Material Safety Data Sheet

MEDICAL OXYGEN, REFRIGERATED LIQUID (O2)

Infosafe™ No.	6ACE7	**Issue Date**	September 2006	**Status**	ISSUED by AIRLIQH	BS: 1.9.40

Not classified as hazardous

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

Product Name MEDICAL OXYGEN, REFRIGERATED LIQUID (O2)

Product Use Bulk oxygen supply for large volume use. Medical application in respiratory therapy, anesthesia & hyperbaric use.

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	99.5 %

3. HAZARDS IDENTIFICATION

Contact with combustible material may cause fire.

Mutagenicity Non mutagenic.

Carcinogenicity Non carcinogenic.

Chronic Effects

Exposure at normal or elevated pressure may cause severe thickening and

	scarring of lung tissues.
Inhalation	Gas is non-toxic. Breathing high concentrations of oxygen may cause symptoms of hyperoxia including cramps, nausea, dizziness, hypothermia, amblyopia (loss of vision), respiratory difficulties, bradycardia, fainting spells and convulsions capable of leading to death.
Ingestion	Not applicable to gases.
Skin	Can cause severe frostbite or tissue to freeze if brought in contact with skin.
Eye	Can cause severe frostbite or tissue to freeze if brought in contact with eye.

4. FIRST AID MEASURES

Inhalation	If inhaled, remove from contaminated area. Apply artificial respiration if not breathing. If symptoms develop seek medical attention.
Ingestion	Not applicable.
Skin	For frostbitten areas: As quickly as possible, flush contaminated area with lukewarm, gently running water for at least 20 minutes, by the clock. Under running water, carefully cut around clothing that sticks to damaged skin and remove rest of garment. Treat as thermal burn. Seek medical attention.
Eye	If frostbite occurs, immediately flush the contaminated eye (s) with lukewarm, gently flowing water for 20 minutes, by the clock, holding the eyelid's open. Obtain medical attention.
First Aid Facilities	Normal washroom facilities.
Advice to Doctor	Treatment for hyperoxia and cold burns.
Other Information	Hypothermia: Move to warm place, wrap in blanket but do not apply direct heat. Seek medical attention.

5. FIRE FIGHTING MEASURES

Extinguishing Media	Use extinguishing media suitable for surrounding environment.
Specific Methods	Cool vessel exposed to fire by applying water from a safe distance and a protected location. Avoid spraying water on pressure relief valves. Do not approach vessel suspected of being hot. Evacuate area if unable to keep vessel cool.
Specific Hazards	Contact with combustible material may cause fire. Oxygen vigorously supports combustion of many materials, which will not normally burn in air. Never smoke or carry out hot work in oxygen rich atmosphere. Never wear clothing saturated with oxygen. Avoid liquid spillage as cryogenic liquids embrittle many materials on contact.
Hazardous Combustion Products	Under fire conditions this product will emit toxic and/or irritating fumes.
Protective Equipment	Full protective clothing and self-contained breathing apparatus.

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. Never smoke or carry out hot work in oxygen thick atmosphere. Never wear clothing saturated with oxygen. Wear fire retardant clothing.

6. ACCIDENTAL RELEASE MEASURES

Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear adequate personal protective equipment. Ventilate area. Release of liquid oxygen to atmosphere will generate vapour fog clouds. These clouds are to be treated as oxygen enriched atmospheres. Care must be taken with clothing as it will absorb or entrap oxygen. Keep away from naked flame and heat sources. In an emergency allow liquid and gas to escape to atmosphere. Prevent liquid from entering drains. Promote evaporation of liquid spills with water sprays. Monitor oxygen concentrations in confined spaces.

7. HANDLING AND STORAGE

Handling	No smoking or naked lights. Only experienced and properly trained people should use this product. Check for leaks after pressurizing system and prior to starting any operating. Open cylinder valve slowly to avoid pressure shock and close when not in use. Supplied in portable cryogenic liquid containers or by bulk road tanker to cryogenic storage vessels installed at users' premises. Equipment to handle oxygen must be constructed of suitable material. Copper and stainless steel are most commonly used. Most lubricants are NOT compatible. Move cylinders by hand-truck or cart designed for that purpose. DO NOT lift cylinders by their caps. DO NOT handle them with oily hands. Secure cylinders in place in an upright position at all times. DO NOT drop cylinders or permit them to bang against each other.
Storage	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. 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. Comply with all applicable regulations for the storage and handling of compressed gases. Inspect periodically for deficiencies such as damage or leaks.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	No exposure standards have been established for this material by the National Occupational Health And Safety Commission (NOHSC).
Respiratory Protection	If engineering controls are not effective in controlling airborne exposure then respiratory protective equipment should be used suitable

