

Oxygen, compressed

Safety Data Sheet P-4638

according to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.
 Date of Issue: 01/01/1979 Revision date: 06/23/2015 Supersedes: 05/11/2015

SECTION 1: Product and company identification

1.1. Product identifier

Product form : Substance
 Name : Oxygen, compressed
 CAS No : 7782-44-7
 Formula : O₂
 Other means of identification : Oxygen, Compressed; MediPure Oxygen; Aviator's Breathing Oxygen; USP Oxygen; Oxygen - Diving Grade

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

Use of the substance/mixture : Medical applications.
 Industrial use
 Diving Gas (Underwater Breathing)

1.3. Details of the supplier of the safety data sheet

Praxair, Inc.
 39 Old Ridgebury Road
 Danbury, CT 06810-5113 - USA
 T 1-800-772-9247 (1-800-PRAXAIR) - F 1-716-879-2146
www.praxair.com

1.4. Emergency telephone number

Emergency number : Onsite Emergency: 1-800-645-4633

CHEMTREC, 24hr/day 7days/week
 — Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887
 (collect calls accepted, Contract 17729)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Ox. Gas 1 H270
 Compressed gas H280

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: DANGER

Hazard statements (GHS-US)

: H270 - MAY CAUSE OR INTENSIFY FIRE; OXIDIZER
 H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED

Precautionary statements (GHS-US)

: P202 - Do not handle until all safety precautions have been read and understood
 P220 - Keep/Store away from combustible materials, clothing
 P244 - Keep reduction valves/valves and fittings free from oil and grease
 P271+P403 - Use and store only outdoors or in a well-ventilated place.
 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+CGA-PG10 - Use only with equipment of compatible materials of construction and 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.

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Specific methods

: 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.

Other information

: Heat of fire can build pressure in container and cause it to rupture. Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.) No part of the container should be subjected to a temperature higher than 125°F (52°C). Smoking, flames, and electric sparks in the presence of enriched oxygen atmospheres are potential explosion hazards.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures

: Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Ensure adequate air ventilation. Eliminate ignition sources. Evacuate area. Try to stop release. Monitor concentration of released product. Wear self-contained breathing apparatus when entering area unless atmosphere is proven to be safe. Stop leak if safe to do so.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Try to stop release.

6.3. Methods and material for containment and cleaning up

No additional information available

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

: 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 other precautions in using this product, see section 16.

Safe use of the product

: **The suitability of this product as a component in underwater breathing gas mixtures is to be determined by or under the supervision of personnel experienced in the use of underwater breathing gas mixtures and familiar with the physiological effects, methods employed, frequency and duration of use, hazards, side effects, and precautions to be taken.**

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Odor	: No odor warning properties.
Odor threshold	: No data available
pH	: Not applicable.
Relative evaporation rate (butyl acetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable.
Melting point	: -219 °C (-362°F)
Freezing point	: No data available
Boiling point	: -183 °C (-297°F)
Flash point	: Not applicable.
Critical temperature	: -118.6 °C (-181.48°F)
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: Not applicable.
Critical pressure	: 50.4 bar (731.4 psia)
Relative vapor density at 20 °C	: 0.0827 lb/ft ³ (1.325 kg/m ³) absolute vapor density at 70°F/21.1°C, 1 atm
Relative density	: 1.1
Density	: 1.4289 kg/m ³ (at 21.1 °C)
Relative gas density	: 1.1
Solubility	: Water: 39 mg/l
Log Pow	: Not applicable.
Log Kow	: Not applicable.
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Explosive properties	: Not applicable.
Oxidizing properties	: Oxidizer.
Explosion limits	: No data available
9.2. Other information	
Gas group	: Compressed gas
Additional information	: Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and reactivity

10.1. Reactivity	No additional information available
10.2. Chemical stability	Stable under normal conditions.
10.3. Possibility of hazardous reactions	Violently oxidizes organic material.
10.4. Conditions to avoid	None under recommended storage and handling conditions (see section 7).
10.5. Incompatible materials	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.
10.6. Hazardous decomposition products	None.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations

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

SECTION 14: Transport information

In accordance with DOT

Transport document description

: UN1072 Oxygen, compressed, 2.2

UN-No.(DOT)

: UN1072

Proper Shipping Name (DOT)

: Oxygen, compressed

Transport hazard class(es) (DOT)

: 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115

Hazard labels (DOT)

: 2.2 - Non-flammable gas
5.1 - Oxidizer



DOT Special Provisions (49 CFR 172.102)

: 110 - Fire extinguishers transported under UN1044 may include installed actuating cartridges (cartridges, power device of Division 1.4C or 1.4S), without changing the classification of Division 2.2, provided the aggregate quantity of deflagrating (propellant) explosives does not exceed 3.2 grams per extinguishing unit.
A14 - This material is not authorized to be transported as a limited quantity or consumer commodity in accordance with 173.306 of this subchapter when transported aboard an aircraft.

Additional information

Emergency Response Guide (ERG) Number

: 122 (UN1072)

Other information

: No supplementary information available.

Special transport precautions

: 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 product containers:
- Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

Transport by sea

UN-No. (IMDG)

: 1072

Proper Shipping Name (IMDG)

: OXYGEN, COMPRESSED

Class (IMDG)

: 2 - Gases

MFAG-No

: 122

Air transport

UN-No. (IATA)

: 1072

Proper Shipping Name (IATA)

: Oxygen, compressed

Class (IATA)

: 2

Civil Aeronautics Law

: Gases under pressure/Gases nonflammable nontoxic under pressure

SECTION 15: Regulatory information

15.1. US Federal regulations

Oxygen, compressed (7782-44-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Sudden release of pressure hazard Fire hazard

All components of this product are listed on the Toxic Substances Control Act (TSCA) inventory.

Other information

: When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product.

Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair, Inc., it is the user's obligation to determine the conditions of safe use of the product.

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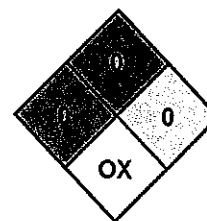
NFPA health hazard

NFPA fire hazard

IFPA reactivity

NFPA specific hazard

- : 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.
- : 0 - Materials that will not burn.
- : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
- : OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.



HMIS III Rating

Health

Flammability

Physical

- : 0 Minimal Hazard - No significant risk to health
- : 0 Minimal Hazard
- : 3 Serious Hazard

SDS US (GHS HazCom 2012) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.