Advanced Gases Limited

SAFETY DATA SHEET

Product Name **COMPRESSED MEDICAL OXYGEN**

Version : 2.0
Revision Date : 16 October 2018
SDS Number : 0310_COX_D

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Identification of the substance/preparation	: Medical Oxygen
Chemical Formula	: O2
Synonyms	: Med. Oxygen, Med. Oxygen gas, Med. Gaseous Oxygen, Compressed Med. Oxygen, GOX
Use of the substance /preparation	: Industrial and Professional Medical Uses
Manufacturer/importer/ distributor	: Advanced Gases Limited Plot 383B Trans Amadi Ind. Layout, Peter Odili Road by Doxa Road, Port Harcourt, Rivers State
Telephone	: +234 70 34058121

2. HAZARDS IDENTIFICATION

Classification EC 67/548 OR EC 1999/45

- O Oxidising
- R8 Contact with combustible material may cause fire
- Physical Hazard: Oxidizing Gases – Category 1 – Danger – (CLP: Ox.Gas 1) – H270
  Gases under Pressure – Compressed Gas – Warning – (CLP: Press. Gas) – H280

Emergency Overview

High pressure, oxidising gas.
Vigorously accelerates combustion
Keep oil, grease and combustibles away
May react violently with combustible materials

Potential Health Effects

Inhalation	: Breathing 75% or more oxygen at atmospheric pressure for more than a few hours may cause 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.
Aggravated medical condition	: If oxygen is administered to persons with chronic obstructive pulmonary disease,raising the oxygen concentration in the blood depresses their breathing and raises their retained carbon dioxide to a dangerous level.

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Label Elements: Labeling Regulation EC1272/2008 (CLP)

Hazard Pictograms;
Hazard Pictograms Code: GHS03 – GHS04
Signal Word: Danger
Hazard Statements: H270 - May cause or intensify Fire
H280 – Contains gas under pressure, may explode if heated

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Preparation : Substance

Components	EINECS / ELINCS Number	CAS Number	Concentration (Volume)	Classification
Oxygen	231-956-9	7782-44-7	100%	O and R8

Concentration is nominal. For the exact product composition, please refer to Advanced Gases ltd's technical specifications.

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 : Seek medical advice
Ingestion : Ingestion is not considered a potential route of exposure.
Inhalation : Remove 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. Consult a doctor after significant exposure

5. FIRE FIGHTING MEASURES

Suitable extinguishing media	: All known extinguishing media can be used.
Specific hazards	: Upon exposure to intense heat or flame, cylinders will vent rapidly and/or rupture violently. Product is an oxidant and strongly supports combustion. It may react violently with combustible materials. Some materials which are non combustible in air may burn in the presence of an oxidiser. Move away from the container and cool with water from a protected position. Keep containers and surroundings cool with water spray until any fire burns itself out.
Special protective equipment for fire-fighters	: Wear self contained breathing apparatus for fire fighting if necessary.
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

Precautionary Statements:	P244 – Keep Valves and fittings free from oil and grease
	P220 – Keep away from flammable Materials
Response:	P370+P376 – in case of fire, stop leak if possible.
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. Evacuate personnel to safe areas. Wear self contained breathing apparatus when entering the area unless atmosphere is proved to be safe. Ventilate the area.
Environmental precautions	: Prevent further leakage or spillage. Do not discharge into any place where its accumulation could be dangerous.
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 Advanced Gases emergency telephone number. If the leak is in the user's system, close the cylinder valve and safely vent the pressure before attempting repairs.

7. HANDLING AND STORAGE

Handling	: Use safe work practices to avoid eye or skin contact and inhalation. Observe good personal hygiene. Prohibit eating, drinking and smoking in contaminated areas. Wash hands before eating. Proper equipments suitable for this product to be used by only experienced and properly instructed persons.
Storage	: Do not store near sources of ignition or incompatible materials. Cylinders should be stored below 45 C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures
Ensure adequate ventilation

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 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 for protection and hygiene	:	Ensure adequate ventilation, especially in confined areas. Gloves must be clean and free of oil and grease and do not smoke while handling product

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Compressed gas.
Colour	:	Colourless gas.
Odour	:	No odour warning properties.
Molecular Weight	:	32 g/mol
Relative vapour density	:	1.1 (air = 1)
Vapour pressure	:	Not applicable.
Relative density	:	1.1 (water = 1)
Density	:	0.0013 g/cm3 (0.081 lb/ft3) at 21C (70F)
Specific volume	:	0.7540 m3/kg (9.68 ft3/lb) at 21 degree C (70 degree F)
Boiling point/range	:	-183 degree C (-297 degree F)
Critical temperature	:	-118 degree C (-180 degree F)
Melting point/range	:	-219 degree C
Autoignition temperature	:	Not applicable
Water solubility	:	0.039 g/l

10. STABILITY AND REACTIVITY

Stability	:	stable under normal conditions.
Materials to avoid	:	Flammable materials; Organic materials; Oil, grease and other combustibles

11. TOXICOLOGICAL INFORMATION

Acute Health Hazard

Ingestion	:	No data is available on the product itself
Inhalation	:	No data is available on the product itself
Skin	:	No data is available on the product itself

Chronic Health Hazard

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 periods of 24-48 hours. At two or more atmospheres pressure, central nervous system (CNS) toxicity occurs. Symptoms include nausea, vomiting, dizziness/vertigo, muscle twitching, vision changes and loss of consciousness and generalised seizures. At three atmospheres pressure, CNS toxicity occurs in less than two hours and at six atmospheres only a few minutes.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

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

Persistence and degradability

Mobility	:	No data available
Bioaccumulation	:	No data is available on the product itself.

Further information

This product has no known eco-toxicological effects.

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products	:	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
Class	:	2.2 (5.1)
UN/ID No.	:	UN 1072
Class	:	2
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

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Further 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 accident or an emergency. The transportation information is not intended to convey all specific regulatory data relating to this material. For complete transportation information, contact Advanced Gases customer service representative.

15. REGULATORY INFORMATION

Labelling according to EEC Direction
Number in Annex 1 of Dir 67/548 : 008-001-00-8
Hazard symbol : O Oxidising
R-phrase(s) : R8 Contact with combustible material may cause fire
S-phrase(s) : S17 Keep away from combustible material

Country	Regulatory list	Notification
USA	TSCA	Included on Inventory
EU	EINECS	Included on Inventory
Canada	DSL	Included on Inventory
Australia	AICS	Included on Inventory
Japan	ENCS	Included on Inventory
South Korea	ECL	Included on Inventory
China	SEPA	Included on Inventory
Philippines	PICCS	Included on Inventory

WGK Identification Number : Not water endangering.

16. OTHER INFORMATION

Ensure all national/local regulations are observed.

R-phrase(s) – components

R8 Contact with combustible material may cause fire.

Prepared by : Advanced Gases Product Technical Department.

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.

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.