Safety Data Sheet – Oxygen

1. Identification of the substance/preparation and the company/undertaking

Identification of the substance/preparation : Oxygen
Chemical Formula : O2
Synonyms : Oxygen, Oxygen Gas, Gaseous Oxygen, GOX
Use of the substance/preparation : General Industrial
Company :
Dixons of Westerhope
Newbiggin Lane
Westerhope
Newcastle upon Tyne
NE5 1LX
Telephone : 0800 433 4331

2. Composition/information on ingredients

Components	EINECS/ELINCS	CAS Number	Concentration	Classification
Oxygen	231-956-9	7783-44-7	100%	O R8

Refer to section 16 for full text of each relevant A-phrase.
Concentration is nominal. For the exact product composition, please refer to Dixons technical specifications.

3. Hazards Identification

Classification

R8 contact with combustible material may cause fire.

Emergency overview

High pressure, oxidising gas.
Can cause lung damage or central nervous system effects.
Self-contained breathing apparatus (SCBA) may be required.
Vigorously accelerates combustion, keep oil, grease and combustible materials away.

Potential health effects

Inhalation :	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.
Eye contact :	No adverse effect.
Skin contact :	No adverse effect.
Ingestion :	Ingestion is not considered a potential route of exposure.
Chronic health hazard :	Not applicable.
Aggravated medical condition :	If oxygen is administered to persons with chronic obstructive pulmonary condition disease, raising the oxygen concentration in the blood depresses their breathing and raises their retained carbon dioxide to a dangerous level.
Symptoms :	See above.

4. 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 :	Not applicable.
Ingestion :	Ingestion is not considered a potential route of exposure.
Inhalation :	Consult a physician after significant exposure. Move to fresh air. If breathing is irregular or stopped, administer artificial respiration.

5. Fire-Fighting measures

Suitable extinguishing media :	All known extinguishing media can be used.
Specific hazards :	Upon exposure to intense heat or flame, cylinder will vent rapidly or rupture violently. Product is non-flammable and does not support combustion. Move away from container and cool with water from a protected position. Keep containers and surroundings cool with water spray.
Special protective equipment :	Wear self-contained breathing apparatus for fire fighting if necessary. For Fire-Fighters.
Further information :	Some materials that are non-combustible in air will burn in the presence of an oxygen enriched atmosphere (greater than 23%). 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 30 minutes or longer and become a potential fire hazard. Stay away from ignition sources. Evacuate personnel to safe areas. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Environmental precautions :	Do not discharge into any place where its accumulation could be dangerous. Prevent further leakage or spillage if safe to do so.
Methods for cleaning up :	Ventilate the area.
Additional advice :	If possible, stop flow of product. Increase ventilation to the release area and monitor oxygen level. If leak is from cylinder or cylinder valve, call the Dixons emergency telephone

	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

Handling : 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. Only experienced and properly instructed persons should handle compressed gases.Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed 50ºC (122ºF). Only experienced and properly instructed persons should handle compressed gases. Before using the product, determine its identity by reading the label. Know and understand the properties and hazards of the product before use. When doubt exists as to the correct handling procedure for a particular gas, contact the supplier. 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. Leave valve protection caps in place until the container has been secured against either a wall or bench or paced in a container stand and is ready for use. Use an adjustable strap wrench to remove over-tight of rusted caps. Before connecting the container, check the complete gas system for suitability, particularly for pressure rating and materials. Before connecting the container for use, ensure the back feed from the system into the container is prevented. Ensure the complete gas system is compatible for pressure rating and materials of construction. Ensure the complete gas system has been checked for leaks before use. 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. Never insert and object into valve cap openings. Doing so may damage valve, causing a leak to occur. 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. Close valve after each use and when empty. Do not subject containers to abnormal mechanical shocks which may cause damage to their valve or safety devices. Never attempt to life a cylinder by its valve protection cap or guard. Do not use containers as rollers or supports or for any other purpose than to contain the gas as supplied. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Do not smoke while handling product or cylinders. Never re-compress a gas or a gas mixture without first consulting the supplier. Never attempt to transfer gases from one cylinder/container to another. Always use back flow protective device in piping. When returning cylinder install valve outlet cap or plug leak tight. Never use direct flame or electrical heating devices to raise the pressure of a container. Containers should not be subjected to temperatures above 50ºC (122ºF). Prolonged periods of cold temperature below -30ºC (-20ºF) should be avoided.

