



## SAFETY DATA SHEET FOR OXYGEN, (COMPRESSED)

Rev 7 (09/2010)

### 1. Identification of the Substance/ Preparation and of the Company

1.1 Product Name: **Oxygen, (Compressed)**

Chemical Formula: O<sub>2</sub>

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

Use of the substance/mixture: General Industrial.  
Restrictions on use: no data available

1.3 Details of the supplier of the safety data sheet:  
Energas Limited  
Westmorland Street  
Hull, HU2 0HX.

1.4 Emergency Telephone No (24hr): 01482 329333

Email: [paul.rennison@energass.co.uk](mailto:paul.rennison@energass.co.uk)

### 2. Hazards Identification:

Classification according to regulation 1272/2008 (CPL)  
Oxidizing gases – Category 1 H270: May cause or intensify fire; oxidizer.

Gases under pressure: Refrigerated liquefied gas  
H280: Contains gas under pressure; may explode if heated.

Label elements according to regulation 1272/2008 (CLP)

Hazard pictograms/symbols



Signal Word: Danger

Hazard Statements:

H270: may cause or intensify fire; oxidizer.

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

### Classification (Directive)

O: Oxidizing

R 8: Contact with combustible material may cause fire.

### Other hazards.

High pressure, oxidizing gas.

Vigorously accelerates combustion.

May react violently with combustible materials.

Keep oil, grease and combustibles away.

### 3. Composition/ Information on Ingredients

Substance/ Preparation: Substance

Components	Einecs/Elincs Number	CAS Number	Concentration (Volume)
Oxygen	231-956-9	7782-44-7	100%
Components	Classification (Directive)	Classification (CLP)	REACH Reg #
Oxygen	O R8	Ox. Gas 1 Press. Gas	

If REACH registration numbers do not appear the substance is either exempt from registration, does not meet the minimum volume threshold for registration or the registration date has not yet come due.

Refer to section 16 for full text of each relevant R-phrase and H-phrase.

### 4. First Aid Measures

Description of first aid measures:

General Advice: remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

**Eye Contact:** Seek medical advice

**Skin Contact:** Seek medical advice

**Ingestion:** Ingestion is not considered a potential route of exposure.

**Inhalation:**

Consult a physician after significant exposure. Move to fresh air. If breathing has stopped or is laboured, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately

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

Symptoms; No data available.

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

No data available.



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### 5. Fire Fighting Measures

#### Suitable Extinguishing Media:

All known extinguishants can be used.

**Special Hazards arising from the substance or mixture:** upon exposure to intense heat or flame cylinder will vent rapidly and/or rupture violently. Oxidant.

Strongly supports combustion.

Some materials, which are non-combustible in air, may burn in the presence of an oxidizer. Contact with organic and most inorganic materials may cause fire. Move away from cylinder and cool with water from a protected position. Keep adjacent cylinders cool by spraying with large amounts of water until the fire burns itself out. If possible stop flow of product.

#### Special Protective Equipment for Fire Fighters:

Wear self-contained breathing apparatus for fire fighting if necessary. Fire resistant clothing may burn and offer no protection in oxygen rich atmospheres.

**Further information:** Some materials that are non-combustible in air will burn in the presence of an oxygen-enriched atmosphere (greater than 23.5%). Fire resistant clothing may burn and offer no protection in oxygen rich atmospheres.

### 6. Accidental Release Measures

**Personal Precautions.** Clothing exposed to high concentrations may retain oxygen for 30 minutes or longer and become a potential fire hazard. Stay away from ignition sources. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Evacuate personnel to safe area. Ventilate the area. Monitor oxygen levels. Ventilate the area.

#### Environmental Precautions

Do not discharge into any place where its accumulation could be dangerous. Prevent further leakage or spillage is safe to do so.

#### Clean Up Methods

Ventilate the area.

**Additional advice:** If possible stop flow of product Increase ventilation to the release area and monitor oxygen levels. If the leak is from a cylinder or valve, call the Energas emergency number. If the leak is in the user's system, close the cylinder valve ,safely vent the pressure, and purge with an inert gas before attempting repairs.

