MATERIAL SAFETY DATA SHEET (MSDS)
OXYGEN
Please ensure that this MSDS is received by an appropriate person

DATE: March 2023 Version: 5
Ref. No.: MS027

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name	OXYGEN
Chemical Formula	O_2
Trade Names	Oxygen, Compressed Oxygen, Instrument Grade (N2.5) Oxygen, EP Grade (N2.7) Oxygen, IG Zero (N4.5) Oxygen, UHP (N4.5) Medical Oxygen Oxygen Portapak
Colour coding	Compressed, IG, EP, IG Zero & UHP cylinders all have black bodies. Medical Oxygen- Black Body with a white shoulder
Valve	5/8 inch BSP right hand female valves. Medical oxygen cylinders could also have the revenant Pin Index valves fitted.
Company Identification	Les Gaz Industriels Ltd Pailles Road G.R.N.W Republic of Mauritius Tel No: (+230) 212-8306 Fax No: (+230) 212-0235
EMERGENCY NUMBER	(+230) 800 1133

2 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Oxygen
Chemical Family	Oxidant
CAS No	7782-44-7
UN No	1072
ERG No	122
Hazchem Warning	5 A Non-flammable Gas

3 HAZARDS IDENTIFICATION

Main Hazards
All cylinders are transportable gas containers. Oxygen is non-flammable, but readily supports combustion. Never permit oil, grease or other readily combustible substance to come into contact with high concentrations of Oxygen.

Adverse Health Effects
Central nervous system toxicity including dizziness, convulsions and loss of consciousness can occur after only 2-3 hours of exposure to pure oxygen at 2 or more atmospheres. Retrosternal soreness, associated with coughing and breathing difficulties, made worse by smoking and exposure to cold air can occur after breathing pure oxygen at atmospheric pressure for several hours.

Chemical Hazards
Oxygen is non-flammable, but strongly supports combustion (including some materials which do not normally burn in air). Since dry Oxygen is non-corrosive, most materials of construction are suitable. Avoid all flammable materials.

Biological Hazards
No known effect.

Vapour Inhalation
Pure oxygen is a local irritant to mucous membranes and, with extended continued exposure, can be destructive to lung tissue.

Label Elements

Hazard Pictograms

Precautionary statements:

P220:	Keep/store away from clothing/ combustible materials
P244:	Keep reduction valves free from grease and oil
P370+P376:	In case of fire, stop leak if safe to do so
P403:	Store in well ventilated space

4 FIRST AID MEASURES

Eye/Skin Contact	No known effect.
Ingestion	(See Section 3 above)

Inhalation
Prompt medical attention is mandatory in all cases of overexposure to Oxygen. Rescue personnel should be cognisant of extreme fire hazard associated with oxygen-rich atmospheres. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. They should be kept warm and quiet. Quick removal from the contaminated area is most important. The physician should be informed that the patient has experienced hyperoxia.

5 FIRE FIGHTING MEASURES

Extinguishing Media
As Oxygen is non-flammable, but strongly supports combustion; the correct type of extinguishing should be used depending on the combustible material involved.

Specific Hazards
Oxygen vigorously accelerates combustion. Materials that would not normally burn in air could combust vigorously in atmospheres having high concentrations of Oxygen.

Emergency Actions
If possible, shut off the source of escaping Oxygen. Evacuate area. All cylinders should be removed from the vicinity of the fire. Cylinders that cannot be removed should be cooled with water from a safe distance. Cylinders which have been exposed to excessive heat should be clearly identified and returned to supplier. CONTACT LGI.

Protective Clothing
Safety goggles, gloves and safety shoes should be worn when handling cylinders.

Environmental Precautions
As the gas is heavier than air, pockets of Oxygen-enriched air could occur. These could lead to the fire spreading rapidly. If possible, ventilate the affected area.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions
Although Oxygen is not itself combustible, it supports and accelerates combustion. Clothes and other materials, not normally considered flammable, will burn fiercely in the presence of Oxygen, and can be set alight by a single spark, or even hot cigarette ash.

Environmental Precautions
Oxygen does not pose a hazard to the environment. Beware of Oxygen-enriched atmospheres coming into contact with readily combustible materials. If possible, ventilate the affected area.

Small Spills
Shut off the source of excess Oxygen. Ventilate the area.

