

<b>MATERIAL SAFETY DATA SHEET</b>
Title: <b>COMPRESSED LASER-GAS MATERIAL SAFETY DATA SHEET</b>
Date of Issue: 1 August 2018
Date of Next Review: 1 August 2023

## MATERIAL SAFETY DATA SHEET COMPRESSED LASER-GAS



### IDENTIFICATION:

**Chemical Name:** Helium, Nitrogen & Carbon Dioxide  
**Synonyms:** Laser Gas  
**UN Number:** 1956  
**Use:** Inert Gas used in metal processes for cutting via a laser cutter.

### 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 and heat.  
 Store in a well-ventilated place.  
 Wear protective gloves and eye protection.

### COMPOSITION / INGREDIENTS:

Chemical Entity	CAS Number	Proportion
Helium	7440-59-7	Balance Gas
Nitrogen	7727-37-9	< 60%
Carbon Dioxide	124-38-9	< 10%

Prepared By:	MAM	Document Number:	MSDS 011	Number of Copies	1
Authorised By:	WJM	Issue Date:	01/08/2018	File Location:	MASTER FILE
Reason for Amendment:	UPDATE	Revision Number:	REV 003	Page Number:	1

<b>MATERIAL SAFETY DATA SHEET</b>
Title: <b>COMPRESSED LASER-GAS MATERIAL SAFETY DATA SHEET</b>
Date of Issue: 1 August 2018
Date of Next Review: 1 August 2023

Contains no other components or impurities that will influence the classification of the product.

<b>FIRST AID MEASURES:</b>
----------------------------

**Health Effects**

**Acute**

Swallowed: Not applicable to gases.

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

Skin: Not irritating to the skin.

**Inhaled:** Laser-Gas is 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:

**16%:** breathing and pulse rate increased, impaired thinking and attention, reduced coordination;

**14%:** Abnormal fatigue upon exertion, emotional upset, faulty coordination, poor judgement;

**12.5%:** Very poor judgement and coordination, impaired respiration that can cause permanent hear damage, nausea and vomiting;

**below 10%:** Inability to perform various movements, loss of consciousness, convulsions, and death.

**Chronic**

Long term exposure to Laser-Gas has no known health effects. Prolonged exposure to an oxygen deficient atmosphere (less than 19% oxygen in air) may affect the heart and nervous system.

**First Aid**

**Inhalation:**

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Remove victim to uncontaminated area whilst wearing self-contained breathing apparatus.

Victim may not be aware of asphyxiation.

Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Prepared By:	MAM	Document Number:	MSDS 011	Number of Copies	1
Authorised By:	WJM	Issue Date:	01/08/2018	File Location:	MASTER FILE
Reason for Amendment:	UPDATE	Revision Number:	REV 003	Page Number:	2

<b>MATERIAL SAFETY DATA SHEET</b>
Title: <b>COMPRESSED LASER-GAS MATERIAL SAFETY DATA SHEET</b>
Date of Issue: 1 August 2018
Date of Next Review: 1 August 2023

**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.

<b>FIRE FIGHTING MEASURES:</b>
--------------------------------

**Flammability:**

Non Flammable.

**Fire/Explosion Hazard:**

Non-flammable, however exposure to fire may cause container to rupture/explode. Cylinders involved in a fire/explosion may rocket. Move cylinders from vicinity of fire if safe to do so.

Cool cylinders by spraying flooding quantities of water from a protected location. If unable to keep cylinders cool, evacuate area, minimum distance 200 meters.

**Extinguishing Media:**

Use appropriate media to extinguish source of surrounding fire. Cool cylinders with water if possible.

