Material Safety Data Sheet

MEDICAL CARBON DIOXIDE IN OXYGEN

Infosafe™ No.	6ACEA	**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 MEDICAL CARBON DIOXIDE IN OXYGEN

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

Address Unit 5, 476 Gardeners Road Alexandria
NSW 2015

Emergency Tel. (AH) 1800 812 588

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

Other Names Not Available

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Name	CAS	Proportion
	Oxygen	7782-44-7	90-100 %
	Carbon Dioxide	124-38-9	0.1-10 %

3. HAZARDS IDENTIFICATION

Chronic Effects Long term exposure to this gas has no known health effects.

Inhalation Breathing high concentrations of this gas may cause symptoms of hyperoxia including cramps, nausea, dizziness, hypothermia, ambylopia, respiratory difficulties, brady cardia, fainting spells and convulsions capable of leading to death.

Ingestion Not applicable to gases.

Skin	Not irritating to the skin.
Eye	Not irritating to the eye.

4. FIRST AID MEASURES

Inhalation	Call doctor. Prompt medical attention is mandatory in all cases of overexposure to oxygen. If victim conscious: Move to uncontaminated area to breathe fresh air. Keep warm and quiet. If victim is unconscious: move to uncontaminated area and give assisted respiration. When normal breathing restored, treatment as above. Continued treatment should be symptomatic and supportive. N.B. Rescue personnel should be aware of extreme fire hazard associated with oxygen rich atmospheres.
Ingestion	Not applicable to gases.
Skin	Rinse affected clothing and skin areas etc., with lukewarm, running water. Remove contaminated clothing and wash before reuse. Wash affected skin areas with copious amounts of soap and water. Seek medical attention if effects persist.
Eye	Seek medical attention if any effects of exposure persist, or immediately if extending from physical injury.
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 is experiencing (has experienced) hyperoxia.

5. FIRE FIGHTING MEASURES

Extinguishing Media	Use appropriate media to extinguish source of surrounding fire.
Specific Hazards	This gas is non-flammable, but container may rupture when heated. Move cylinders for fire if safe to do so. Cool cylinders with water from a protected location. If unable to keep cylinders cool, evacuate area. Only experienced and properly instructed personnel should handle compressed gases. Cylinder contents and identification labels provided by the supplier must not be removed or defaced. Colour coding should not be the only criterion used for content identification.
Flash Point	Non flammable
Flammable Limits UEL	Non flammable
Flammable Limits LEL	Non flammable
Flammability	Vigorously supports combustion of many materials which will not normally burn in air. Store away from flammable products. Never smoke or carry out hot work in oxygen rich atmosphere. Never wear clothing saturated with oxygen.

6. ACCIDENTAL RELEASE MEASURES

Evacuate the spill area of unnecessary personnel. 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. Leak checking may be done by pressure drop test or by using soapy water on joints and outlets. Shut cylinder valve to stop gas leaks from equipment if possible and safe to do so. If cylinder or cylinder valve is leaking then put on personal protective equipment, shut the cylinder valve, depressurise the equipment, disconnect cylinder from equipment and move the cylinder to a well ventilated area, preferably outdoors, and position to allow gas, rather than liquid to escape. If not possible, allow any liquid to vapourize. Use of a flammable gas monitor will warn of gas build-up in locality. Notify all relevant local, state and federal government occupational and environmental authorities. If possible, repair the leak or allow the cylinder to vent in external atmosphere. Mark empty cylinders 'defective'. Return all faulty cylinders to supplier/manufacturer.

7. HANDLING AND STORAGE

Handling

Use only in well-ventilated areas. Transport cylinders by hand truck or cart designed for that purpose. Do not lift cylinders by their caps and do not handle them with oily hands. Secure cylinders in place, in an upright position at all times. Do not roll, slide or drop cylinders or permit them to strike each other. Leave valve cap on until cylinder is secured and ready for use, and avoid contact of oil or grease with the valve. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Close all valves securely when not in use.

Storage

Storage of compressed gas cylinders shall be in compliance with State or Territory regulations. Cylinders shall be stored in a cool, dry, well ventilated area out of direct sunlight and away from heat and ignition sources. Outside or detached storage is preferred. No part of cylinders shall be exposed to temperatures above 55°C. Cylinders shall be stored upright on a level, fireproof floor, secure in position and protected from damage. Full cylinders shall be stored separately from empties. Keep cylinder valve cover on. Label empty cylinders and store full cylinders separately from empty ones. Consider leak detection and alarm systems, as required. Limit quantity in storage. Restrict access to storage area and post warning signs. Inspect periodically for deficiencies such as damage or leaks. Have fire extinguishers available in and near the storage area. Comply with all applicable regulations for the storage and handling of compressed gases.
Cylinders should be moved by hand-truck or cart designed for that purpose. Avoid any contact with oil or grease particularly to the cylinder valve.

