

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

## MATERIAL SAFETY DATA SHEET COMPRESSED OXYGEN



### IDENTIFICATION:

**Chemical Name:** Oxygen,

**Synonyms:**

**UN Number:** 1072

**Use:** Industrial, Speciality and Medical Gas Uses. (Oxygen sustains life)

### HAZARDS IDENTIFICATION:

**Dangerous Goods Class and Subsidiary Risk:** 2.2 / 5.1 subsidiary risk

**HSNO Classification:** 5.1.2A,

**Hazard Statement:** May support or intensify fire, Oxidizer.

**Precautionary Statements:**

Read label before use.

Read Safety Data Sheet before use.

Obtain special instructions before use.

Keep/Store away from all combustible materials including heat, sparks and flames.

Keep valves and all equipment in contact with oxygen free from grease and oil.

Do not handle until all safety precautions have been read and understood.

In case of fire: Stop leak if safe to do so.

Store in a well-ventilated place.

### COMPOSITION / INGREDIENTS:

**Chemical Entity**

Oxygen

**CAS Number**

7782-44-7

**Proportion**

100%

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

<b>FIRST AID MEASURES:</b>
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**Health Effects**

**Acute**

Swallowed: Not applicable to gases

Eye: Not irritating to eyes

Skin: Not irritating to skin

**Inhaled:**

Breathing high concentrations of oxygen may cause symptoms of hyperoxia including cramps, nausea, dizziness, hypothermia, ambylopia, respiratory difficulties, brachycardia, fainting spells and convulsions capable of leading to death.

**First Aid**

**Inhalation:**

Call doctor. Prompt medical attention is mandatory in all cases of overexposure to oxygen. If victim is conscious, move to uncontaminated area to breathe fresh air. Keep warm and quiet.

If victim is unconscious, move to uncontaminated area and give assisted respiration.

Continued treatment should be symptomatic and supportive.

Keep ignition sources away from patient and rescuers as oxygen will saturate their clothing.

**Advice to Doctor**

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

<b>FIRE FIGHTING MEASURES:</b>
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**Flammability:**

Oxygen is non-flammable, but vigorously supports combustion of many materials which will not normally burn in air.

Oxygen may react violently with combustible materials.

Oxygen may react violently with reducing materials.

Oxygen violently oxidises organic material.

Store away from flammable products.

Never smoke or carry out hot work in oxygen rich atmosphere.

Never wear clothing saturated with Oxygen.

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**Fire/Explosion Hazard:**

Container may rupture/explode when heated.  
 Cool vessel by spraying flooding quantities of water from a protected location. If unable to keep vessel cool.  
 Evacuate area, minimum distance 800 meters.

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.

**Extinguishing Media:**

Use extinguishing media appropriate for the substance burning. Oxygen vigorously supports combustion and may be supporting the combustion.

**Hazchem Code:**

2 S

<b>ACCIDENTAL RELEASE MEASURES:</b>
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**Personal Protection:**

Personnel handling oxygen shall be provided with safety footwear, safety glasses and leather gloves.

All personal protective equipment must be free from oil and grease.

In areas where equipment failure may cause an immediate high concentration of oxygen, ensure adequate ventilation and have approved self-contained, full face respiratory equipment readily available for emergencies.

**Spills and Disposal:**

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

**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

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<b>HANDLING AND STORAGE:</b>
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**Handling**

**Flammability:**

Oxygen is non-flammable, but vigorously supports combustion of many materials which will not normally burn in air.

Oxygen may react violently with combustible materials.

Oxygen may react violently with reducing materials.

Oxygen violently oxidises organic material.

Store away from flammable products.

Never smoke or carry out hot work in an oxygen rich atmosphere (>21 %).

Never wear clothing saturated with Oxygen.

**General:**

Only experienced and properly instructed personnel should handle compressed gases. Use no oil or grease.

Open valve slowly to avoid pressure shock. 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 required if more than 200 m<sup>3</sup> is stored on site.

**Storage:**

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

Cylinder 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.

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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.

Keep oxygen cylinders a minimum of 3 meters away from ignition sources.

Keep oxygen cylinders a minimum of 3 meters away from incompatible materials if less than 200m<sup>3</sup> of oxygen is kept on site.

