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MATERIAL SAFETY DATA SHEET

Product Name:

**HELIUM/OXYGEN,
Compressed Gas Mixture**

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Label 2.2 - Non
flammable, non toxic
gas.

IDENTIFICATION

Chemical Name: Helium and Oxygen
Synonyms: Heliox
UN Number: 1980
Poisons Schedule Number: None allocated
G.T. EPG. (Group Text. Emergency Procedure Guide): AS 1678 2C5

Use: Medical Application, Underwater Breathing For Deep Diving.

HAZARDS IDENTIFICATION

Dangerous Goods Class and Subsidiary Risk: 2.2
HSNO Classification: Not Hazardous

Hazard Statement: Contains gas under pressure; may explode if heated.

Precautionary Statements: Read label before use.
Read Safety Data Sheet before use.
Protect from sunlight.
Store in a well-ventilated place.

COMPOSITION

Ingredients

Chemical Entity	CAS Number	Proportion
Helium	7440-59-7	50% to 98%
Oxygen	7782-44-7	2% to 50%

FIRST AID MEASURES**Health Effects****Acute**

Swallowed: Not applicable to gases
Eye: Not irritating to eye.
Skin: Not irritating to skin.
Inhaled: Helium/Oxygen gas mixture is non toxic. 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.

Chronic

Long term exposure to helium has no known health effects. Prolonged exposure to an oxygen deficient atmosphere (below 18% oxygen in air) may affect the heart and nervous system.

First AidInhalation:

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Skin Contact:

Remove contaminated clothing and shoes immediately – Clothing frozen to the skin should be thawed before being removed – In case of frostbite, thaw with lukewarm water. Obtain immediate medical assistance.

Eye Contact:

Immediately flush eyes thoroughly with water for at least 15 minutes.

Advice to Doctor

Advise doctor that victim has been exposed to an oxygen deficient atmosphere.

General:

Rescuers should not enter an oxygen deficient atmosphere without using self-contained full face positive pressure breathing equipment.

FIRE FIGHTING MEASURES**Flammability:**

Non Flammable. For mixtures greater than 21% oxygen 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.

Fire/Explosion Hazard:

Container may rupture when heated. Move cylinders from fire if safe to do so. Cool cylinders with water from a protected location. If unable to keep cylinders cool, evacuate area.

Extinguishing Media:

Water fog or fine water spray. However this may not be appropriate for all fires as oxygen vigorously supports combustion and may be supporting the combustion of a material that is not suitable with this extinguishing media.

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2 [S] E

Recommended Protective Clothing:

Breathing apparatus need only be worn if the substances are involved in a fire.

ACCIDENTAL RELEASE MEASURES**Personal Protection:**

Personnel engaged in the movement of cylinders shall be provided with safety footwear and leather or PVC gloves. Full cover overalls and safety glasses recommended. In areas where equipment failure may cause an immediate high concentration of helium, approved self-contained full face respiratory equipment should be readily available.

Spills and Disposal:

Ventilate area. Stop leak if it can be done without risk. Allow gas to dissipate to atmosphere. Evacuate Area.

Reference Guide:

Standard SNZ HB 76:2008 Dangerous Goods – Initial Emergency Response Guide.

General:

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.

HANDLING AND STORAGE**Handling****Flammability:**

Non Flammable. For mixtures greater than 21% oxygen 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.

General:

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.

Approved Handlers:

Approved handlers are not required, non hazardous gas (HSNO).

Storage**Separation:**

Storage of compressed gas cylinders shall be in compliance with New Zealand 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 50°C. Avoid any contact with oil or grease particularly to the cylinder valve. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. 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. Cylinders should be moved by hand-truck or cart designed for that purpose.

Spills and Disposal:

Ventilate area. Stop leak if it can be done without risk. Allow gas to dissipate to atmosphere. Evacuate Area.

EXPOSURE CONTROLS / PERSONAL PROTECTION**Exposure Standards:**

Simple asphyxiant.

Engineering Controls:

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

Personal Protection:

Personnel engaged in the movement of cylinders shall be provided with safety footwear and leather or PVC gloves. Full cover overalls and safety glasses recommended. In areas where equipment failure may cause an immediate high concentration of helium, approved self-contained full face respiratory equipment should be readily available.

PHYSICAL AND CHEMICAL PROPERTIES**Physical Properties**

Appearance:	Colourless, Odourless, Tasteless	Flashpoint:	Non Flammable
Boiling Point:	Not Applicable	Flammability Limits:	Non Flammable
Vapour Pressure:	Not Applicable	Solubility in Water (at 0°C):	Not Applicable

Other Properties

Relative Density (at 15°C) (Air = 1):	0.14 to 0.62	Density of Gas (101.3 kPa, 15°C):	0.17 to 0.76
Molecular Weight:	Not Applicable	Critical Temperature:	Not Applicable

STABILITY AND REACTIVITY**Flammability:**

Non Flammable. For mixtures greater than 21% oxygen 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.

Materials Compatibility:

No Information.

TOXICOLOGY INFORMATION

No known toxicological effects from this product.

ECOLOGICAL INFORMATION

No known ecological damage caused by this product.

DISPOSAL CONSIDERATIONS

Do not discharge into any place where its accumulation could be dangerous. To atmosphere in a well ventilated place.

TRANSPORT INFORMATION

UN Number:	1980
Proper Shipping Name:	RARE GASES AND OXYGEN MIXTURES, COMPRESSED (CONSISTS OF HELIUM AND OXYGEN)
Dangerous Goods Class and Subsidiary Risk:	2.2
Packing Group:	Not applicable
Hazchem Code:	2 [S] E

Other Information: Avoid transport on vehicles where the load is not separated from the driver's compartment.
Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.
Before transporting product containers:

- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure there is adequate ventilation.
- Compliance with applicable regulations.

REGULATORY INFORMATION

ERMA Register Approval No: HSR002533

HSNO Controls: Compressed Gas Mixtures (Non-hazardous) Group Standard 2006
Hazardous Substances (Compressed Gases) Regulations 2004.
Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004.

Approved Handlers:
Approved handlers are not required, non hazardous gas (HSNO).

OTHER INFORMATION

Helium/Oxygen mixture is supplied in high pressure cylinders.

Cylinder Colour: AS 2700 X 54 Brown Body/White & Brown Shoulder Quadrants

Cylinder Valve Outlet:

Medical	AS 2472 Fig 4 (Oxygen > 20%) AS 2472 Fig 8 (Oxygen < 20%)
Industrial	AS 2473 Type 10 (Oxygen > 20%)

References:

- L'Air Liquide Gas Encyclopaedia - Elsevier Scientific Publishing Co. Amsterdam
- Cheminfo Database
- New Zealand Code for the Transport of Dangerous Goods by Road and Rail
- NHMRC Threshold Limit Values - Commonwealth Dept Health
- 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
- AS 1894 Code of Practice for Safe Handling of Cryogenic fluids
- NZCIC Code of Practice - Preparation of Safety Data Sheets

END MSDS

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

This MSDS has been prepared in accordance with NZCIC Code of Practice – Preparation of Safety Data Sheets.

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