

Material Safety Data Sheet

CARBON DIOXIDE, Solid (CO2)

Infosafe™ No. 6ACE2 **Issue Date** October 2005 **Status** ISSUED by AIRLIQH **BS:** 1.9.40

Not classified as hazardous

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Name CARBON DIOXIDE, Solid (CO2)

Product Use Used in dermatology and to analyse blood gases. It is used in medical air or mixtures used to test respiratory functions.

Company Name Air Liquide Healthcare Pty Limited (ABN 41002 653045)

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NSW 2015

Emergency Tel. (AH) 1800 812 588

Telephone Number/Fax Tel: (02) 9364 7474
Fax: (02) 8338 9797

Other Names	Name	Product Code
	Dry Ice	
	Solid CO2	
	CO2 Snow	
	Dry Ice Pellets	

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Name	CAS	Proportion
	Carbon Dioxide	124-38-9	99.8 %

3. HAZARDS IDENTIFICATION

Chronic Effects Long term exposure to carbon dioxide has no known health effects.

Prolonged exposure to an oxygen deficient atmosphere (below 18% oxygen in air) may affect the heart and nervous system.

Inhalation	Carbon dioxide is non-toxic at normal temperature and pressure. By diluting the oxygen concentration in air below the level necessary to support life, it can act as an asphyxiant. Effects of oxygen deficiency are: 12-16%: breathing and pulse rate increased, muscular coordination slightly disturbed; 10-14%: emotional upset, abnormal fatigue, disturbed respiration; 6-10%: nausea and vomiting, collapse or loss of consciousness; below 6%: convulsive movements, possible respiratory collapse and death.
Ingestion	Can cause frostburn if swallowed.
Skin	Can cause frostburn if brought into contact with the skin.
Eye	Can cause frostburn if brought into contact with the eye.
Other Information	Carbon dioxide is an asphyxiant gas, when present in an atmosphere in high concentrations, lead to a reduction of oxygen concentration by displacement or dilution. Unconsciousness and death can rapidly ensue in an environment which is deficient in oxygen. Contact with dry ice may cause cold burns or frostbite.

4. FIRST AID MEASURES

Inhalation	Rescuers should not enter an oxygen deficient atmosphere without using self-contained full face positive pressure breathing equipment. Remove victim from exposure - avoid becoming a casualty. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing is laboured and patient cyanotic, ensure airways are clear and have a qualified person give oxygen through a face mask. If symptom develops, seek IMMEDIATE medical attention.
Ingestion	Ingestion is not considered a potential route of exposure. However, if tissue is frozen, seek IMMEDIATE medical attention. If tissue is not frozen, Immediately wash mouth out with lukewarm water and then give water to drink. Seek immediate medical attention.
Skin	Remove all contaminated clothing. Clothing frozen to the skin should be thawed before being removed. Frostbite: Flush affected areas with lukewarm water. Do not use hot water. Seek IMMEDIATE medical attention.
Eye	If eye tissue is frozen, seek IMMEDIATE medical attention. If tissue is not frozen, immediately irrigate with copious amounts of water for approximately 15 minutes. Eyelids to be held open. Seek medical attention.
First Aid Facilities	Eyewash and normal washroom facilities must be provided, and a safety shower is strongly recommended.
Advice to Doctor	Advise doctor that victim has been exposed to an oxygen deficient atmosphere. Seek specialist advice for treatment of cold burns from State Burns Unit, Capital City.

5. FIRE FIGHTING MEASURES

Extinguishing Media	Use appropriate media to extinguish source of surrounding fire.
Specific Hazards	Not flammable or combustible. However, fire-exposed containers may

rupture/explode.

Precautions in connection with Fire	Wear Self-Contained Breathing Apparatus (S.C.B.A) and full protective clothing to minimise exposure.
Flash Point	Non flammable
Flammable Limits UEL	Non flammable
Flammable Limits LEL	Non flammable
Flammability	Carbon dioxide is non-flammable.

6. ACCIDENTAL RELEASE MEASURES

Spills & Disposal	Evacuate the spill area of unnecessary personnel. As a precautionary measure, eliminate all ignition sources. In enclosed areas rescue personnel should wear AS 1715/1716 approved self contained breathing apparatus. Allow gas to escape to the external atmosphere, or preferably in a fume cupboard or well ventilated, remote area. Do not touch any spilled material. Prevent mixture from entering confined spaces. Cold vapours are heavier than air. In case of large spillage evacuate nearby tenches, excavations, pits and the like.
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7. HANDLING AND STORAGE

Handling	Only use in well-ventilated areas. Wear appropriate protective equipment and clothing. Be aware of any signs of dizziness or fatigue, especially when work is done in a poorly-ventilated area; exposures to fatal concentrations of this product could occur without any significant warning symptoms, due to oxygen deficiency.
Storage	Solid carbon dioxide is supplied in pellets and blocks of various sizes up to 50 kg per block. Store containers in dry, naturally ventilated areas and not in enclosed room or area. Keep water/rain out of container and to minimise losses keep out of direct sunlight and away from heat sources.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	Carbon dioxide: TWA 5,000 ppm, 9,000 mg/m ³ STEL 30,000 ppm, 54,000 mg/m ³
Respiratory Protection	Respiratory equipment that conforms to AS1715/1716 must be used where exposure to material is likely, in view of the asphyxiant nature of the material.
Eye Protection	Chemical goggles or safety glasses should be worn to protect against sudden uncontrolled gas release.
Hand Protection	Leather, PVC or Teflon gloves should worn.
Body Protection	Overalls or similar protective apparel.
Eng. Controls	Provide adequate local exhaust and dilution (general) ventilation and supply sufficient replacement air to maintain oxygen concentration

above 19.5%.

