

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

SECTION 1: Identification

1.1 Product identifier

Product form	Substance
Name	Oxygen
CAS No	7782-44-7
Formula	O ₂
Other means of identification	Oxygen, Compressed
Product group	Core products



Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

1.2. Recommended and use restrictions on use

Recommended uses and restrictions

***Industrial use**

1.3 Details of the supplier of the safety data sheet

Supplier:

Core Industrial Gases Inc.
395 Frankom street
Ajax, Ontario, L1S 1R4
Ph (905) 683 3262

1.4 EMERGENCY TELEPHONE NUMBER:

1-289-923-2757

Call emergency number 24 hours a day only for spills, Leaks, Fire, Exposure, or accidents involving this product. For routine information, Contact your supplier or Core Industrial Gases sales representative.

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture:

GHS-CA Classification

Ox. Gas 1	H270
Compressed Gas	H280

2.2 GHS Label elements including precautionary statements

Hazard pictograms



GHS04



GHS03

Signal Word: Danger

Hazard statements

MAY CAUSE OR INTENSIFY FIRE; OXIDIZER CONTAINS GAS UNDER PRESSURE;
MAY EXPLODE IF HEATED.

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

Precautionary statements

Do not handle until all safety precautions have been read and understood Keep away from clothing and other combustible materials Keep valves and fittings free from oil and grease In case of fire, Stop leak if safe to do so Use and store only outdoors or in a well-ventilated area Protect from sunlight when ambient temperature exceeds 52°C (125°F) Use a back flow preventive device in the piping Use only with equipment of compatible materials of construction and rated for cylinder pressure. DO NOT change or force fit connections Avoid spills. Do not walk on or roll equipment over spills Use only with equipment cleaned for oxygen service Open valve slowly Close valve after each use and when empty.

2.3 Other hazards

Other hazards not contributing to the classification

Breathing 80 percent or more oxygen at atmospheric pressure for more than a few hours may cause nasal stuffiness, cough, sore throat, chest pain, and breathing difficulty. Breathing oxygen at higher pressure increases the likelihood of adverse effects within a shorter time period. Breathing pure oxygen under pressure may cause lung damage and central nervous system (CNS) effects, resulting in dizziness, poor coordination, tingling sensation, visual and hearing disturbances, muscular twitching, unconsciousness, and convulsions. Breathing oxygen under pressure may cause prolongation of adaptation to darkness and reduced peripheral vision.

SECTION 3. Composition/information on ingredients

3.1 Substances

Name	CAS No.	%(Vol.)	Common name (synonyms)
Oxygen (main constituent)	(CAS No 7782-44-7)	>99.5	

3.2 Mixtures

Not applicable.

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

SECTION 4: First aid measures

4.1 Description of first aid measures

First aid measures inhalation

Get medical advice/attention. Remove to fresh air and keep at rest in a position comfortable for breathing.

First aid measures skin contact

Adverse effects not expected from this product.

First aid measures eye contact

In case of eye irritation: Rinse immediately with plenty of water. Consult an ophthalmologist if irritation persists.

First aid measures ingestion

Ingestion is not considered a potential route of exposure.

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

No additional information available.

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

Other medical advice or treatment none.

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

SECTION 5: Firefighting measures

5.1 Extinguishing media

Vigorously accelerates combustion. Use media appropriate for surrounding fire. Water (e.g, safety shower) is the preferred extinguishing media for clothing fires.

5.2 Unsuitable extinguishing media

No additional information available.

5.3 Specific hazards arising from the hazardous product

Fire hazard

Oxidizing agent; vigorously accelerates combustion. Contact with flammable materials may cause fire or explosion.

Explosion hazard

CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.

Reactivity

No additional information available.

Reactivity in case of fire

No reactivity hazard other than the effects described in sub-sections below

5.4 Special protective equipment for fire fighters

Firefighting instructions

High-pressure, oxidizing gas

Evacuate all personnel from the danger area. Use self-contained breathing apparatus 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 their provincial and local fire code regulations.

