Material Safety Data Sheet

MEDICAL HELIUM, Compressed (He)

Infosafe™ No.	6ACE3	**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 HELIUM, Compressed (He)

Product Use Used in breathing mixtures. Used for medical imaging. A mixture of 78% helium and 22% oxygen is used in neonatalogy, resuscitation and hyperbaric chambers.

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
	Helium	7440-59-7	99 %

3. HAZARDS IDENTIFICATION

Chronic Effects Prolonged exposure to an oxygen deficient atmosphere (below 19.5% oxygen in air) may affect the heart and nervous system.

Inhalation

Helium is an asphyxiant.
Effects of oxygen deficiency are:

	12-16%; breathing and pulse rate increased, muscular co-ordination slightly disturbed. 10-14%; emotional upset, abnormal fatigue, disturbed respiration. 6-10%; nausea and vomiting, collapse or loss of consciousness. <6%; convulsive movements, possible respiratory collapse and death.
Ingestion	Not applicable to gases; unlikely route of exposure.
Skin	May cause frostbite injuries in contact with skin.
Eye	May cause frostbite injuries in contact with eyes or physical injury arising from sudden or uncontrolled gas release.
Other Information	Helium is a simple asphyxiant. Whilst being non-toxic as supplied, the release of large amounts of mixture either through accident or poor work practice, could displace atmospheric oxygen to hazardous levels, or lead to a build up of carbon dioxide in confined and/or poorly ventilated spaces to hazardous levels. Due caution must be exercised and all exposure standards for components rigorously observed, and atmospheric oxygen levels maintained at 19.5%.

4. FIRST AID MEASURES

Inhalation	Prompt medical attention is mandatory in all cases of overexposure to asphyxiant containing substances. Remove the source of contamination or move the victim to fresh air. Ensure airways are clear and have qualified person give oxygen through a face mask if breathing is difficult. Apply artificial respiration if not breathing. Seek medical attention. N.B. Rescuers should not enter an oxygen deficient atmosphere without using self-contained full face positive pressure breathing equipment.
Ingestion	Ingestion is not considered a potential route of exposure.
Skin	Rinse affected skin areas with lukewarm, running water. Seek medical attention if effects persist.
Eye	Should frostbite occur from escaping gas, immediately flush with tepid water in large quantities, or with sterile saline solution. Hold eyelids apart and irrigate with gentle flow for 15 minutes bathing entire eyeball. Seek immediate medical attention.
First Aid Facilities	Eyewash station, safety shower and normal washroom facilities.
Advice to Doctor	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media	Use extinguishing agents suitable for the surrounding environment. Cool cylinders with water if possible.
Specific Methods	Stop discharge of gas if it can be done safely. Move containers from fire area if it can be done safely. Use water spray to keep containers cool. Do not direct water at source of leak or at venting safety devices. Pressurized containers may explode in fire. Consider evacuation if cylinders cannot be kept cool.
Precautions in connection with Fire	Fire-fighters should wear full protective clothing and self contained breathing apparatus (SCBA) operated in positive pressure mode.

Flash Point	Non flammable
Flammable Limits UEL	Non flammable
Flammable Limits LEL	Non flammable
Flammability	Helium is non-flammable.

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. Ground all cylinders. 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.

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. Do not attempt to repair, adjust, or in any other way modify the cylinders containing the gas mixture. If there is a malfunction or another type of operational problem, contact nearest distributor immediately.

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. No part of cylinders shall be exposed to temperatures above 55°C. Outside or detached storage is preferred. Cylinders shall be stored upright on a level, fireproof floor, secure in position and protected from damage. Keep cylinder valve cover on. Label empty cylinders and store them separate from empty ones. Cylinders should be moved by hand-truck or cart designed for that purpose. Inspect periodically for deficiencies such as damage or leaks. Consider leak detection and alarm systems, as required. Restrict access to storage

area and post warning signs. Have fire extinguishers available near the storage area. Avoid any contact with oil or grease particularly to the cylinder valve.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Other Exposure Information No exposure standards have been established for this product by the Australian National Occupational Health And Safety Commission (NOHSC). Helium is a simple asphyxiant having no exposure standard, but the oxygen concentration at 19.5%, must be maintained. Atmospheres at less concentrations of oxygen do not provide sufficient sensory indications of deficiency, and can rapidly become life threatening.

Respiratory Protection If engineering controls and work practices are not effective in controlling exposure to carbon monoxide component, then wear suitable AS1715/1716 approved respiratory protective equipment. Have appropriate personal protective equipment available for use in emergencies such as leaks or fire. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance, inspection, cleaning, and evaluation. A leak detector and alarm system should be considered as supplementary control system.

Eye Protection The use of chemical goggles or safety glasses with side shield protection complying with AS/NZS 1337 is recommended.

Hand Protection Chemical resistant or thermal protection gloves complying with AS/NZS 2161 is recommended.

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

Body Protection Overalls or similar protective apparel.

Eng. Controls Use only in a well ventilated area. Provide adequate general and local exhaust ventilation to prevent workplace atmospheres from becoming oxygen deficient. Provide supplied air or self-contained breathing apparatus for emergency or non routine situations where gas level is excessive.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Colourless, odourless, tasteless.

Boiling Point -268.93°C

Solubility in Water (at 0°C): 0.0098 m3/kg

Specific Gravity (H2O=1) Not available

Vapour Pressure Not applicable

Vapour Density (Air=1) (at 15°C)(Air=1): 0.136

Odour Threshold None

Flash Point	Non flammable
Flammability	Helium is non-flammable.
Flammable Limits LEL	Non flammable
Flammable Limits UEL	Non flammable
Other Information	Density of Gas (101.3 kPa, 15°C): 0.167 kg/m3 Critical Temperature: -267.95°C

10. STABILITY AND REACTIVITY

Stability	Stable
Hazardous Polymerization	Will not occur.
Conditions to Avoid	Extreme temperature

11. TOXICOLOGICAL INFORMATION

Inhalation	Helium is an asphyxiant. Effects of oxygen deficiency are: 12-16%; breathing and pulse rate increased, muscular co-ordination slightly disturbed. 10-14%; emotional upset, abnormal fatigue, disturbed respiration. 6-10%; nausea and vomiting, collapse or loss of consciousness. <6%; convulsive movements, possible respiratory collapse and death.
Ingestion	Not applicable to gases; unlikely route of exposure.
Skin	May cause frostbite injuries in contact with skin.
Eye	May cause frostbite injuries in contact with eyes or physical injury arising from sudden or uncontrolled gas release.
Chronic Effects	Prolonged exposure to an oxygen deficient atmosphere (below 19.5% oxygen in air) may affect the heart and nervous system.

12. ECOLOGICAL INFORMATION

Mobility	Not available
Persistence / Degradability	Not available
Bioaccumulation	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. 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	1046
Proper Shipping Name	HELIUM, COMPRESSED
DG Class	2.2
Hazchem Code	2[T]
Packaging Method	3.8.2
Packing Group	
EPG Number	2C2
IERG Number	08

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
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

Manufacturers Advice

Compressed helium is supplied in high pressure cylinders.
CYLINDER COLOUR: AS 2700 54 Brown.
CYLINDER VALVE OUTLET:
MEDICAL: AS 2472 Fig. 8.

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 (2004)]
- SAA Safe Storage and Handling Information Cards
- SAA Emergency Procedure Cards
- 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
Supersedes: October 2000

Poisons Schedule

Not Scheduled

End of MSDS
