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

Product Name: HELIUM BASED, COMPRESSED GAS MIXTURES
Product Use: Inert gas shielding for arc welding. Laser machines.
Company Name: Air Liquide Australia Limited (ABN 57 004 385 782)
Address: Level 9, 380 St. Kilda Road Melbourne
          Victoria 3004
Emergency Tel.: 1800 812588 (24hr)
Telephone: Tel: (03) 9697 9888
            Fax: (03) 9690 7107

Other Names
Name: AIR LIQUIDE RANGE INCLUDING MIGSHIELD
      BLUESHIELD
      SOME OF THE ARCAL AND LASAL RANGE

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Name</th>
<th>CAS</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Carbon Dioxide</td>
<td>124-38-9</td>
<td>0.5%</td>
</tr>
<tr>
<td></td>
<td>Helium</td>
<td>7440-59-7</td>
<td>50-98%</td>
</tr>
<tr>
<td></td>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>0-50%</td>
</tr>
</tbody>
</table>
3. HAZARDS IDENTIFICATION

**Chronic Effects**
Long term exposure to this gas has no known health effects. Can be inhaled for several hours per day for periods of several days without observable harmful effect.

**Inhalation**
Carbon dioxide/nitrogen/helium/argon gas mixtures are 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**
Not applicable to gases.

**Skin**
Not irritating to the skin.

**Eye**
Not irritating to the eye.

4. FIRST AID MEASURES

**Inhalation**
Prompt medical attention is mandatory in all cases of overexposure to oxygen. Seek medical attention. If inhaled, remove affected person from contaminated area. Keep at rest until recovered.

**Ingestion**
Not applicable to gases.

**Skin**
Wash affected area thoroughly with soap and water. If symptoms develop seek medical attention.

**Eye**
If in eyes, hold eyelids apart and flush the eyes continuously with running water. Continue flushing for several minutes until all contaminants are washed out completely. If symptoms develop and persist seek medical attention.

**First Aid Facilities**
Eyewash and normal washroom facilities. A safety shower is strongly recommended.

**Advice to Doctor**
Treat symptomatically.

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.

**Hazardous Combustion**
Under fire conditions this product may emit toxic and/or irritating
6. ACCIDENTAL RELEASE MEASURES

Remove all sources of ignition. Increase ventilation. Evacuate all unnecessary personnel. Use self-contained breathing apparatus (S.C.B.A) and full protective clothing to minimise exposure. Allow gas to vent safely to atmosphere, preferably in well ventilated, remote location. Wear air-supplied mask. Check for leaks using pressure drop test or soapy water on joints and outlets. Shut cylinder valve to stop leak if possible and safe to do so.

7. HANDLING AND STORAGE

Handling
Use away from all sources or heat and ignition. Avoid skin and eye contact and breathing of gas. Use smallest possible amounts in designated areas with adequate ventilation. Have emergency equipment (for fires, leaks, etc.) readily available. 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.

Storage
Protect containers against physical damage. Store in a cool, dry, well-ventilated place, low fire risk area. Protect from extremes of temperature and weather. Do not allow any part of a cylinder to be exposed above 55°C. Storage areas should be kept clean and free from flammable and combustible materials. Ensure that containers are properly vented to prevent build up of pressure. Refer to commonwealth, state and territory legislation for requirements, which affect compressed gas storage and transport.

Packaging
Helium based mixtures are supplied in high pressure cylinders. CYLINDER COLOUR: AS 2700 x 54 Brown Body/with various colour body bands or shoulder quadrants. CYLINDER VALUE OUTLET:
MEDICAL: AS 2472 Fig. 8 (oxygen <20%).
AS 2472 Fig. 4 (oxygen >20%).
INDUSTRIAL: AS 2473 Type 10 (Oxygen 20% and greater).
National Exposure Standards

No exposure value assigned for this specific material by the National Occupational Health and Safety Commission (NOHSC), Australia. However, the available exposure limits for ingredients are listed below:

National Occupational Health And Safety Commission (NOHSC), Australia Exposure Standards:
Substance TWA STEL NOTICES
ppm mg/m³ ppm mg/m³
Carbon dioxide 5000 9000 30000 54000 -

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.
STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

Respiratory Protection

If engineering controls are not effective in controlling airborne exposure then self-contained breathing apparatus (S.C.B.A) should be used.

Eye Protection

Safety glasses with side shields or chemical goggles should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

Hand Protection

Wear gloves of impervious material. 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.

Footwear

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

Body Protection

Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled. Industrial clothing should conform to the specifications detailed in AS/NZS 2919: Industrial clothing.

Eng. Controls

Provide adequate local exhaust and dilution ventilation and supply sufficient replacement air to maintain oxygen concentration above 18%.

Biological Limit Values

No biological limits allocated.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Colourless, odourless, tasteless gas.

Melting Point

Not available

Boiling Point

Not available

Solubility in Water

Not applicable

Specific Gravity (H2O=1)

Not available

pH Value

Not applicable
Vapour Pressure  Not applicable

Vapour Density (Air=1)  0.14–0.56 at 15°C(Air=1)

Density  Density of Gas (101.3 kPa, 15°C): 0.17–0.68

Flash Point  Not applicable

Flammability  Non-flammable

Ignition Temperature  Not available

Flammable Limits
LEL  Not applicable

Flammable Limits
UEL  Not applicable

10. STABILITY AND REACTIVITY

Stability  Stable under normal conditions of storage and handling.

Hazardous Polymerization  Will not occur

Materials to Avoid  Combustible materials

Hazardous Decomposition Products  Thermal decomposition may result in the release of toxic and/or irritating fumes.

Conditions to Avoid  Extremes of temperature and direct sunlight.

11. TOXICOLOGICAL INFORMATION

Toxicology Information  Not available

Inhalation  Carbon dioxide/nitrogen/helium/argon gas mixtures are 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  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. Can be inhaled for several hours per day for periods of several days without observable harmful effect.
12. ECOLOGICAL INFORMATION

Environment Protection: Not applicable

Mobility: Not available

Persistence / Degradability: Not available

Ecotoxicity: Not available

13. DISPOSAL CONSIDERATIONS

Dispose of waste according to applicable local and national regulations.

14. TRANSPORT INFORMATION

This material is classified as a Class 2.2 (Non-flammable Non-toxic Gases) Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

Class 2.2 Dangerous Goods are incompatible in a placard load with any of the following:
- Class 1, Explosives
- Class 4.2, Spontaneously Combustible Substances
- Class 5.2, Organic Peroxides

U.N. Number: 1956

Proper Shipping Name: COMPRESSED GAS, N.O.S. - (CONTAINS HELIUM AND ARGON)

DG Class: 2.2

Hazchem Code: 2[T]E

Packaging Method: P200

Packing Group: EPG Number: 2C1

IERG Number: 06

15. REGULATORY INFORMATION

Not classified as Hazardous according to criteria of National Occupational Health & Safety Commission (NOHSC), Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Risk Phrase

Poisons Schedule: Not Scheduled
Helium based mixtures are supplied in high pressure cylinders.

**Cylinder Colour:** AS 2700 x 54 Brown Body/with various colour body bands or shoulder quadrants.

**Cylinder Value Outlet:**
- **Medical:** AS 2472 Fig. 8 (oxygen <20%).
- AS 2472 Fig. 4 (oxygen >20%).
- **Industrial:** AS 2473 Type 10 (Oxygen 20% and greater).

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### 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

SDS History

Date Reviewed: May 2009
Supersedes: July 2004

Poisons Schedule

Not Scheduled

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End of MSDS

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