Oxygen Compressed

1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:	Oxygen Compressed
Common Name:	Oxygen
SDS Number:	20
Revision Date:	10/21/2015
Version:	2.0
CAS Number:	7782-44-7
Chemical Formula:	O2
Product Use:	Industrial, Medical, Food Applications
Supplier Details:	Roberts Oxygen Company, Inc. P.O. Box 5507 Rockville, MD 20855
Emergency:	Chemtrec: 24 hr/day 7 days/wk (800) 424-9300: for spills, leaks, fire, exposure or accidents involving this product
Phone:	Customer Service: (301) 948-8100, Mon through Fri from 7:30 am to 5:00 pm ET
Web:	www.robertsoxygen.com

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Physical, Oxidizing Gases, 1
Physical, Gases Under Pressure, Compressed Gas

GHS Label elements, including precautionary statements

GHS Signal Word: DANGER

GHS Hazard Pictograms:

GHS Hazard Statements:

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

GHS Precautionary Statements:

P202 - Do not handle until all safety precautions have been read and understood.
P220 - Keep/Store away from clothing/combustible materials.
P244 - Keep reduction valves free from grease and oil.
P271+P403 - Use only outdoors or in a well-ventilated area.
P370+P376 - In case of fire: Stop leak if safe to do so.
CGA-PG05 - Use a back flow preventive device in the piping.
CGA-PG20 - Use only equipment of compatible materials of construction.
CGA-PG10 - Use only with equipment rated for cylinder pressure.
CGA-PG22 - Use only with equipment cleaned for oxygen service.
CGA-PG21 - Open valve slowly.
CGA-PG06 - Close valve after each use and when empty.
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).
OSHA-PG01 - DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).
CGA-PG27 - Read and follow the Safety Data Sheet (SDS) before use.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
7782-44-7		Oxygen, compressed

4 FIRST AID MEASURES

Inhalation: Remove victim to uncontaminated area wearing self-contained breathing apparatus (SCBA). Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing has stopped.

Skin Contact: Adverse effects are not expected from this product

Eye Contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately. Get immediate medical attention.

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

5 FIRE FIGHTING MEASURES

Flammability:	Non-Flammable
Flash Point:	N/a
Flash Point Method:	N/a
Burning Rate:	N/a
Autoignition Temp:	N/a
LEL:	N/a

Fire Fighting Instructions:

Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire

Standard Protective Clothing and Equipment: SCBA for fire fighters

Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems. Stop flow of product if safe to do so. Use water spray or fog to knock down fire fumes if possible.

Oxidizing agent; vigorously accelerates combustion.

Contact with flammable materials may cause fire or explosion.

Smoking, flames and electric sparts are potential explosion hazards.

6 ACCIDENTAL RELEASE MEASURES

Evacuate area.
Remove all sources of ignition. Contact with flammable materials may cause fire or explosion.
Ventilate area or move container to a well-ventilated area. Wear self-contained breathing apparatus (SCBA) when entering area, unless atmosphere is proven to be safe.
Stop leak if safe to do so.

7 HANDLING AND STORAGE

Handling Precautions:

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents.

For additional handling recommendations, consult Compressed Gas Association's Pamphlet P-1.

Storage Requirements:

Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C). Post No Smoking or Open Flame signs in storage and use areas. There must be no source of ignition. Separate packages to protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g., NFPA 30, NFPA 55, NFPA 70 and/or NFPA 221) or according to requirements determined by the Authority Having Jurisidiction.

Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a backflow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

For additional storage recommendations, consult Compressed Gas Association's Pamphlet P-1.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Avoid oxygen rich (>23.5%) atmospheres. Systems under presure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits (where available). Gas detectors should be used when oxidizing gases may be released. Oxygen detectors should be used when asphyxiating gases may be released. Provide adequate general and local exhaust ventilation. Consider work permit system, e.g., for maintenance activities.

Personal Protective Equipment:

Respiratory protection: None necessary

Hand protection: Handle gas containers with working gloves. Gloves must be inspected prior to use.

