Oxygen, Compressed

Safety Data Sheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product Name **Oxygen**, Compressed

Other means of identification

Safety data sheet number **SDS-YO-014**

UN/ID no. UN1072

Trade name Oxygen, Medical 99.5, Aviation 99.5, Industrial 99.5

Recommended use of the chemical and restrictions on use

Recommended Use Industrial and professional use. Medical. Food and Beverage

Uses advised against Consumer use

Details of the supplier of the safety data sheet

Yateem Oxygen W.L.L
P.O. Box 60, Manama, Bahrain
Email: wecare@yateemoxygen.com
Website: www.yateemoxygen.com

Customer Service: +973 17400677

Emergency telephone number

Company Phone Number +973 17400456

Emergency Contact Number +973 17456248; +973 17400675

SECTION 2: Hazards identification

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Oxidizing gases	Category 1
Gasses under pressure	Compressed Gas

Label elements

Signal word **Warning**

Hazard Statements

May cause or intensify fire; oxidizer

Contains gas under pressure; May explode if heated

Precautionary Statements - Prevention

Do not handle until all safety precautions have been read and understood

Keep and store away from clothing and other combustible materials

Keep valves and fittings free from grease and oil Use and store only outdoors or in a well-ventilated place

Use a backflow preventive device in piping

Use only equipment of compatible materials of construction and rated for cylinder pressure

Use only with equipment cleaned for oxygen service

Open valve slowly Close valve after each use and when empty

Precautionary Statements – Response: In case of fire: Stop leak if safe to do so

Precautionary Statements – Storage: Protect from sunlight when ambient temperature exceeds 52°C/125°F

Hazards not otherwise classified (HNOC)

Not applicable

SECTION 3: Composition/information on ingredients

Chemical Name	CAS No.	Volume %	Chemical Formula
OXYGEN	7782-44-7	>99	O_2

SECTION 4: First aid measures

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Inhalation Move victim to fresh air. Seek immediate medical attention/advice.

Skin contact None under normal use. Get medical attention if symptoms occur.

Eye contact None under normal use. Get medical attention if symptoms occur.

Ingestion Not an expected route of exposure

Most important symptoms and effects, both acute and delayed

Symptoms Oxygen is not acutely toxic under normal pressure. Oxygen is more toxic when inhaled at elevated pressures. Depending upon pressure and duration of exposure, pure oxygen at elevated pressures may cause cramps, dizziness, difficulty breathing, convulsions, edema and death

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

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SECTION 5: Firefighting measures

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media None

Specific extinguishing methods

Continue to cool fire exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.

Specific hazards arising from the chemical

May cause or intensify fire; oxidizer. Will support and accelerate combustion of combustible materials (wood, paper, oil, debris, etc). Cylinders may rupture under extreme heat.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Monitor oxygen level. Eliminate all ignition sources if safe to do so.

Environmental precautions

Environmental precautions Prevent spreading of vapors through sewers, ventilation systems and confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest Yateem Oxygen location. DO NOT ATTEMPT TO REMOVE CYLINDERS THAT HAVE BEEN EXPOSED TO HEAT.

Methods for cleaning up Return cylinder to Yateem Oxygen

SECTION 7. Handling and Storage

Precautions for safe handling

Advice on safe handling

Keep valves and fittings free from grease and oil. Use only equipment of compatible materials of construction. Open valve slowly. "NO SMOKING" signs should be posted in storage and use areas. Separate flammable gas cylinders from oxygen and other oxidizers by a minimum distance of 20 ft. or by a 5 ft. high barrier with a minimum fire resistance rating of a half an hour. Dry product is non-corrosive and may be used with all materials of construction. Moisture causes metal oxides which are formed with air to be hydrated so that they include volume and lose their protective role (rust formation). Concentrations of SO2, Cl 2, salt, etc. in the moisture enhances the rusting of metals in air. Carbon steels and low alloy steels are acceptable for use at lower pressures. For high pressure applications stainless steels are acceptable as are copper and its alloys, nickel and its alloys, brass bronze, silicon alloys, Monel®, Inconel®, and beryllium. Lead and silver or lead tin alloys are good gasket materials. Teflon®, Teflon® composites, or Kel-F® are preferred non-metallic gasket materials. Oxygen should not be used as a substitute for compressed air in pneumatic equipment since they generally contain flammable lubricants. Equipment able to use oxygen must be "cleaned for oxygen service". Check with the equipment supplier to verify oxygen compatibility for the service conditions.

Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distance, use a cart designed to transport cylinders. Never attempt to lift a cylinder by its valve protection cap. Never insert an object (e.g. wrench, screwdriver, pry bar etc.) into valve cap openings. Doing so may damage valve, causing leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Use only with adequate ventilation. Use a backflow preventive device in piping. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Ensure the complete gas system has been checked for leaks before use.

Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to refill a compressed gas cylinder without the owner's written consent. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit.

Only experienced and properly instructed persons should handle gases under pressure. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, Safe Handling of Compressed Gases in Containers.

For additional recommendations, consult Compressed Gas Association's Pamphlets SB-7, G-4.3, G-4.1, G-4.4, P-2.5, G-4.9, P-14, and SB-2

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Conditions for safe storage, including any incompatibilities

Storage Conditions

Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Keep at temperatures below 52°C / 125°F. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Stored containers should be periodically checked for general condition and leakage

Incompatible materials

Reducing agents. Combustible material. Organic material. Oil. Grease.