### 7. Handling and Storage

All gauges, valves, regulators, piping and equipment to be used in oxygen service must be cleaned for oxygen service. Oxygen is not to be used as a substitute for compressed air. Never use an oxygen jet for cleaning

purposes of any sort, especially clothing, as it increases the likelihood of an engulfing fire. Know and understand the properties and hazards of the product before use

Only experienced and properly trained persons should handle compressed gases/cryogenic liquids. Before using the product determine its identity by reading the label. When in doubt as to the correct handling procedure for a particular gas, contact the supplier.

Do not remove or deface content identifying labels. Leave valve protection guards in place. Secure cylinders against either a wall or bench or place in a cylinders stand. Before connecting cylinder, check the complete gas system for suitability, in particular check pressure rating and material compatibility. Open valve slowly. 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. Do not subject containers to abnormal mechanical shocks, which may cause damage to their valve or safety devices. Prevent entrapment of cryogenic liquids in closed systems not protected with relief device. A small quantity of liquid produces large quantities of vaporised gas at atmospheric pressure. Employ suitable pressure regulating devices on all containers when the gas is being emitted to systems with lower pressure rating than that of the container. Use only with equipment cleaned for oxygen service and rated for cylinder pressure. Never permit oil, grease or other readily combustible substances to come into contact with valves or containers containing oxygen or other oxidants. Never attempt to lift a cylinder by its valve protection cap or guard. Do not use cylinders as rollers or supports or for any purpose other than to contain the gas as supplied. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electrical circuit. Do not smoke while handling product or cylinders. When moving cylinders, even for short distances, use cylinder trolley or hand truck designed to transport cylinders. Purge air from system before introducing gas. Do not allow backfeed into the container. Use only properly specified equipment, which is suitable for this product, its supply pressure and temperature. Contact Energas Limited if in doubt. Refer to supplier's container handling instructions.

#### Conditions for safe storage, including any incompatibilities.

Do not allow storage area temperature to exceed 50°C (12°F). Do not store in a confined space. Full containers should be stored so that oldest stock is used first. Cylinders should be stored in a purpose built compound, which should be well ventilated, preferably in the open air. Observe all regulations and local requirements regarding storage of cylinders. Stored cylinders should be periodically checked for general condition and leakage. Protect cylinders stored in the open against rusting and extremes of weather. Cylinders should



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not be stored in conditions likely to encourage corrosion. Full and empty cylinders should be segregated. Display "No Smoking or open flames" signs in the workplace. Where necessary cylinders containing oxygen and oxidants should be separated from flammable gases by a fire resistant partition. Return empty containers in a timely manner.

Specific end use(s)  
Refer to section 1.

### 8. Exposure Controls/ Personal Protection

Exposure Controls

Engineering measures:

Provide natural or mechanical ventilation to prevent oxygen-enriched atmospheres above 23.5% oxygen. Keep Self contained breathing apparatus (SCBA) readily available for emergency use.

Personal protective equipment.

Respiratory protection:

Users of breathing apparatus must be trained.

Hand protection:

Sturdy work gloves are recommended for handling cylinders. The breakthrough time of the selected gloves must be greater than the intended use period.

Eye protection:

Safety glasses recommended when handling cylinders.

Skin and body protection:

Safety footwear is recommended when handling cylinders.

Special instructions for protection and hygiene:

Ensure adequate ventilation, especially in confined areas.

### 9. Physical and Chemical Properties

Appearance/ Colour: Compressed gas, Colourless Gas  
 Odour: No odour warning properties  
 Odour threshold; No data available  
 pH: Not applicable  
 Melting Point/range -219 °C  
 Boiling Point/range -183 °C  
 Evaporation rate: Not applicable  
 Flammability (solid, gas) No data available  
 Upper /lower explosion/ flammability limit: No data available  
 Vapour pressure: Not applicable  
 Solubility (mg/l Water): 0.039g/l  
 Relative vapour density: 1.1 (air=1)  
 Relative density: 1.1 |(water=1)  
 Partial coefficient (n-octanol/water) Not applicable  
 Auto ignition temperature No data available  
 Decomposition temperature: No data available

Viscosity: Not applicable  
 Explosive properties No data available  
 Oxidizing properties: Ci = 1  
 Molecular Weight: 32 g/mol  
 Density 0.0013g/cm<sup>3</sup> at 21°C  
 Note: (as vapour).  
 Specific volume 0.7540m<sup>3</sup>/kg at 21°C

### 10. Stability and Reactivity

Reactivity: refer to possibility of hazardous reactions and/or incompatible materials sections.

