

# Liquid Oxygen

PRODUCT : LIQUID OXYGEN MSDS NR : 301-00-0004 BOC VERSION : 1 DATE : 17/05/1994 PAGE : 1/1

## 1 IDENTIFICATION OF THE SUBSTANCE/ PREPARATION AND OF THE COMPANY

<b>Product name</b>	Liquid Oxygen
<b>Chemical formula</b>	O <sub>2</sub>
<b>Company identification</b>	see heading and/or footer
<b>Emergency phone Nos</b>	see heading and/or footer

## 2 COMPOSITION/INFORMATION ON INGREDIENTS

<b>Substance/Preparation</b>	Substance
<b>Components/Impurities</b>	Contains no other components or impurities which will influence the classification of the product.
<b>CAS Nr</b>	07782-44-7
<b>EEC Nr (from EINECS)</b>	2319569
<b>E Nr</b>	948

## 3 HAZARDS IDENTIFICATION

<b>Hazards identification</b>	Refrigerated liquefied gas. Contact with product may cause cold burns or frostbite. Oxidant. Strongly supports combustion. May react violently with combustible materials.
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## 4 FIRST AID MEASURES

<b>Inhalation</b>	Continuous inhalation of concentrations higher than 75% may cause nausea, dizziness, respiratory difficulty and convulsion.
<b>Skin/eye contact</b>	Immediately flush eyes thoroughly with water for at least 15 minutes. In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
<b>Ingestion</b>	Ingestion is not considered a potential route of exposure.

## 5 FIRE FIGHTING MEASURES

<b>Specific hazards</b>	Supports combustion Exposure to fire may cause containers to rupture/explode. Non flammable
<b>Hazardous combustion products</b>	None
<b>Suitable extinguishing media</b>	All known extinguishants can be used.
<b>Specific methods</b>	If possible, stop flow of product. Move container away or cool with water from a protected position.
<b>Special protective equipment for fire fighters</b>	None

## 6 ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Evacuate area. Ensure adequate air ventilation. Eliminate ignition sources. Use protective clothing.
<b>Environmental precautions</b>	Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
<b>Clean up methods</b>	Ventilate area. Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).

## 7 HANDLING AND STORAGE

<b>Handling and storage</b>	Use no oil or grease. Segregate from flammable gases and other flammable materials in store. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Keep away from ignition sources (including static discharges). Refer to supplier's container handling instructions. Keep container below 50°C in a well ventilated place. Open valve slowly to avoid pressure shock.
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## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Personal protection</b>	Do not smoke while handling product. Ensure adequate ventilation. Protect eyes, face and skin from liquid splashes. Avoid oxygen rich (>21%) atmospheres.
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## 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Molecular weight</b>	32
<b>Melting point</b>	-219°C
<b>Boiling point</b>	-183°C
<b>Critical temperature</b>	-118°C
<b>Relative density, gas</b>	1.1 (air=1)
<b>Relative density, liquid</b>	1.1 (water=1)
<b>Vapour Pressure 20°C</b>	Not applicable
<b>Solubility mg/l water</b>	39 mg/l
<b>Appearance/Colour</b>	Bluish liquid
<b>Odour</b>	No odour warning properties
<b>Autoignition temperature</b>	Not applicable
<b>Flammability range</b>	Oxidiser
<b>Other data</b>	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

**10 STABILITY AND REACTIVITY**

**Stability and reactivity** May react violently with combustible materials.  
May react violently with reducing agents.  
Violently oxidises organic material.  
Liquid spillages can cause embrittlement of structural materials.  
Risk of explosion if spilt on organic structural materials (eg wood or asphalt).

**11 TOXICOLOGICAL INFORMATION**

**General** No toxicological effects from this product.

**12 ECOLOGICAL INFORMATION**

**General** Can cause frost damage to vegetation.

**13 DISPOSAL CONSIDERATIONS**

**General** To atmosphere in a well ventilated place.  
Do not discharge into any place where its accumulation could be dangerous.  
Contact supplier if guidance is required.

**14 TRANSPORT INFORMATION**

**UN Nr** 1073  
**Class/Div** 2.2  
**Subsidiary risk** 5.1  
**ADR/RID Item Nr** 2.7a  
**ADR/RID Hazard Nr** 225  
**Tremcard Nr** 119  
**Labelling ADR** Label 2: non flammable non toxic gas  
Label 05: fire intensifying risk  
**Other transport information** Avoid transport on vehicles where the load space 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 they are firmly secured and:  
- adequate ventilation.  
- compliance with applicable regulations.

**15 REGULATORY INFORMATION**

**Number in Annex I of Dir 67/548** 008-001-00-8  
**EC Classification** O;R8|C;R34  
**- Symbols** O: Oxidising  
**- R Phrases** 8-34  
**- S Phrases** 21  
**Labelling of cylinders**  
**- Symbols** Road transport symbols are used and selected according to the most stringent product classification - EC or ADR .  
Label 2: non flammable non toxic gas  
Label 05: fire intensifying risk.  
**- Risk phrases** R8A Strongly supports combustion.  
RFb May cause frostbite.  
**- Safety phrases** S17A Keep away from combustible material, use no oil or grease.  
S9 Keep container in well ventilated place.  
S36A Use suitable protective equipment.

**16 OTHER INFORMATION**

Ensure all national/local regulations are observed.  
Ensure operators understand the hazard of oxygen enrichment.  
Permitted as a packaging or propellant gas in all foodstuffs when used in accordance with good manufacturing practice.  
Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.  
Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

**17 PRODUCT SPECIFICATION**

	Specification	Typical Analysis
<b>Oxygen</b>	99.5%	99.7%
<b>Moisture</b>	<2 vpm	<1 vpm
<b>Carbon Dioxide</b>		<2 vpm
<b>Hydrocarbons</b>		80 to 40 vpm
<b>Carbon Monoxide</b>		<1 vpm
<b>Nitrous Oxide</b>		<0.1 vpm
<b>Acetylene</b>		<0.05 vpm
<b>Nitrogen</b>		50 vpm

The remainder consists of Argon



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**For product and safety enquiries please phone**

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