

Oxygen

SAFETY DATA SHEET



Revision date: 01/07/25

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Name : Oxygen
Chemical Formula : O₂
REACH Registration No. : Listed in Annex IV / V REACH, exempted from registration.
EC No. : 231-956-9
CAS No. : 7782-44-7

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses

Industrial and professional. Perform risk assessment prior to use.

1.3. Details of the supplier of the SDS

Company Identification : Irish Oxygen Co Ltd,
Waterfall Road, Cork
Email : sds@irishoxygen.com

1.4. Emergency telephone number

Emergency Telephone : 021-4541821
(Mon-Fri 08:30-17:30)

2. HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

(a) Classification according to Regulation (EC) No 1272/2008/EC [CLP/GHS]

Press. Gas (Compressed gas)
H280: Contains gas under pressure; may explode if heated

Ox. Gas 1
H270: May cause or intensify fire; oxidiser

(b) Classification according to Directive 67/548/EEC & 1999/45/EC

O Oxidising
R8 Contact with combustible material may cause fire

2.2. Label Elements

Hazard pictograms



Signal word

DANGER

Hazard statements

H270: May cause or intensify fire; oxidiser
H280: Contains gas under pressure; may explode if heated

Precautionary statements

Prevention

P220: Keep away from clothing and other combustible materials
P244: Keep valves and fittings free from grease and oil

Response

P370+P376: In case of fire: Stop leak if safe to do so

Storage

P403: Store in a well-ventilated place.

Disposal

None

2.3. Other Hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Substance

3.1. Substances

Substance Name : Oxygen
CAS No. : 7782-44-7
EC No. : 231-956-9
Index No. : 008-001-00-8
REACH Registration No. : Listed in Annex IV / V REACH, exempted from registration.

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

3.2. Mixtures

Not applicable.

4. FIRST AID MEASURES

4.1. Description of first aid measures

Following inhalation

Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Following skin contact

Adverse effects not expected from this product.

Following eye contact

Adverse effects not expected from this product.

Following Ingestion

Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

Continuous inhalation of concentrations higher than 75% may cause nausea, dizziness, respiratory difficulty and convulsion.

4.3. Indication of any immediate medical attention and special treatment needed

None.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media

All known extinguishants can be used.

5.2. Special hazards arising from the substance or mixture

Specific hazards

Exposure to fire may cause containers to rupture/explode.

Supports combustion.

Hazardous combustion products

None.

5.3. Advice for fire-fighters

Specific methods

If possible, stop flow of product.

Coordinate fire measure to the surrounding fire. Cool endangered containers with water spray jet from a protected position. Do not empty contaminated fire water into drains.

Special protective equipment for fire-fighters

None.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Ensure adequate air ventilation.

Eliminate ignition sources.

Evacuate area.

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Try to stop release.

Monitor concentration of released product.

6.2. Environmental precautions

None.

6.3. Methods and material for containment and cleaning up

Ventilate area.

6.4. Reference to other sections

See also sections 8 and 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe use of the product

Use no oil or grease.

Keep away from ignition sources (including static discharges).

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.

Do not allow backfeed into the container.

Do not smoke while handling product.

Keep equipment free from oil and grease.

Use only oxygen approved lubricants and oxygen approved sealings.

Only experienced and properly instructed persons should handle gases under pressure.

Ensure the complete gas system has been (or is regularly) checked for leaks before use.

Use only with equipment cleaned for oxygen service and rated for cylinder pressure.

The substance must be handled in accordance with good industrial hygiene and safety procedures.

Safe handling of the gas receptacle

Suck back of water into the container must be prevented.

Open valve slowly to avoid pressure shock.

Refer to supplier's container handling instructions.

Protect cylinders from physical damage; do not drag, roll, slide or drop.

Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.

If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.

Close container valve after each use and when empty, even if still connected to equipment.

Never attempt to repair or modify container valves or safety relief devices.

Damaged valves should be reported immediately to the supplier.

Keep container valve outlets clean and free from contaminants particularly oil and water.

Never attempt to transfer gases from one cylinder/container to another.

Never use direct flame or electrical heating devices to raise the pressure of a container.

Do not remove valve guard from cylinder.

7.2. Conditions for safe storage, including any incompatibilities

Keep container below 50°C in a well ventilated place.

Segregate from flammable gases and other flammable materials in store.

Stored containers should be periodically checked for general condition and leakage.

Observe all regulations and local requirements regarding storage of containers.

Containers should not be stored in conditions likely to encourage corrosion.

Containers should be stored in the vertical position and properly secured to prevent toppling.

Container valve guards or caps should be in place.

Store containers in location free from fire risk and away from sources of heat and ignition.

Keep away from combustible materials.

7.3. Specific end use(s)

None.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure controls

Appropriate engineering controls

Avoid oxygen rich (>23.5%) atmospheres.

Provide adequate general and local ventilation.

Systems under pressure should be regularly checked for leakages.

Consider the use of a work permit system, e.g. for maintenance activities.

Gas detectors should be used when oxidising gases may be released.

Personal protective equipment

A risk assessment should be conducted and documented in each work area to assess the risks

related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered:

Wear safety gloves and safety shoes when handling cylinders.

Wear safety glasses with side shields.

Wear suitable hand, body and head protection. Wear goggles with suitable filter lenses when use is cutting/welding.

Environmental exposure controls

None necessary.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance

• **Physical state at 20°C / 101.3kPa** : Gas

• **Colour:** : Colourless

Odour : No odour warning properties.

Molar mass : 32 g/mol

Melting point / freezing point : -219°C

Boiling point : -183°C

Flash point : Not applicable for gases and gas mixtures.

Evaporation rate : Not applicable for gases and gas mixtures.

Upper/lower flammability or explosive limits : Non flammable.

Vapour pressure : Not applicable.

Relative density, gas (air=1) : 1.1

Solubility in water : 39 mg/l

Auto-ignition temperature : Not applicable.

Oxidising properties : Oxidiser.

9.2. Other information

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10. STABILITY AND REACTIVITY

10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Violently oxidises organic material.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Keep equipment free from oil and grease.

May react violently with combustible materials.

May react violently with reducing agents.

Consider the potential toxicity hazard due to the presence of chlorinated or fluorinated polymers in high pressure (> 30 bars) oxygen lines in case of combustion.

For additional information on compatibility refer to ISO 11114.

10.6. Hazardous decomposition products

None.

11. TOXICOLOGICAL INFORMATION

No known toxicological effects from this product.

12. ECOLOGICAL INFORMATION

No known ecological damage caused by this product.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

May be vented 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.

13.2. Additional information

None.

14. TRANSPORT INFORMATION

UN Number : 1072
Proper shipping name : OXYGEN, COMPRESSED
Class : 2
Classification code : 1 O
Hazard labels : 2.2 (Non flammable, non-toxic gases)
5.1 (Oxidising substances)
Packing instructions : P200
Hazard identification number : 25

Tunnel restriction code : E
IMDG Emergency schedule-fire : F-C
IMDG Emergency schedule-spillage : S-W
Environmental hazards : None
Special provisions : None

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.
- Ensure compliance with applicable regulations.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso Directive 96/82/EC : Listed

National legislation : Ensure all national/local regulations are observed.

16. OTHER INFORMATION

16.1. Training advices

Ensure operators understand the hazard of oxygen enrichment.

16.2. Disclaimer

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.