**Hazchem Code: 2 T**

<b>ACCIDENTAL RELEASE MEASURES:</b>
-------------------------------------

**Personal Protection:**

Personnel engaged in the movement of cylinders shall be provided with safety footwear, safety glasses and leather or PVC gloves. Full cover overalls are recommended

**Reference Guide:**

Standard SNZ HB 76:2008 Dangerous Goods – Initial Emergency Response Guide.  
AS/NZS 1337 – Eye Protection for Industrial Applications  
AS/NZS 2161.1 – Occupational Protective Gloves – Selection, use and maintenance  
AS/NZS 1715 – Selection, Use and Maintenance of Respiratory Protective Devices  
AS/NZS 1716 – Respiratory Protective Devices

Prepared By:	MAM	Document Number:	MSDS 011	Number of Copies	1
Authorised By:	WJM	Issue Date:	01/08/2018	File Location:	MASTER FILE
Reason for Amendment:	UPDATE	Revision Number:	REV 003	Page Number:	3

<b>MATERIAL SAFETY DATA SHEET</b>
Title: <b>COMPRESSED LASER-GAS MATERIAL SAFETY DATA SHEET</b>
Date of Issue: 1 August 2018
Date of Next Review: 1 August 2023

**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

<b>HANDLING AND STORAGE:</b>
------------------------------

**Handling**

Flammability: Non Flammable.

**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:**

Storage of compressed gas cylinders shall be in compliance with New Zealand HSNO Regulations.

Cylinders will be kept away from ignition sources (including static discharges).

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.

Cylinders shall be stored upright on a level, fireproof floor, secured 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.

**Separation:**

Avoid any contact with oil or grease particularly to the cylinder valve.

Laser-Gas can be stored with most common substances.

<b>EXPOSURE CONTROLS / PERSONAL PROTECTION:</b>
---

**Exposure Standards:**

Laser Gas is a simple asphyxiant. Ensure adequate ventilation.

**Engineering Controls:**

Do not allow back feed into the cylinder.

Prepared By:	MAM	Document Number:	MSDS 011	Number of Copies	1
Authorised By:	WJM	Issue Date:	01/08/2018	File Location:	MASTER FILE
Reason for Amendment:	UPDATE	Revision Number:	REV 003	Page Number:	4

<b>MATERIAL SAFETY DATA SHEET</b>
Title: <b>COMPRESSED LASER-GAS MATERIAL SAFETY DATA SHEET</b>
Date of Issue: 1 August 2018
Date of Next Review: 1 August 2023

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature.

Provide adequate local exhaust and dilution (general) ventilation and supply sufficient replacement air to maintain oxygen concentration above 19%.

**Personal Protection:**

Personnel engaged in the movement of cylinders shall be provided with safety footwear, safety glasses and leather or PVC gloves.

Full cover overalls are recommended. In areas where equipment failure may cause an immediate high concentration of Laser Gas, ensure adequate ventilation and have approved self-contained, full face respiratory equipment readily available for emergencies.

Equipment employed shall be designed to withstand process pressure and temperature.

**Reference Guide:**

- AS/NZS 1337 – Eye Protection for Industrial Applications
- AS/NZS 2161.1 – Occupational Protective Gloves – Selection, use and maintenance
- AS/NZS 1715 – Selection, Use and Maintenance of Respiratory Protective Devices
- AS/NZS 1716 – Respiratory Protective Devices

<b>PHYSICAL AND CHEMICAL PROPERTIES:</b>
--

**Physical Properties are based on Helium as major component.**

Appearance: Colourless, Odourless, Tasteless  
Flashpoint: Non Flammable

**Boiling Point:** -268.93 °C

**Flammability Limits:** Non Flammable

**Vapour Pressure:** Not Applicable

**Solubility in Water (at 0°C):** 0.0098 m<sup>3</sup> vol/vol

**Other Properties**

Relative Density: (Air = 1):0.136  
Density of Gas: (101.3 kPa, 15°C): 0.167 kg/m<sup>3</sup>  
Molecular Weight: 4.00026

Prepared By:	MAM	Document Number:	MSDS 011	Number of Copies	1
Authorised By:	WJM	Issue Date:	01/08/2018	File Location:	MASTER FILE
Reason for Amendment:	UPDATE	Revision Number:	REV 003	Page Number:	5

<b>MATERIAL SAFETY DATA SHEET</b>
Title: <b>COMPRESSED LASER-GAS MATERIAL SAFETY DATA SHEET</b>
Date of Issue: 1 August 2018
Date of Next Review: 1 August 2023

Critical Temperature: -267.95 °C

<b>STABILITY AND REACTIVITY:</b>
----------------------------------

**Flammability:**

Laser-Gas is non- flammable.