Chemical Stability: Stable under normal conditions.

Possibility of hazardous reactions: No data available.

Conditions to avoid: No data available.

Incompatible materials:

Avoid oil, grease and all other combustible materials. Flammable materials. Organic materials.

Hazardous decomposition products: No data available.

### 11. Toxicological Information

Information on toxicological effects.

Likely routes of exposure.

Effects on eyes: No adverse effects

Effects on skin: No adverse effects

Inhalation effects:

Breathing 75% or more oxygen at atmospheric pressure for more than a few hours may cause nasal stuffiness, cough, sore throat, chest pain and breathing difficulty. Breathing pure oxygen under pressure may cause lung damage and also central nervous system effects.

Ingestion effects: Ingestion is not considered a potential route of exposure.

Symptoms: No data available.

Acute toxicity.

Acute oral toxicity: No data available on the product itself.

Inhalation: No data available on the product itself.

Acute dermal Toxicity: No data available on the product itself.

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

Sensitisation: No data available.



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Chronic toxicity or effects from long-term exposure.

Carcinogenicity: No data available

Reproductive toxicity: No data available on the product itself.

Gem cell mutagenicity: No data available on the product itself.

Specific target organ systemic toxicity (single exposure):  
No data available

**Specific target organ systemic toxicity** (repeated exposure):

Premature infants exposed to high concentrations may suffer delayed retinal damage that can progress to retinal detachment and blindness. Retinal damage may also occur in adults exposed to 100% oxygen for extended periods (24to48hours). At two or more atmospheres central nervous system (CNS) occurs. Symptoms include nausea, vomiting, dizziness or vertigo, muscle twitching, vision changes and loss of consciousness and generalised seizures. At three atmospheres, CNS toxicity occurs in less than two hours and at six atmospheres in only a few minutes.

Aspiration hazard: No data available.

### 12. Ecological Information

Toxicity.

Aquatic toxicity: No data available on the product itself.

Toxicity to other organisms: No data available on the product itself.

Persistence and degradability:  
No data available on the product itself.

Bio accumulative potential:  
No data available on the product itself.

Mobility in soil: No data available on the product itself.

Results of PBT and vPvB assessment:  
If applicable refer to extended version of SDS for further information on CSA.

Other adverse effects:  
This product has no known eco-toxicological effects.

### 13. Disposal Considerations

Waste treatment methods.

Contact Energas Limited if guidance is required.  
Return unused product in original cylinder to supplier.

Contaminated packaging: Return cylinder to supplier.

### 14. Transport Information

#### ADR

UN ID No. : UN1072  
Proper Shipping Name : Oxygen, Compressed  
Class/ Division : 2.2  
Tunnel code : (E)  
Hazard Identification No. : 25  
Label(s) : 2.2 (5.1)

#### IATA

UN ID No. : UN1072  
Proper Shipping Name : Oxygen, Compressed  
Class/ Division : 2.2  
Label(s) : 2.2(5.1)

#### IMDG

UN ID No. : UN1072  
Proper Shipping Name : Oxygen, Compressed  
Class/ Division : 2.2  
Label(s) : 2.2(5.1)

#### RID

UN ID No. : UN1072  
Proper Shipping Name : Oxygen, Compressed  
Class/ Division : 2.2  
Label(s) : 2.2(5.1)

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 emergency.

Before transporting product containers check that they are firmly secured and ensure:

- Cylinder valve outlet is closed and not leaking.
- Valve outlet cap, nut or plug (where provided) is correctly fitted.
- Valve protection device (where provided) is correctly fitted).
- Adequate ventilation.
- Compliance with applicable regulations

### 15. Regulatory Information

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

Country	Regulatory list	Notification
UK / EU	EINECS	Included on Inventory
USA	TCSA	Included on Inventory
Canada	DSL	Included on Inventory



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WGK Identification Number : Not water endangering.  
Chemical Safety Assessment

This product is exempt from REACH, does not meet the minimum volume threshold for a CSA or the CSA has not yet been completed.

