



# Oxygen (compressed)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 04/24/2015

Version: 2.0

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

#### 1.1. Product identifier

Product form : Substance  
Substance name : Oxygen (compressed)  
CAS No : 7782-44-7  
Product code : SG-1001-01251

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

Use of the substance/mixture : Test gas/Calibration gas.

#### 1.3. Details of the supplier of the safety data sheet

Air Liquide  
2700 Post Oak Boulevard  
Houston, TX 77056 - USA  
T 1-800-819-1704  
[www.us.airliquide.com](http://www.us.airliquide.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (GHS-US)

Ox. Gas 1 H270  
Compressed gas H280

Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

##### Hazard pictograms (GHS-US)



GHS03

GHS04

##### 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 - Use only outdoors or in a well-ventilated area  
P280 - Wear eye protection, face protection, protective gloves, protective clothing  
P403 - Store in a well-ventilated place  
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations  
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)  
CGA-PG05 - Use a back flow preventive device in the piping  
CGA-PG06 - Close valve after each use and when empty  
CGA-PG10 - Use only with equipment rated for cylinder pressure  
CGA-PG14 - Approach suspected leak area with caution  
CGA-PG20 - Use only with equipment of compatible materials of construction  
CGA-PG21 - Open valve slowly  
CGA-PG22 - Use only with equipment cleaned for oxygen service

#### 2.3. Other hazards

No additional information available

#### 2.4. Unknown acute toxicity (GHS-US)

Not applicable

# Oxygen (compressed)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 3: Composition/information on ingredients

#### 3.1 Substance

| Name                                      | Product identifier | %       | Classification (GHS-US)                 |
|---|--------------------|---------|---|
| Oxygen (compressed)<br>(Main constituent) | (CAS No) 7782-44-7 | > 99.99 | Ox. Gas 1, H270<br>Compressed gas, H280 |

Full text of H-phrases: see section 16

#### 3.2 Mixture

Not applicable

### SECTION 4: First aid measures

#### 4.1 Description of first-aid measures

- First-aid measures after inhalation : Adverse effects not expected from this product.  
First-aid measures after skin contact : Adverse effects not expected from this product.  
First-aid measures after eye contact : Adverse effects not expected from this product.  
First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

#### 4.2 Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : Adverse effects not expected from this product.  
Symptoms/injuries after skin contact : Adverse effects not expected from this product.  
Symptoms/injuries after eye contact : Adverse effects not expected from this product.  
Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.  
Symptoms/injuries upon intravenous administration : Not known.  
Chronic symptoms : Adverse effects not expected from this product.

#### 4.3 Indication of any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.  
Unsuitable extinguishing media : Do not use water jet to extinguish.

#### 5.2 Special hazards arising from the substance or mixture

- Fire hazard : The product is not flammable.  
Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.  
Reactivity : None known.

#### 5.3 Advice for firefighters

- Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.  
Protection during firefighting : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

- General measures : Ensure adequate ventilation.

##### 6.1.1 For non-emergency personnel

- Protective equipment : Wear protective equipment consistent with the site emergency plan.  
Emergency procedures : Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

##### 6.1.2 For emergency responders

- Protective equipment : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.  
Emergency procedures : Evacuate and limit access. Ventilate area.

# Oxygen (compressed)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 6.2. Environmental precautions

Try to stop release if safe to do so.

### 6.3. Methods and material for containment and cleaning up

For containment : Try to stop release if safe to do so.  
Methods for cleaning up : Dispose of this material and its container in accordance with local regulations.

### 6.4. Reference to other sections

See also Sections 8 and 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Close valve after each use and when empty.  
Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.  
Hygiene measures : Do not eat, drink or smoke when using this product.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.  
Storage conditions : Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in use. Protect cylinder from physical damage. Store in well ventilated area.  
Incompatible products : None known.  
Incompatible materials : Flammable materials. Combustible materials. Reducing agents.