**Materials Compatibility:** Not applicable.

**Stability:** Stable under normal conditions

<b>TOXICOLOGY INFORMATION:</b>
--------------------------------

No known toxicological effects from this product.

<b>ECOLOGICAL INFORMATION:</b>
--------------------------------

No known ecological damage caused by Helium or Nitrogen  
When discharged in large quantities, Carbon Dioxide contributes to the greenhouse effect.  
Global Warming Factor (CO<sub>2</sub> = 1):1.

<b>DISPOSAL CONSIDERATIONS:</b>
---------------------------------

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

<b>TRANSPORT INFORMATION:</b>
-------------------------------

**UN Number:** 1956

**Proper Shipping Name:** COMPRESSED GAS, N.O.S (HELIUM, NITROGEN AND CARBON DIOXIDE)

**Dangerous Goods Class and Subsidiary Risk:** 2.2

**Packing Group:** Not applicable

**Hazchem Code:** 2 T

**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.

Prepared By:	MAM	Document Number:	MSDS 011	Number of Copies	1
Authorised By:	WJM	Issue Date:	01/08/2018	File Location:	MASTER FILE
Reason for Amendment:	UPDATE	Revision Number:	REV 003	Page Number:	6

<b>MATERIAL SAFETY DATA SHEET</b>
Title: <b>COMPRESSED LASER-GAS MATERIAL SAFETY DATA SHEET</b>
Date of Issue: 1 August 2018
Date of Next Review: 1 August 2023

**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:**

**Environmental Protection Agency Register Approval No:** HSR002533

**HSNO Controls:**

- 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:**

Compressed Laser-Gas is supplied in high pressure cylinders.

**Cylinder Colours:**

**Industrial:** AS2700 –Brown Body (X54) with Pewter (N63) and Green Grey (N32) stripes on the cylinder shoulder to indicate presence of multiple gases.

**Cylinder Valve Outlet:**

**Industrial:** AS 2473.2 Type 10

**References:**

- NZS 5433:2007 Transport of Dangerous Goods on Land
- EPA Website – Approvals Register – [www.epa.govt.nz](http://www.epa.govt.nz)
- SNZ HB76:2008 Dangerous Goods – Initial Emergency Response Guide
- AS1678 2C1 Emergency Procedure Guide – Transport – Non-Flammable, Compressed Gas
- AS 4484-2004 - Gas Cylinders for Industrial, Scientific, medical and refrigerant use - Labelling and colour coding
- AS 2473.2-2007 - Valves for compressed gas outlets - Part 2 Outlet connections (threaded) and stem (inlet) threads
- AS 2473.3-2007 - Valves for compressed gas outlets - Part 3 Outlet connections for medical gases (including pin-indexed yoke connections)
- Operators Handbook for the Transport of Dangerous Goods by Road – NZ Road Transport & Logistics Industry Training Organisation
- NZCIC Code of Practice – Preparation of Safety Data Sheets

Prepared By:	MAM	Document Number:	MSDS 011	Number of Copies	1
Authorised By:	WJM	Issue Date:	01/08/2018	File Location:	MASTER FILE
Reason for Amendment:	UPDATE	Revision Number:	REV 003	Page Number:	7

<b>MATERIAL SAFETY DATA SHEET</b>
Title: <b>COMPRESSED LASER-GAS MATERIAL SAFETY DATA SHEET</b>
Date of Issue: 1 August 2018
Date of Next Review: 1 August 2023

<b>MSDS SUMMARY:</b>
----------------------

This MSDS summarises to our best knowledge, at the date of issue, the health and safety hazard information regarding this product and general guidance on how to safely handle the product in the workplace. All due care has been taken to include accurate and up-to-date information in this MSDS.

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 Southern Gas Services Limited.

As far as lawfully possible, no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this MSDS can be accepted.

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

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

This MSDS is subject to change without notice.

Prepared By:	MAM	Document Number:	MSDS 011	Number of Copies	1
Authorised By:	WJM	Issue Date:	01/08/2018	File Location:	MASTER FILE
Reason for Amendment:	UPDATE	Revision Number:	REV 003	Page Number:	8