

Oxygen (refrigerated)**AL097B**

Label 2.2 : Non flammable, non toxic gas.



Label 5.1 : Oxidizing substances.



O : Oxidizing

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

Trade name : Oxygen (refrigerated)
MSDS No : AL097B
Chemical formula : O₂
Company identification : AIR LIQUIDE SA
France
See paragraph 16 "OTHER INFORMATION"
Emergency phone nr : See paragraph 16 "OTHER INFORMATION"

2 COMPOSITION / INFORMATION ON INGREDIENTS

Substance / Preparation : Substance.

Substance name	Contents	CAS No	EC No	Index No	Classification
Oxygen (refrigerated)	100 %	7782-44-7	231-956-9	008-001-00-8	O; R8

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

3 HAZARDS IDENTIFICATION

Hazards identification : Refrigerated liquefied gas. Contact with product may cause cold burns or frostbite. Oxidant. Strongly supports combustion. May react violently with combustible materials.

4 FIRST AID MEASURES**First aid measures**

- **Inhalation** : Continuous inhalation of concentrations higher than 75% may cause nausea, dizziness, respiratory difficulty and convulsion.
Remove victim to uncontaminated area.
- **Skin/eye contact** : 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.
- **Ingestion** : Ingestion is not considered a potential route of exposure.

5 FIRE-FIGHTING MEASURES

- Flammable class** : Non flammable.
- Specific hazards** : Exposure to fire may cause containers to rupture/explode.
Supports combustion.
- Hazardous combustion products** : None.
- Extinguishing media**
 - **Suitable extinguishing media** : All known extinguishants can be used.
 - Specific methods** : If possible, stop flow of product.
Move away from the container and cool with water from a protected position.
If leaking do not spray water onto container. Water surrounding area (from



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5 FIRE-FIGHTING MEASURES (continued)

protected position) to contain fire.

Special protective equipment for fire fighters : None.

6 ACCIDENTAL RELEASE MEASURES

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

7 HANDLING AND STORAGE

- Storage** : Segregate from flammable gases and other flammable materials in store.
Keep container below 50°C in a well ventilated place.
- Handling** : Use no oil or grease.
Open valve slowly to avoid pressure shock.
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.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

- Personal protection** : Do not smoke while handling product.
Ensure adequate ventilation.
Protect eyes, face and skin from liquid splashes.
Avoid oxygen rich (>21%) atmospheres.

9 PHYSICAL AND CHEMICAL PROPERTIES

- Physical state at 20 °C** : Refrigerated liquefied gas.
- Colour** : Bluish liquid.
- Odo(u)r** : No odour warning properties.
- Molecular weight** : 32
- Melting point [°C]** : -219
- Boiling point [°C]** : -183
- Critical temperature [°C]** : -118
- Vapour pressure, 20°C** : Not applicable.
- Relative density, gas (air=1)** : 1.1
- Relative density, liquid (water=1)** : 1.1
- Solubility in water [mg/l]** : 39
- Flammability range [vol% in air]** : Oxidiser.



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9 PHYSICAL AND CHEMICAL PROPERTIES (continued)

Auto-ignition temperature [°C] : Not applicable.
Other data : 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

Toxicity information : No toxicological effects from this product.

12 ECOLOGICAL INFORMATION

Ecological effects information : 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 No. : 1073
H.I. nr : 225
ADR/RID
- **Proper shipping name** : OXYGEN, REFRIGERATED LIQUID
- **ADR Class** : 2
- **ADR/RID Classification code** : 3 O
- **Labelling ADR** : Label 2.2 : Non flammable, non toxic gas.
Label 5.1 : Oxidizing substances.
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 containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.
- Ensure there is adequate ventilation.
- Compliance with applicable regulations.

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15 REGULATORY INFORMATION

EC Classification	: Index No : 008-001-00-8 O; R8
EC Labelling	
- Symbol(s)	: O : Oxidizing
- R Phrase(s)	: R8 : Contact with combustible material may cause fire.
- S Phrase(s)	: S17 : Keep away from combustible material.

16 OTHER INFORMATION

May cause frostbite.

Ensure all national/local regulations are observed.

Ensure operators understand the hazard of oxygen enrichment.

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

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.

Recommended uses and restrictions : This SDS is for information purposes only and is subject to change without notice. [Prior to purchase of products, please contact your local AIR LIQUIDE office for a complete SDS (with Manufacturer's name and emergency phone number).]

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