### 7.3. Specific end uses(s)

See Section 1.2.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Oxygen (compressed) (7782-44-7)

|       |                |
|-------|----------------|
| ACGIH | Not applicable |
| OSHA  | Not applicable |

### 8.2. Exposure controls

Appropriate engineering controls : Provide adequate ventilation. Consider work permit system e.g. for maintenance activities. Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits.  
Hand protection : Wear working gloves when handling gas containers. 29 CFR 1910.138: Hand Protection.  
Eye protection : Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.  
Skin and body protection : Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.  
Respiratory protection : None necessary during normal and routine operations. See Sections 5 & 6.  
Thermal hazard protection : None necessary during normal and routine operations.  
Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.  
Other information : Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state : Gas  
Appearance : Colorless gas.  
Color : Colourless.  
Odor : Odorless  
Odor threshold : No data available  
pH : Not applicable.  
Melting point : -219 °C  
Freezing point : -219 °C  
Boiling point : -181.95 °C

# Oxygen (compressed)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

|   |  |
|---|--|
| Critical temperature                        | : -117.55 °C   |
| Critical pressure                           | : 5043 kPa   |
| Flash point                                 | : Not applicable - not flammable   |
| Relative evaporation rate (butyl acetate=1) | : No data available  |
| Relative evaporation rate (ether=1)         | : Not applicable for gases and gas-mixtures.   |
| Flammability (solid, gas)                   | : See Section 2.1 and 2.2  |
| Explosion limits                            | : Not applicable - not flammable   |
| Explosive properties                        | : Not applicable - not flammable.  |
| Oxidizing properties                        | : Not combustible but enhances combustion of other substances. May intensify fire. Oxidizer. |
| Vapor pressure                              | : 28.1 mbar 23°C   |
| Relative density                            | : 1.1  |
| Relative vapor density at 20 °C             | : 1.105  |
| Specific gravity / density                  | : 1.4289 kg/m³ (at 21.1 °C)  |
| Molecular mass                              | : 31.9988 g/mol  |
| Relative gas density                        | : 1.1  |
| Solubility                                  | : Water: 39 mg/l   |
| Log Pow                                     | : Not applicable for inorganic gases.  |
| Log Kow                                     | : No data available  |
| Auto-ignition temperature                   | : Not applicable.  |
| Decomposition temperature                   | : No data available  |
| Viscosity                                   | : No data available  |
| Viscosity, kinematic                        | : Not applicable.  |
| Viscosity, dynamic                          | : Not applicable.  |

### 9.2. Other information

Additional information : Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

None known.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Violently oxidises organic material.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Combustible materials. Flammable materials. Reducing agents.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

| Oxygen (compressed) (7782-44-7) |                    |
|---------------------------------|--------------------|
| LC50 inhalation rat (ppm)       | 800000 ppm/4h      |
| ATE US (gases)                  | 800000.000 ppmV/4h |

Skin corrosion/irritation : Not classified  
pH: Not applicable.

Serious eye damage/irritation : Not classified  
pH: Not applicable.

# Oxygen (compressed)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

|  |  |
|--|--|
| Respiratory or skin sensitization                  | : Not classified   |
| Germ cell mutagenicity                             | : Not classified   |
| Carcinogenicity                                    | : Not classified   |
| Reproductive toxicity                              | : Not classified   |
| Specific target organ toxicity (single exposure)   | : Not classified   |
| Specific target organ toxicity (repeated exposure) | : Not classified   |
| Aspiration hazard                                  | : Not classified   |
| Symptoms/injuries after inhalation                 | : Adverse effects not expected from this product.            |
| Symptoms/injuries after skin contact               | : Adverse effects not expected from this product.            |
| Symptoms/injuries after eye contact                | : Adverse effects not expected from this product.            |
| Symptoms/injuries after ingestion                  | : Ingestion is not considered a potential route of exposure. |
| Symptoms/injuries upon intravenous administration  | : Not known.   |
| Chronic symptoms                                   | : Adverse effects not expected from this product.            |

### SECTION 12: Ecological information

#### 12.1 Toxicity

Ecology - general : No ecological damage caused by this product.