Keep oxygen cylinders a minimum of 5 meters away from incompatible materials if more than 200m<sup>3</sup> of oxygen is kept on site.

**Spills and Disposal:**

Ventilate area. Stop leak if it can be done without risk. Allow gas to dissipate to atmosphere. Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous

<b>EXPOSURE CONTROLS / PERSONAL PROTECTION:</b>
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**Exposure Standards:**

Not applicable to Oxygen.

Oxygen is not listed in the Work Place Exposure Standards, Effective From 2002, Department of Labour, New Zealand.

**Engineering Controls:**

Ensure that ventilation of area where oxygen is being used is adequate to maintain the air-oxygen concentration at the normal 21%.

**Personal Protection:**

Do not smoke while handling this product. 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.

All personal protective equipment must be free from oil and grease.

In areas where equipment failure may cause an immediate high concentration of oxygen, ensure adequate ventilation. Avoid oxygen rich (>21%) atmospheres.

**Reference Guide:**

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

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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>
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**Physical Properties:**

**Appearance:** Colourless, Odourless, and Tasteless.

**Flashpoint:** Non Flammable

**Boiling Point:** -183°C

**Flammability Limits:** Non Flammable

**Vapour Pressure:** Not Applicable

**Solubility in Water (at 0°C):** 0.0489 m<sup>3</sup>/kg

**Other Properties**

Relative Density:(at 15°C) (Air = 1): 1.105

Density of Gas: (101.3 kPa, 15°C): 1.3545 km/m<sup>3</sup>

Molecular Weight: 32.00

Critical Temperature:-118.6 °C

<b>STABILITY AND REACTIVITY:</b>
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**Flammability:**

Oxygen is non-flammable, but vigorously supports combustion of many materials which will not normally burn in air.

Oxygen may react violently with combustible materials.

Oxygen may react violently with reducing materials.

Oxygen violently oxidises organic material.

Store away from flammable products.

Never smoke or carry out hot work in a oxygen rich atmosphere.

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Never wear clothing saturated with Oxygen.

**Materials Compatibility:**

Ensure equipment used to handle oxygen is of a suitable material, Copper and Stainless steel is preferred.

Ensure any grease or lubricant to be Oxygen safe as most lubricants are not.

Ensure O-Ring seals are of suitable material for oxygen. Viton is recommended.

**TOXICOLOGY INFORMATION:**

No known toxicological effects are known from this product.

**ECOLOGICAL INFORMATION:**

No ecological damage is caused by this product.

**DISPOSAL CONSIDERATIONS:**

Vent to atmosphere in a well-ventilated place.

Discharge to atmosphere in large quantities should be avoided. Do not discharge into any place where its accumulation could be dangerous

**TRANSPORT INFORMATION:**

**UN Number:** 1072

**Proper Shipping Name:** COMPRESSED OXYGEN

**Dangerous Goods Class and Subsidiary Risk:** 2.2 / 5.1

**Packing Group:** Not applicable

**Hazchem Code:** 2 S

**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.

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Ensure there is adequate ventilation.  
Compliance with applicable regulations.

<b>REGULATORY INFORMATION:</b>
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**ERMA Register Approval No:** HSR001029

HSNO Controls: Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.  
Hazardous Substances (Disposal) Regulations 2001.  
Hazardous Substances (Personnel Qualifications) Regulations 2001.  
Hazardous Substances (Emergency Management) Regulations 2001.  
Hazardous Substances (Identification) Regulations 2001.  
Hazardous Substances (Compressed Gases) Regulations 2004.  
Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004.  
Schedule 12 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004.

**Approved Handlers:** Approved handlers are required if more than 200 m<sup>3</sup> is stored on site.

<b>OTHER INFORMATION:</b>
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Oxygen is supplied in high pressure cylinders.

**Cylinder Colour:**

**Industrial:** AS2700 – Black body and Shoulders (N61)

**Medical:** AS2700 – White Body and Shoulders (N14)

**Cylinder Valve Outlet:**

**Industrial:** AS 2473.2 Type 10

**Medical:** AS 2473.3 2007 2.5 pin Index (Figure 9)

**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

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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

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<b>MSDS SUMMARY:</b>
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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.

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