CARBON DIOXIDE DRY ICE MATERIAL SAFETY DATA SHEET

EMERGENCY SERVICES: DIAL OOO

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA
CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Product Name: Carbon Dioxide, solid
Chemical Name: Carbon Dioxide, "Dry Ice"
Manufacturer's Code:
UN Number: 1845 Carbon Dioxide, solid (Dry Ice)
DG Class: 9 miscellaneous dangerous goods
Packaging Group: III
Subsidiary Risk(s): None
Hazchem Code: None assigned (Previously: 1R)
EPG No: 9B7
Poisons Schedule: None assigned
Uses: As a source of low temperatures, for freezing, for stage and film special effects.

PHYSICAL DESCRIPTION & PROPERTIES:

Appearance: White, frosted solid, similar to water ice. Generates a white vapour of condensed moisture from the air.
Boiling Point: Sublimes to gas at -78∞C
Melting Point: Not applicable
Vapour Pressure: 6,300kPa at 25∞C
Evaporation Rate: Dependent on available heat sources
Odour: Odourless
Vapour Density: 1.53 (Air=1)
Weight per ml: 1.35
Flash Point: None
Flammability Limits: None
Auto-Ignition Temperature: None data

OTHER PROPERTIES:

Extremely cold solid. Generates a colourless gas that may form a white vapour from condensed atmospheric moisture.
Gas is soluble in water. Corrosive when moist. May react violently with dust of certain metals. Must not be stored in sealed containers – risk of violent rupture from pressure of sublimed carbon dioxide gas.

INGREDIENTS:

Carbon Dioxide 124-38-9 100%

HEALTH EFFECTS

Acute: Swallowed: Extremely solid. Will cause cold burns to lips, mouth and throat.
Skin: Extremely cold storage. Will cause thermal burns (frostbite) to the skin, even on very short contact.
Eyes: Extremely cold solid. Will cause thermal burns to the eyes. Serious risk of corneal damage and possible loss of sight.
Inhaled: Low concentrations of carbon dioxide in air may cause headache and increased respiration at 3-5%. Levels of 8-15% can cause headache, nausea, vomiting and loss of consciousness. Higher concentrations are reported to produce unconsciousness and death. Carbon Dioxide is also a simple asphyxiant. May replace oxygen in the atmosphere. Symptoms of approaching asphyxia include increased pulse rate, increase in the rate and volume of respiration, decreased ability to think clearly, inattention and loss of muscle coordination. At only 10-14% oxygen, judgement becomes faulty; there may be an inability to feel pain, rapid fatigue. At oxygen levels below 10% there may be nausea and vomiting, and an inability to move. Below 6% oxygen, breathing is likely to be in gasps, with risks of convulsions. Breathing a pure carbon dioxide atmosphere may result in immediate loss of consciousness and death within a few minutes.
Chronic: Carbon dioxide may be harmful on long exposure at levels below 1%, causing increased concentration of bicarbonate ions in the body, and possible acidosis. This may lead to calcium deposition in the kidneys and other tissues. Breathing atmospheres of very low oxygen (less than 10%) may result in permanent brain damage.
LD50: No data found
LCLO: 90,000ppm/5 minutes, human
Swallowed: If swallowed, do NOT induce vomiting. Give a glass of water.

Skin: If skin contact occurs, remove contaminated clothing and wash skin thoroughly with warm water, but not hot water. Obtain medical attention.
Eyes: If in eyes, hold eyes open flood with water for at least 15 minutes and see a doctor.
Inhaled: Avoid becoming a casualty. In enclosed spaces wear self-contained breathing apparatus. Remove patient from exposure. Apply artificial respiration if not breathing. Administration of oxygen by qualified staff may be appropriate. If poisoning occurs, contact a doctor or Poisons Information Centre **Ph: 131 126**

FIRST AID FACILITIES

Recommended: Hand Wash Basin
Emergency Shower
Oxygen resuscitation equipment
Advice to Doctor: Product is Carbon Dioxide, refrigerated liquid. Risk of frostbite on skin contact. Simple asphyxiant.
Contact Poisons Information Centre.

EXPOSURE LIMITS

TLV-TWA: 5,000ppm 9,000mg/m3
TLV-STEL: 30,000ppm 54,000mg/m3
Engineering Controls: Do not place solid carbon dioxide in sealed or un vented vessels or containers.
Ensure insulation of all exposed cold surfaces. Ensure adequate ventilation (same as outdoors) when using. Consider local mechanical exhaust/extraction or forced ventilation to keep airborne contamination below TLV. Do not use Materials that may become embrittled by low temperatures as materials of construction.

Personal Protection: Prevent contact with the skin and eyes. Do not breathe vapours . Personal protection to be selected from those recommended below, as appropriate to mode of use, quantity handled and degree of hazard:
Self-Contained breathing apparatus
Positive pressure or Air-fed hood
Face shield
Insulated gloves or gauntlets
Insulating overalls
Safety Shoes
Flammability: Not flammable

STORAGE AND TRANSPORT

Storage Temperature: Refrigerated or insulated storage.
UN Class: 9 miscellaneous dangerous goods
Packaging Group: III
UN Number: 1845 Carbon Dioxide, refrigerated solid
EPG Number: 9B7
Correct Shipping Name: Carbon Dioxide, refrigerated solid (Dry Ice)
Observe requirements of The Australian Code for the Transport of Dangerous Goods by Road and Rail. Observe the requirements of State Dangerous Goods (Storage and Handling) Regulations.

STORAGE ADVICE

Store in a cool, well-ventilated place. Stored cylinders should be insulated, top- opening containers at ambient pressure. Store containers upright, secured from falling, away from vehicular traffic and other thoroughfares. Keep away from all sources of heat. Ensure that vapours cannot be trapped in enclosed or low-lying places.

SPILLS AND DISPOSAL

CAUTION: Before dealing with spillage take the necessary protective measures; inform others to keep at a safe distance.
Contact supplier for specific assistance. Increase ventilation where possible. Recover large pieces of dry ice. Sweep up smaller pieces into a open container and transfer to a safe open area atmospheric evaporation. Prevent vapours from re-entering ventilation intakes or similar. Gas is heavier than air. Consider the evaporating gases as an asphyxiating atmosphere; take precautions to remove personnel from downhill. Prevent evaporating gases from collecting in channels, drains or low lying areas.

FIRE/EXPLOSION HAZARD

Not a fire hazard. Explosion hazard if solid carbon dioxide is enclosed in a sealed or un-vented container. May form explosive mixtures with some metal dusts, including aluminium, chromium, magnesium and magnesium/titanium alloys.

DECOMPOSITION PRODUCTS

Carbon dioxide gas.
In case of small fire/explosion use: Flooding quantities of water
In case of major emergency:
Hazchem Code: 1R
Extinguishant: Water jets
Danger of violent reaction or explosion? No

Protective Clothing: Full protective clothing including
Breathing apparatus and protective
Gloves
Appropriate Measures: Dilute
Evacuate? No

OTHER INFORMATION

Prevent leaking gas from entering drains, gullies, natural depressions and enclosed spaces.

Report Reviewed: 12th December 2006
Date Printed: 12th December 2006