivity:** Moist carbon dioxide is corrosive, hence acid resistant materials are required (stainless steel). Certain properties of some plastics and rubbers may be affected by gas or liquid, ie. embrittlement, leaching of plasticisers, etc. Dust of aluminium, chrome and manganese ignite and explode when heated in carbon dioxide. Incompatible with acrylaldehyde, aziridine, metal acetylides, sodium peroxide. Corrosive when moist.  
**Decomposition Products:** May evolve toxic gases if heated to decomposition.

## 11. TOXICOLOGICAL INFORMATION

**Health Hazard Summary:** Asphyxiant gas. Severe frost-bite burns may result from exposure to cold vapour or liquid. Carbon dioxide concentrations of 3-5 % in air cause increased respiration and headache. Concentrations of 8-15% cause headache, nausea and vomiting which may lead to unconsciousness if not moved to open air and given oxygen. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death will follow in a few minutes. Adverse health effects to long term exposure to carbon dioxide have not been reported. However in environments such as submarines where exposure to levels of 0.5 - 1.0% may occur, specialist medical opinion should be sought on the effects of long term exposure  
**Eye:** Non irritating. However, direct contact with evaporating liquid may result in severe cold burns with possible permanent damage. Eye contact with dry ice powder could result in frostbite or cold burns.  
**Inhalation:** Non irritant - Asphyxiant.  
**Skin:** Non irritating. Contact with evaporating liquid (eg. cold vessels or pipes containing low pressure liquid) may result in frost-bite with severe tissue damage. Skin contact with dry ice powder could result in frostbite or cold burns.  
**Ingestion:** Due to product form, ingestion is considered highly unlikely. Ingestion will cause severe cold burns to mouth and throat.

## 12. ECOLOGICAL INFORMATION

**Environment:** Carbon dioxide is a natural component of the earth's atmosphere (0.027 - 0.035 % v/v). However, increases in the atmospheric carbon dioxide levels have been linked with global warming, and hence emission of carbon dioxide into the atmosphere should be mimimised as far as possible.

## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal:** Cylinders should be returned to the manufacturer or supplier for disposal.  
**Legislation:** Dispose of in accordance with relevant local legislation.

## 14. TRANSPORT INFORMATION

**Transport:** Ensure cylinder is separated from driver and that outlet of relief device is not obstructed.  
**UN Number:** 1013  
**Shipping Name:** CARBON DIOXIDE  
**DG Class:** 2.2



**Subsidiary Risk(s):** None Allocated

**Packing Group:** None Allocated

**Hazchem Code:** 2RE

## 15. REGULATORY INFORMATION

**AICS:** All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

**Poison Schedule:** A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

## 16. OTHER INFORMATION

**Additional Information:** APPLICATION METHOD: Gas withdrawal: gas regulator of suitable pressure and flow rating fitted to cylinder or manifold with low pressure gas distribution to equipment. Liquid withdrawal: may be used as liquid or vaporised for pressure regulated gas distribution.

**COLOUR RATING SYSTEM:** Chem Alert reports are assigned a colour rating of Green, Amber or Red for the purpose of providing users with a quick and easy means of determining the hazardous nature of a product. Safe handling recommendations are provided in all Chem Alert reports so as to clearly identify how users can control the hazards and thereby reduce the risk (or likelihood) of adverse effects. As a general guideline a Green colour rating indicates a low hazard, an Amber colour rating indicates a moderate hazard and a Red colour rating indicates a high hazard.

**PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:** The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

**HEALTH EFFECTS FROM EXPOSURE:** It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

### ABBREVIATIONS:

**mg/m<sup>3</sup>** - Milligrams per cubic metre

**ppm** - Parts Per Million

**TWA/ES** - Time Weighted Average or Exposure Standard.

**pH** - relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline.

**CAS#** - Chemical Abstract Service number - used to uniquely identify chemical compounds.

**M** - moles per litre, a unit of concentration.

**IARC** - International Agency for Research on Cancer.