Storage : Full containers should be stored so that oldest stock is used first. Containers should be stored in a purpose built compound which should be well ventilated, preferably in the open air. Stored containers should be periodically checked for general condition and leakage. Observe all regulations and local requirements regarding storage of containers. Protect containers stored in the open against rusting and extremes of weather. 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. The container valve guards or caps should be in place. Keep containers tightly closed in a cool, well-ventilated. Store containers in a location free from fire risk and away from sources of heat or ignition. Full and empty cylinders should be segregated. Do not allow storage temperatures to exceed 50ºC (122ºF). Display no smoking or open flames signs in the storage areas. Return empty containers in a timely manner.

Technical measures/precautions : Containers should be segregated in the storage area according to the various categories (e.g. flammable, toxic, etc.) and in accordance with local regulations. Keep away from combustible material.

8. Exposure controls/personal protection

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 glove(s) must be greater than the intended use period.
Eye protection :	Safety glasses are recommended when handling cylinders.
Skin and body protection :	Safety shoes are recommended when handling cylinders.
Special Instructions :	Ensure adequate ventilation, especially in confined areas. Gloves must be clean and free of oil or grease.

9. Physical and chemical properties

Form :	Compressed gas.
Colour :	Colourless gas.
Odour :	No odour or warning properties.
Molecular weight :	32 g/mol
Relative vapour density :	1.1 (air - 1)
Density :	0.0013 g/cm$_3$ at 21ºC (as vapour)
Specific volume :	0.7540 m$_3$/kg at 21ºC
Boiling point/range :	-183ºC
Critical temperature :	-118ºC
Melting point/range :	-219ºC
Water solubility :	0.039 g/l

10. Stability and reactivity

Stability :	Stable under normal conditions.
Materials to avoid :	Flammable materials, organic materials. Avoid oil, grease and all other combustible materials.

11. Toxicological information

Premature infants exposed to high oxygen 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 (24 to 48hr). At two or more atmospheres central nervous system (CNS) toxicity occurs. Symptoms include nausea, vomiting, dizziness or vertigo, muscle twitching, vision changes and loss of consciousness and

generalized seizure. At three atmospheres, CNS toxicity occurs in less than two hours and at six atmospheres in only a few minutes.

12. Ecological information

Ecotoxicity effects	
Aquatic toxicity :	No data available.
Toxicity to other organisms :	No data available.
Persistence and degradability	
Mobility :	No data available.
Bioaccumulation :	No data available.
Further Information :	No ecological damage caused by this product.

13. Disposal considerations

Waste from residues/unused product :	Contact supplier if guidance is required. Return unused product in original cylinder to supplier.
Contaminated packaging :	Return cylinder to supplier.

14. Transport Information ADR

Proper shipping name :	Oxygen compressed.
UN/ID no. :	UN1072
Labelling ADA :	2.2 (5.1)
ADR/RID hazard ID no. :	25
IATA	
Proper shipping name :	Oxygen compressed.
Class :	2.2 (5.1)
UN/ID no. :	UN1072
IMDG	
Proper shipping name :	Oxygen compressed.
Class :	2.2 (5.1)
UN/ID no. :	UN1072
RID	
Proper shipping name :	Oxygen compressed.
Class :	2.2 (5.1)
UN/ID no. :	UN1072
Further Information :	Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of potential hazards of the load and knows what to do in the event of an accident or an emergency.

15. Regulatory information

Labelling according to EEC directive
Number in Annex I of Dir : Not included in Annex I. 67/548

Hazard Symbol : 0 Oxidizing.

Country	Regulatory list	Notification

USA	TSCA	Included on inventory
EU	EINECS	Included on inventory
Canada	DSL	Included on inventory
Australia	AICS	Included on inventory
South Korea	ECL	Included on inventory
China	SEPA	Included on inventory
Philippines	PICCS	Included on inventory
Japan	ENCS	Included on inventory

16. Other information

Ensure all national/local regulations are observed.

A-phrase(s) Substance/preparation : R8 Contact with combustible material may cause fire.
S-phrase(s) : S17 Keep away from combustible material.
Components prepared by : Dixons of Westerhope Limited.

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.