#### 12.2 Persistence and degradability

##### Oxygen (compressed) (7782-44-7)

|                               |  |
|-------------------------------|--|
| Persistence and degradability | No ecological damage caused by this product. |
|-------------------------------|--|

#### 12.3 Bioaccumulative potential

##### Oxygen (compressed) (7782-44-7)

|         |                                     |
|---------|-------------------------------------|
| Log Pow | Not applicable for inorganic gases. |
|---------|-------------------------------------|

|                           |  |
|---------------------------|--|
| Bioaccumulative potential | No ecological damage caused by this product. |
|---------------------------|--|

#### 12.4 Mobility in soil

##### Oxygen (compressed) (7782-44-7)

|                |  |
|----------------|--|
| Ecology - soil | No ecological damage caused by this product. |
|----------------|--|

#### 12.5 Other adverse effects

Effect on ozone layer : None.

Effect on the global warming : No known effects from this product.

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

Waste treatment methods : Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.

Waste disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at [www.cganet.com](http://www.cganet.com) for more guidance on suitable disposal methods.

### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1072 Oxygen, compressed (Oxygen), 2.2

UN-No.(DOT) : UN1072

Proper Shipping Name (DOT) : Oxygen, compressed

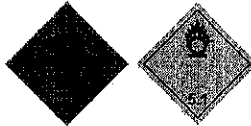
Department of Transportation (DOT) Hazard Classes : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115

# Oxygen (compressed)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Hazard labels (DOT) : 2.2 - Non-flammable gas  
5.1 - Oxidizer



DOT Packaging Non Bulk (49 CFR 173.xxx) :

302

DOT Packaging Bulk (49 CFR 173.xxx) :

314;315

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.

DOT Packaging Exceptions (49 CFR 173.xxx) :

306

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) :

75 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) :

150 kg

DOT Vessel Stowage Location :

A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

### Additional information

Emergency Response Guide (ERG) Number :

122 (UN1072, UN1073)

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.

### ADR

Transport document description :

UN 1072, 2.2 (5.1), (E)

Class (ADR) :

2 - Gases

Hazard identification number (Kemler No.) :

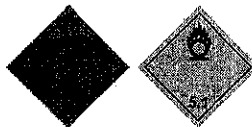
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Classification code (ADR) :

10

Hazard labels (ADR) :

2.2 - Non-flammable compressed gas  
5.1 - Oxidizer



Orange plates :



Tunnel restriction code (ADR) :

E

Limited quantities (ADR) :

0

Excepted quantities (ADR) :

E0

### Transport by sea

UN-No. (IMDG) :

1072

Proper Shipping Name (IMDG) :

COMPRESSED GAS, OXIDIZING, N.O.S.

Class (IMDG) :

2 - Gases

MFAG-No :

122

# Oxygen (compressed)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Air transport

UN-No.(IATA) : 1072  
Proper Shipping Name (IATA) : COMPRESSED GAS, OXIDIZING, N.O.S.  
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

### 15.2. International regulations

#### CANADA

#### Oxygen (compressed) (7782-44-7)

Listed on the Canadian DSL (Domestic Substances List)

|                      |  |
|----------------------|--|
| WHMIS Classification | Class A - Compressed Gas<br>Class C - Oxidizing Material |
|----------------------|--|

#### EU-Regulations

#### Oxygen (compressed) (7782-44-7)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

|                |      |
|----------------|------|
| Ox. Gas 1      | H270 |
| Compressed gas | H280 |

Full text of H-phrases: see section 16

#### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

O; R8

Full text of R-phrases: see section 16

#### National regulations

#### Oxygen (compressed) (7782-44-7)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

### 15.3. US State regulations

#### Oxygen (compressed) (7782-44-7)

|                            |   |
|----------------------------|---|
| State or local regulations | U.S. - Massachusetts - Right To Know List<br>U.S. - New Jersey - Right to Know Hazardous Substance List<br>U.S. - Pennsylvania - RTK (Right to Know) List |
|----------------------------|---|

## SECTION 16: Other information

Indication of changes : Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.

Other information : This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

#### Full text of H-phrases:

|                |  |
|----------------|--|
| Compressed gas | Gases under pressure Compressed gas                |
| Ox. Gas 1      | Oxidizing gases Category 1                         |
| H270           | May cause or intensify fire; oxidizer              |
| H280           | Contains gas under pressure; may explode if heated |

# Oxygen (compressed)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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SDS US (GHS HazCom 2012)

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