SECTION 8: Exposure controls/personal protection

Control parameters

Exposure Guidelines

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies

Engineering Controls

Ventilation systems. Use local exhaust in combination with general ventilation as necessary to keep oxygen concentrations below 23.5%. Consider installation of leak detection systems in areas of use and storage. Systems under pressure should be regularly checked for leakages.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin and body protection	Work gloves and safety shoes are recommended when handling cylinders. Gloves must be clean and free from grease or oil.
Respiratory protection	No special protective required
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Gas
Appearance	Colorless.
Odor	Odorless
Odor threshold	No information available
pH	Not applicable
Melting/freezing point	-218.8 ^{0}C / -361.8 ^{0}F
Evaporation rate	Not applicable
Flammability (solid, gas)	see Section 5
Lower flammability limit:	Not applicable
Upper flammability limit:	Not applicable
Flash point	Not applicable
Autoignition temperature	No data available
Decomposition temperature	No data available
Oxidizing properties	**Oxidizer**
Water solubility	Slightly soluble
Partition coefficient	0.65
Kinematic viscosity	Not applicable

Chemical Name	Molecular weight	Boiling point / range	Vapor Pressure	Vapor density (air =1)	Gas Density kg/m^3@20°C	Critical Temperature
OXYGEN	31.99	-182.9 °C	Above critical temperature	1.11	1.331	-118.6 °C

SECTION 10: Stability and Reactivity

Reactivity
Not reactive under normal conditions

Chemical stability
Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None

Possibility of Hazardous Reactions
May cause or intensify fire; oxidizer.
Will support and accelerate combustion of combustible materials (wood, paper, oil, debris, etc.).

Conditions to avoid
None under recommended storage and handling conditions (see Section 7).

Incompatible materials
Reducing agents. Combustible material. Organic material. Oil. Grease.

Hazardous Decomposition Products
None known.

SECTION 11: Toxicological Information

Information on likely routes of exposure

Inhalation	Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing. Poisoning began in dogs 36 hours after inhalation of pure oxygen at atmospheric pressure. Distress was seen within 48 hours and death within 60 hours.
Skin contact	No data available
Eye contact	The incompletely developed retinal circulation is more susceptible to toxic levels of oxygen. In premature infants, arterial oxygen tension above 150 mm Hg may cause retrolental fibroplasia. Permanent blindness may occur several months later. One case of severe retinal damage in an adult was reported. An individual suffering from myasthenia gravis developed irreversible retinal atrophy after breathing 80% oxygen for 150 days
Ingestion	Not an expected route of exposure.

Information on toxicological effects

Symptoms	Oxygen is not acutely toxic under normal pressure. Oxygen is more toxic when inhaled at elevated pressures. Depending upon pressure and duration of exposure, pure oxygen at elevated pressures may cause cramps, dizziness, difficulty breathing, convulsions, edema and death

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	Not classified.
Sensitization	Not classified.
Germ cell mutagenicity	Not classified.
Carcinogenicity	It does not contain any carcinogens or potential carcinogens listed by OSHA, IARC or NTP.
Reproductive toxicity	Not classified.
Developmental Toxicity	Not classified.
STOT - single exposure	Not classified.
STOT - repeated exposure	Not classified.
Chronic toxicity	Prolonged inhalation of high oxygen concentrations >75%) may affect coordination, attention and cause tiredness of respiratory irritation.,
Aspiration hazard	Not applicable.

Numerical measures of toxicity

ORAL LD50	No information available

SECTION 12: Ecological Information

Ecotoxicity

No known acute aquatic toxicity.

Persistence and degradability

Not applicable.

Bioaccumulation

Will not bioconcentrate.

SECTION 13. Disposal Considerations

Waste treatment methods

Disposal of wastes	Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to YATEEM OXYGEN for proper disposal. This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).

SECTION 14. Transportation Information

DOT

UN/ID no.	UN1072
Proper shipping name	Oxygen, compressed
Hazard Class	2.2
Subsidiary class	5.1
Special Provisions	A14,110
Description	UN1072, Oxygen, compressed, 2.5 (5.1)
Emergency Response Guide Number	122

TDG

UN/ID no.	UN1072
Proper shipping name	Oxygen, compressed
Hazard Class	2.2
Subsidiary class	5.1

IATA

UN/ID no.	UN1072
Proper shipping name	Oxygen, compressed
Hazard Class	2.2
Subsidiary class	5.1
ERG Code	2X

IMDG

UN/ID no.	UN1072
Proper shipping name	Oxygen, compressed
Hazard Class	2.2
Subsidiary class	5.1
EmS-No.	F-C, S-W
Special provisions	355
Description	UN1072, Oxygen, compressed, 2.5 (5.1)

SECTION 15. Regulatory Information

National Legislation Complies

SEC https://www.sce.gov.bh/en/index

MTT http://www.transportation.gov.bh/content/caa-laws-and-regulations

OHSC http://www.scosh.org/en/legislation/legislations#legislationContainer

International Inventories

TSC :Complies **DSL/NDSL** :Complies **EINECS/ELINCS** :Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
SEC – Specific Council of Environment
MTT – Ministry of Transport and Telecommunications;
OHSC - Occupational Health and Safety Council

SECTION 16: Other Information

NFPA **Health hazards** 0 **Flammability** 0 **Instability** 0 **Physical and Chemical Properties-** O X

Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2009, CGA Recommended Hazard Ratings for Compressed Gases, 3rd Edition.

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Safety Data sheet Number	SDS-YO14

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End of Safety Data Sheet