	for protecting against airborne contaminants. Final choice of appropriate breathing protection is dependant upon actual airborne concentrations and the type of breathing protection required will vary according to individual circumstances. Expert advice may be required to make this decision. Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices.
Eye Protection	Safety glasses with side shields, goggles or full-face shield as appropriate recommended. Final choice of appropriate eye/face protection will vary according to individual circumstances i.e. methods of handling or engineering controls and according to risk assessments undertaken. Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.
Hand Protection	Wear gloves of impervious material such as leather or thermally insulated gloves. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.
Body Protection	Wear appropriate clothing including chemical resistant apron where clothing is likely to be contaminated. It is advisable that a local supplier of personal protective clothing is consulted regarding the choice of material.
Eng. Controls	Before entering a confined space ensure oxygen (18%) exists. Use with good general ventilation. If gases are produced local exhaust ventilation should be used.
Biological Limit Values	No biological limit allocated.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Pale blue liquid, tasteless.
Odour	Odourless.
Melting Point	Not available.
Boiling Point	- 183°C
Solubility in Water	0.0489 m3/m3 @ 0°C.
Specific Gravity (H2O=1)	Not available
pH Value	Not available
Vapour Pressure	Not applicable
Vapour Density (Air=1)	1.105 @ 15°C (Air=1)
Flash Point	Non flammable
Flammability	Vigorously supports combustion of many materials which will not normally burn in air. Never smoke or carry out hot work in oxygen thick atmosphere. Never wear clothing saturated with oxygen. Wear fire retardant clothing.
Flammable Limits	

LEL	Non flammable
Flammable Limits UEL	Non flammable
Molecular Weight	32.00
Other Information	Density of Liquid (B.P.): 1141 kg/m3 Critical Temperature: - 118.8°C

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions of storage and handling.
Materials to Avoid	Not available.
Hazardous Decomposition Products	Oil and grease can spontaneous ignite at low temperatures in oxygen enriched atmospheres. Metals can be ignited and continue to burn in pure oxygen atmospheres under specific conditions of temperature and pressure.
Hazardous Reaction	Contact with combustible material may cause fire.
Conditions to Avoid	Extremes of temperature and direct sunlight.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	No toxicity data available for this product.
Inhalation	Gas is non-toxic. Breathing high concentrations of oxygen may cause symptoms of hyperoxia including cramps, nausea, dizziness, hypothermia, amblyopia (loss of vision), respiratory difficulties, bradycardia, fainting spells and convulsions capable of leading to death.
Ingestion	Not applicable to gases.
Skin	Can cause severe frostbite or tissue to freeze if brought in contact with skin.
Eye	Can cause severe frostbite or tissue to freeze if brought in contact with eye.
Chronic Effects	Exposure at normal or elevated pressure may cause severe thickening and scarring of lung tissues.
Mutagenicity	Non mutagenic.
Carcinogenicity	Non carcinogenic.

12. ECOLOGICAL INFORMATION

Environment Protection	Do not allow product to enter drains, waterways or sewers.
Mobility	Not available.

Persistence / Degradability	Not available.
Ecotoxicity	No ecological data available for this product.

13. DISPOSAL CONSIDERATIONS

Dispose of waste according to federal, EPA and state regulations.

14. TRANSPORT INFORMATION

This material is classified as a Class 2.2 (Non-flammable Non-toxic Gas) Dangerous Good 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	1073
Proper Shipping Name	OXYGEN, REFRIGERATED LIQUID
DG Class	2.2
Sub.Risk	5.1
Hazchem Code	2PE
Packaging Method	3.8.2RT3
Packing Group	
EPG Number	2C7
IERG Number	11

15. REGULATORY INFORMATION

Risk Phrase

R8 Contact with combustible material may cause fire.

Safety Phrase	S17 Keep away from combustible material. S36 Wear suitable protective clothing.
Poisons Schedule	Not Scheduled
Hazard Category	Oxidising

16. OTHER INFORMATION

Contact	24 HOUR EMERGENCY CONTACT: The Operator: 1800 812 588

Person/Point	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 Tasmania 11 Windsor Street, Invermay 7248. Tel. (03) 6334 9666 Fax (03) 6334 9600 Air Liquide W.A. Pty Ltd A.B.N. 52 008 694 166 Wesfarmers Energy Building, Campus Drive (off Murdoch Drive), Murdoch, WA 6150 Tel. (08) 9312 9111 Fax (08) 9313 8108 AIR LIQUIDE AUSTRALIA LIMITED A.B.N. 57 004 385 782 Head Office: 380 St. Kilda Road, Melbourne, Victoria 3004, Australia. Tel. (03) 9697 9888 Fax (03) 9690 7107 www.airliquide.com.au
SDS History	MSDS Reviewed: September 2006.
Poisons Schedule	Not Scheduled
Hazard Category	Oxidising
Molecular Weight	32.00

End of MSDS