Packaging

Oxygen based compressed gas mixtures are supplied in high pressure cylinders.
CYLINDER COLOURS:
Nitrogen - AS 2700 N63 Pewter.
Carbon Dioxide - AS 2700 N32 Green Grey.
CYLINDER VALVE OUTLET:
AS 2473 Type 10 or AS 2473 Type 30.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	Name	STEL (mgm3)	STEL (ppm)	TWA (mgm3)	TWA (ppm)	FootNote

Carbon Dioxide	54000	30000	9000	5000

Other Exposure Information No exposure standards have been established for this product by the Australian National Occupational Health And Safety Commission (NOHSC), however, the exposure limits for carbon dioxide are listed above.

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.

Footwear Personnel engaged in the movement of gas cylinders shall be provided with safety footwear.

Body Protection Overalls or similar protective apparel.

Eng. Controls Ensure that ventilation of area where oxygen is being used is adequate to maintain the air-oxygen concentration from the normal 21% to 23%.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Colourless, odourless, tasteless.

Boiling Point Not applicable

Solubility in Water Not applicable

Specific Gravity (H2O=1) Not available

Vapour Pressure Not applicable

Vapour Density (Air=1) 1.09-1.42 @ 15°C

Flash Point Non flammable

Flammability Vigorously supports combustion of many materials which will not normally burn in air. Store away from flammable products. Never smoke or carry out hot work in oxygen rich atmosphere. Never wear clothing saturated with oxygen.

Flammable Limits LEL Non flammable

Flammable Limits UEL Non flammable

Molecular Weight Not applicable

Other Information Density of Gas (101.3 kPa, 15°C): 1.34-1.74 kg/m3
Critical Temperature: Not applicable

10. STABILITY AND REACTIVITY

Materials to Avoid Equipment to handle this gas must be constructed of suitable material. Copper and stainless steel are most commonly used. Most lubricants are NOT compatible.

11. TOXICOLOGICAL INFORMATION

Inhalation	Breathing high concentrations of this gas may cause symptoms of hyperoxia including cramps, nausea, dizziness, hypothermia, ambylopia, respiratory difficulties, brady cardia, fainting spells and convulsions capable of leading to death.
Ingestion	Not applicable to gases.
Skin	Not irritating to the skin.
Eye	Not irritating to the eye.
Chronic Effects	Long term exposure to this gas has no known health effects.

12. ECOLOGICAL INFORMATION

Mobility	Not available
Persistence / Degradability	Not available
Bioaccumulation	Not applicable
Ecotoxicity	Not available

13. DISPOSAL CONSIDERATIONS

Waste Disposal	Waste treatment 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. Reuse or recycling may also be possible and should be investigated. Alternately, return properly labelled cylinders to the supplier with all valve outlet plugs, caps and protection caps secured, for proper disposal.

14. TRANSPORT INFORMATION

This material is classified as Class 2.2 Dangerous Goods (Non-flammable Non-toxic Gas) according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.
Dangerous Goods of Class 2.2 (Non-flammable Non-toxic Gas) are incompatible in a placard load with any of the following:
- Class 1, Explosive
- Class 4.2, Spontaneously Combustible Substance
- Class 5.2, Organic Peroxide

U.N. Number	1014
Proper Shipping Name	CARBON DIOXIDE AND OXYGEN MIXTURE, COMPRESSED
DG Class	2.2
Sub.Risk	5.1
Hazchem Code	2[S]

Packaging Method	3.8.2
Packing Group	
EPG Number	2C6
IERG Number	10

15. REGULATORY INFORMATION

Risk Phrase

Poisons Schedule	Not Scheduled
Packaging & Labelling	Oxygen based compressed gas mixtures are supplied in high pressure cylinders. CYLINDER COLOURS: Nitrogen - AS 2700 N63 Pewter. Carbon Dioxide - AS 2700 N32 Green Grey. CYLINDER VALVE OUTLET: AS 2473 Type 10 or AS 2473 Type 30.

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
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164 Philip Highway, Elizabeth 5112. Tel. (08) 8209 3600 Fax (08) 8255 9885
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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
- List of Designated Hazardous Substances [NOHSC:10005(1994)]
- Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995) and NOHSC:1003(1995)]
- Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (1994)]
- 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

SDS History

MSDS review: October 2005
MSDS superseded: October 2000

Poisons Schedule Not Scheduled

Molecular Weight Not applicable

End of MSDS