Equipment to handle solid carbon dioxide must be constructed of suitable materials for the low temperature encountered. It must NOT be gas tight.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Frosty white, solid, sharp odour.
Boiling Point	Not available
Solubility in Water	(at 0°C): 1.716 m ³ /kg
Specific Gravity (H₂O=1)	Not available
Vapour Pressure	Not available
Vapour Density (Air=1)	(at 15°C)(Air=1): 1.53
Flash Point	Non flammable
Flammability	Carbon dioxide is non-flammable.
Flammable Limits LEL	Non flammable
Flammable Limits UEL	Non flammable
Molecular Weight	44.01
Other Information	Density of Gas (101.3 kPa, 15°C): 1.873 kg/m ³ Critical Temperature: 31.06°C

10. STABILITY AND REACTIVITY

Stable

Hazardous Polymerization	Will not occur.
Conditions to Avoid	Extreme temperature

11. TOXICOLOGICAL INFORMATION

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Ingestion	Can cause frostburn if swallowed.

Skin	Can cause frostburn if brought into contact with the skin.
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Chronic Effects	Long term exposure to carbon dioxide has no known health effects. Prolonged exposure to an oxygen deficient atmosphere (below 18% oxygen in air) may affect the heart and nervous system.

12. ECOLOGICAL INFORMATION

Environment Protection	Not available
Mobility	Not available
Ecotoxicity	Not available

13. DISPOSAL CONSIDERATIONS

Waste disposal procedures must be performed by trained, experienced personnel with appropriate protective equipment in approved treatment facilities, and in accordance with all federal, state and local government requirements.

14. TRANSPORT INFORMATION

This material is a Class 9 - Miscellaneous Dangerous Good according to The Australian Code for the Transport of Dangerous Goods by Road and Rail. These substances are incompatible in a placard load with any of the following:

- Class 1, Explosives (when the class 9 substance is a fire risk substance),
 - Class 5.1, Oxidizing agents (when the class 9 substance is a fire risk substance), and
 - Class 5.2, Organic peroxides (when the class 9 substance is a fire risk substance).
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U.N. Number	1845
Proper Shipping Name	CARBON DIOXIDE, SOLID (DRY ICE)
DG Class	9
Packaging Method	3.8.9
Packing Group	III
EPG Number	9B7
IERG Number	09

15. REGULATORY INFORMATION

Risk Phrase

Poisons Schedule Not Scheduled

16. OTHER INFORMATION

Contact Person/Point 24 HOUR EMERGENCY CONTACT: The Operator: 1800 812 588

Regional Offices:

Victoria
40 Bunnett Street, North Sunshine 3020. Tel. (03) 9290 1100 Fax (03) 9290 1199

New South Wales
43-47 Pine Road, Fairfield 2165. Tel. (02) 9892 9777 Fax (02) 9892 1454

4 Kullara Close, Beresfield. 2322. Tel (02) 4949 1700 Fax (02) 4949 1750

Lot 5, Shellharbour Road, Port Kembla 2505. Tel. (02) 4274 4044 Fax (02) 4276 3879

South Australia
164 Philip Highway, Elizabeth 5112. Tel. (08) 8209 3600 Fax (08) 8255 9885

Queensland
759 Progress Road, Wacol 4076. Tel. (07) 3246 6363 Fax (07) 3271 2589
Ingham Road, Cnr. Dundee Street,
Bohle, Townsville, 4818
Tel. (07) 4774 8276 Fax (07) 4774 8313
Featherstone Street, Parkhurst
Rockhampton, 4702. Tel. (07) 4936 1066 Fax (07) 4936 1024
68 Bunda Street, Cairns 4870. Tel. (07) 4031 1566 Fax (07) 4051 4293

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References

- L'Air Liquide Gas Encyclopedia - Elsevier Scientific Publishing Co. Amsterdam
- Australian Code for the Transport of Dangerous Goods by Road and Rail; 6th Edition
- Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995) and NOHSC:1003(1995)]
- Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]
- EPG Cards; or SAA/SNZ HB76 Initial Emergency Response Guide
- Matheson Gas Data Book, 6th Edition, Matheson 1980
- Canadian Liquid Air Montreal, Canada - Gas Products Safety Data Sheets
- Tomes Database, Micromedev

Poisons Schedule Not Scheduled

Molecular Weight 44.01

End of MSDS

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