Eye protection: Wear safety glasses with side shields. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection: Wear hand, head, and body protection to help prevent injury from process associated hazards, e.g., for welding exposure to radiation and sparks wear welder's gloves and protective goggles. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace and the user process and may include arm protectors, hats, and shoulder protection worn over substantial clothing. Consider wearing flame-resistant safety clothing and appropriate safety shoes while handling.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Oxygen, compressed (7782-44-7) [100%] : no data available

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless gas		
Physical State:	Gas	**Odor:**	Not applicable
Odor Threshold:		**Molecular Formula:**	O2
Particle Size:	Not applicable	**Solubility:**	Water: 0.0491 mg/l
Spec Grav./Density:	.08279 lb/ft³	**Softening Point:**	Not applicable
Viscosity:	Not applicable	**Percent Volatile:**	Not applicable
Sat. Vap. Conc.:	Not	**Heat Value:**	Not applicable
Boiling Point:		**Freezing/Melting Pt.:**	No data available
Flammability:	Non-Flammable	**Flash Point:**	No data available
Partition Coefficient:	Not applicable	**Octanol:**	Not applicable
Vapor Pressure:	Not applicable	**Vapor Density:**	No data available
pH:	Not applicable	**VOC:**	Not applicable
Evap. Rate:	Not applicable	**Bulk Density:**	Not applicable
Molecular weight:	32 g/mol	**Auto-Ignition Temp:**	Not applicable
Decomp Temp:	650°C	**UFL/LFL:**	Not applicable

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

10 STABILITY AND REACTIVITY

Stability:	No reactivity
Conditions to Avoid:	None
Materials to Avoid:	Keep equipment free from oil and grease. Consider the potential toxicity hazard due to the presence of chlorinated or fluorinated polymers in high pressure (.30 bar) oxygen lines in case of combustion. May react violently with combustible materials. May react violently with reducing agents.
Hazardous Decomposition:	None
Hazardous Polymerization:	None

11 TOXICOLOGICAL INFORMATION

Oxygen, compressed (7782-44-7)
Information on toxicological effects
Acute toxicity:
Oral LD50: No data available
Inhalation LC50
Dermal LD50
Other information on acute toxicity
Skin corrosion/irritation: No data available
Serious eye damage/eye irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: No data available
Carcinogenicity: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity: no data available
Teratogenicity: No data available
Specific target organ toxicity - single exposure (Globally Harmonized System): No data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System): No data available
Aspiration hazard: no data available
Potential health effects: Inhalation: May be harmful if inhaled. May cause respiratory tract irritation. Ingestion: May be harmful if swallowed.
Skin: May be harmful if absorbed through skin. May cause skin and eye irritation.
Signs and Symptoms of Exposure: Nausea, Dizziness, Unconsciousness.
Synergistic effects: No data available

12 ECOLOGICAL INFORMATION

Oxygen, compressed (7782-44-7)
Information on ecological effects
Toxicity: No data available
Persistence and degradability: No data available
Bioaccumulative potential: No data available
Mobility in soil: No data available
PBT and vPvB assessment: No data available
Other adverse effects: No data available

13 DISPOSAL CONSIDERATIONS

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.

Waste disposal recommendations:
Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

14 TRANSPORT INFORMATION

UN1072, Oxygen, compressed, 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 an emergency. Before transporting cylinders, ensure there is adequate ventilation. Ensure that cylinders are firmly secured. Ensure cylinder valve is closed and not leaking. Ensure valve outlet cap (where provided) is correctly fitted. Ensure valve protection device (where provided) is correctly fitted.

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Oxygen, compressed (7782-44-7) [n/a%] MASS, PA, NJ, TSCA

Listed on the United States TSCA (Toxic Substances Control Act) inventory
SARA Section 311/312 Hazard Classes: Sudden release of pressure hazard, Fire hazard

Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List
PA = PA Right-To-Know List of Hazardous Substances
NJ = NJ Right-To-Know List of Hazardous Substances
TSCA = Toxic Substances Control Act

16 OTHER INFORMATION

The information contained in this Safety Data Sheet is believed reliable, based on technical information and industry experience. Roberts Oxygen Company, Inc. provides no warranties or guarantees pertaining to the information provided in connection with the safety suggestions made. Moreover, it should not be assumed that every acceptable safety procedure, precaution, or device is listed. Abnormal or unusual circumstances may warrant or suggest further requirements or additional precautions. Roberts Oxygen Company, Inc. requests Users to thoroughly review this SDS and become aware of the product hazards and safety information. It is the User's responsibility to determine the conditions for safe use of the product and to confirm the compatibility of any other materials in their use or processes that come in contact with this product.

User acknowledges that the chemicals listed may be hazardous and must be handled accordingly. User further acknowledges its understanding that the chemicals listed may be classified by OSHA as hazardous chemicals, and that there are hazards associated with the possession, transportation and use of the chemical(s), containers, and related equipment and that the User must take proper account of those hazards and deal with them appropriately.

User shall warn all persons who may be exposed to any hazards relating to the chemical(s), containers, and related equipment. User acknowledges that the Seller has supplied the User with all relevant (Material) Safety Data Sheets (SDS) relating to the Products, and that additional copies of the SDS are available on request. OSHA regulations require User to develop and implement a written chemical hazard communications program for its employees regarding all hazardous chemicals.

Further, federal, state and local regulations may exist that are not addressed.