Large Spills
Evacuate the area. Shut off the source of the spill if this can be done without risk. Ventilate the area using forced draught if necessary.

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7 HANDLING AND STORAGE

Do not allow cylinders to slide or come into contact with sharp edges. Cylinders of Oxygen should not be stored near cylinders of acetylene or other combustible gases. Oxygen cylinders may be stacked horizontally provided that they are firmly secured at each end to prevent rolling. Prevent dirt, grit of any sort, oil or any other lubricant from entering the cylinder valves, and store cylinders well clear of any corrosive influence, e.g. battery acid. Compliance with all relevant legislation is essential. Use a "first in – first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Keep out of reach of children.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Hazards
Avoid exposure to oxygen-enriched atmospheres, as this could result in clothing becoming saturated by oxygen. On ignition the clothing could burn fiercely resulting in serious burns.
Engineering Control Measures
Engineering control measures are preferred to reduce exposure to Oxygen-enriched atmospheres. General methods include forced-draught ventilation, separate from other exhaust ventilation systems. Ensure that sufficient fresh air enters at, or near, floor level.
Personal Protection
Safety goggles, gloves and shoes should be worn when handling cylinders.
Skin
No known effect.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Chemical Symbol	O_2
Molecular Weight	32,00
Specific Volume @ 20°C & 101,325 kPa	755 ml/g
Boiling Point 101,325 kPa	90.18 °K; -183 °C; 181.4 °F
Density, gas @ 101,325 kPa and 20°C	1,33 kg/m^3
Relative density (Air = 1) @ 101,325 kPa	1,053
Solubility in Water @ 101.325 kPa @ 25 °C	
(Partial Pressure of O_2) @ O °C	4.889 cm^3 O_2/100 cm^3 water
Colour	None
Taste	None
Odour	None

10 STABILITY AND REACTIVITY

Conditions to avoid
The build-up of Oxygen-enriched atmospheres as, depending on temperature, oxygen reacts with all of the elements, excepting the inert gases, to form oxides. These reactions can sometimes be violent, as with highly combustible materials such as oil and grease. Never use cylinders as rollers or supports, or for any other purpose than the storage of Oxygen. Never expose cylinders to excessive heat, as this may cause sufficient build-up of pressure to rupture the cylinders.
Incompatible Materials
Since dry Oxygen is non-corrosive, most materials of construction are suitable. Avoid all flammable materials. (For further information see Section 3, Chemical Hazards).
Hazardous Decomposition Products
None

11 TOXICOLOGICAL INFORMATION

Acute Toxicity	No known effect
Skin & eye contact	No known effect
Chronic Toxicity	No known effect
Carcinogenicity	No known effect
Mutagenicity	No known effect
Reproductive Hazards	No known effect

(For further information see Section 3. Adverse Health effects)

12 ECOLOGICAL INFORMATION

Oxygen is heavier than air and care should be taken to avoid the formation of Oxygen-enriched pockets. It does not pose a hazard to the ecology.

13 DISPOSAL CONSIDERATIONS

Disposal Methods
Small amounts may be blown to atmosphere under controlled conditions. Large amounts should only be handled by gas supplier.
Disposal of Packaging
The disposal of containers must only be handled by the gas supplier.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

UN No	1072
ERG No	122
Hazchem warning	5A Non-flammable Gas

SEA TRANSPORTATION

IMDG	1072
Class	
Packaging group	
Label	Non-flammable Gas

AIR TRANSPORTATION

ICAO/IATA Code	1072
Class	Non-flammable
Packaging group	2.2
Packaging instructions	
- Cargo	200
- Passenger	200
Maximum quantity allowed	
- Cargo	100kg
- Passenger	75kg

15 REGULATORY INFORMATION

EEC Hazard class Non-flammable

Hazard Statement code	Description
H270	May cause or intensify fire, oxidiser

Refer to SANS 10234 Globally Harmonized System of Classification and labelling of chemical substances (GHS) for explanation of the above.
National legislation: OHSAct & Regulations 85 of 1993

16 OTHER INFORMATION

Bibliography
Compressed Gas Association, Arlington, Virginia
Handbook of Compressed Gases – 3rd Edition
Matheson. Matheson Gas Data Book – 6th Edition
SABS 0265 - Labelling of Dangerous Substances

17 EXCLUSION OF LIABILITY

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