### **16. Other Information**

Ensure all national/ local regulations are observed.  
R-phrase(s) – Components  
R 8 Contact with combustible materials may cause fire.

Hazard statements  
H270 May cause or intensify fire ;oxidizer..  
H280; Contains gas under pressure may explode if heated.

Ensure all national/ local regulations are observed.  
Ensure all users of this product understand the hazards of asphyxiation.  
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 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.

Refer to Energas Limited General Safety and Handling Data Sheet for further details.

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## SAFETY DATA SHEET FOR OXYGEN, (COMPRESSED)

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**CYLINDER IDENTIFICATION TO BS EN 1089-3  
GROUND COLOUR JET BLACK (RAL 9005) SHOULDER WHITE (RAL 9010)**

### ENERGAS GENERAL SAFETY AND HANDLING DATA

#### 1. GENERAL

Only trained persons should handle compressed gases. Observe all regulations and local requirements regarding the storage of containers.

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

Ascertain the identity of the gas before using it.

Know and understand the properties and hazards associated with each gas before using it.

When doubt exists as to the correct handling procedure for a particular gas contact the supplier.

#### 2. HANDLING AND USE

Wear stout gloves.

Never lift a container by the cap or guard unless the supplier states it is designed for that purpose.

Use a trolley or other suitable device or technique for transporting heavy containers, even for a short distance.

Where necessary wear suitable eye and face protection. The choice between safety glasses, chemical goggles, or full face shield will depend on the pressure and nature of the gas being used.

Where necessary for toxic gases see that self-contained positive pressure breathing apparatus or full face air line respirator is available in the vicinity of the working area.

Employ suitable pressure regulating devices on all containers when the gas is being emitted to systems with a lower pressure rating than that of the container.

Ascertain that all electrical systems in the area are suitable for service with each gas.

Never use direct flame or electrical heating devices to raise the pressure of a container. Containers should not be subjected to temperatures above 45°C.

Never re-compress a gas mixture without consulting the supplier. Never attempt to transfer gases from one container to another.

Do not use containers as rollers or supports, or for any other purpose than to contain the gas as supplied.

Never permit oil, grease or other readily combustible substances to come into contact with valves of containers containing oxygen or other oxidants.

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

Do not subject containers to abnormal mechanical shocks which may cause damage to their valves or safety devices.

Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier.

Close the container valve whenever gas is not required even if the container is still connected to the equipment.

#### 3. STORAGE

Containers should be stored in a well ventilated area. Some gases will require a purpose built area.

Store containers in a location free from fire risk and away from sources of heat and ignition. Designation as a no smoking area may be desirable.

Gas containers should be segregated in the storage area according to the various categories.

The storage area should be kept clear and access should be restricted to authorized persons only, the area should be clearly marked as a storage area and appropriate hazard warning signs displayed (Flammable Toxic etc.).

The amount of flammable or toxic gases should be kept to a minimum.

Flammable gases should be stored away from other combustible materials.

Containers held in storage should be periodically checked for general condition and leakage.

Containers in storage should be properly secured to prevent toppling or rolling.

Vertical storage is recommended where the container is designed for this.

Container valves should be tightly closed and where appropriate, valve outlets should be capped or plugged. Protect containers stored in the open against rusting and extremes of weather.

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

Store full and empty containers separately and arrange full containers so that the oldest stock is used first.

#### PRODUCTION SITE ADDRESSES

**Engineering and Welding Limited**  
Westmorland Street  
Hull  
HU2 0HX

**Energas Limited**  
Haslams Lane  
Alfreton Road  
Derby, DE22 1EB

**Energas Limited**  
Brownroyd Street  
Off Thornton Road, Bradford  
West Yorkshire, BD8 9AF

Tel: 01482 329333  
Fax: 01482 212335

Tel: 01332 364121  
Fax: 01332 291590

Tel: 01274 549090  
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**FOR FURTHER INFORMATION CONTACT YOUR NEAREST DISTRIBUTION CENTRE**