Protection during Firefighting

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

Self-contained breathing apparatus.

Special protective equipment for Firefighters

Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.

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. Cylinders are equipped with a pressure relief device. (Exceptions may exist where authorized by TC.) 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.

Other information refer to section 8

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

SECTION 7: Handling and storage

7.1 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.

Storage conditions

Store only where temperature will not exceed 125°F (52°C). Post "No Smoking" or "Open Flames" signs in storage and use areas. There must be no sources of ignition. Separate packages and 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 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. 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 back flow preventive device in the piping. 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.

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

No additional information available.

8.2 Appropriate engineering controls

Avoid oxygen rich (>23,5%) atmospheres. Use a local exhaust system with sufficient flow velocity to maintain an adequate supply of air in the worker's breathing zone. Mechanical (general): General exhaust ventilation may be acceptable if it can maintain an adequate supply of air.

8.3 Personal protective equipment



Safety glasses



Gloves



Face shield

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

Hand protection

Wear work gloves when handling containers. Wear heavy rubber gloves where contact with product may occur.

Eye protection

Wear goggles when transfilling or breaking transfer connections. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.

Respiratory protection

Respiratory protection: Use respirable fume respirator or air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Select in accordance with provincial regulations, local bylaws or guidelines. Selection should be based on the current CSA standard Z94.4, "Selection, Care, and Use of Respirators." Respirators should also be approved by NIOSH and MSHA. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Environmental exposure controls

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Other information

Other protection Safety shoes for general handling at customer sites. Metatarsal shoes and cuffless trousers for cylinder handling at packaging and filling plants. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines. For working with flammable and oxidizing materials, consider the use of flame resistant anti-static safety clothing.

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Gas
Appearance	Colourless Gas
Molecular mass	32 g/mol

Colour	Colourless
Odour	No odour warning properties
Odour threshold	No data available
pH	Not applicable
pH solution	No data available
Relative evaporation rate (butylacetate=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 (-181.48F)
Auto-ignition temperature	Not applicable
Decomposition temperature	No data available
Vapour pressure	Not applicable
Vapour pressure at 50 C	No data available
Critical pressure	50.4 bar (731.4psia)
Relative vapour density at 20 C	0.0827 lb/ft ³ . (1.325 kg/m ³) absolute vapour density at 70 F/21.1 C, 1atm
Relative density	1.1
Relative density of saturated gas/air mixture	No data available
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

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

Viscosity kinematic (calculated value) (40 C)	No data available
Explosive properties	Not applicable
Oxidizing properties	Oxidizer
Flammability (solid gas)	Non flammable

9.2 Other information

Gas group	Compressed gas
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

No additional information available.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Violently oxidizes organic material.

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

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 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity (oral)	Not classified
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	Not classified
Skin corrosion/irritation	Not classified pH: Not applicable.
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

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

SECTION 12: Ecological information

12.1 Toxicity

Ecology general there has been no ecological damage caused by this product.

12.2 Persistence and degradability

Persistence and degradability no ecological damage caused by this product.

12.3 Bioaccumulative potential

Oxygen

Log Pow	Not applicable
Log Kow	Not applicable
Bioaccumulative potential	No ecological damage caused by this product.

12.4 Mobility in soil

Oxygen

Mobility in soil	No data available.
Log Pow	Not applicable.
Log Kow	Not applicable.
Ecology - soil	No ecological damage caused by this product.

12.5 Other adverse effects

Effects on the ozone layer

None

Effects on global warming

No known effects from this product

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

SECTION 13: Disposal considerations

13.1 Disposal considerations

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

14.1 Basic shipping description

In accordance with TDG.

14.2 TDG

UN-No. (TDG)	UN1072
TDG Primary Hazard Classes	2.2 - Class 2.2 - Non-Flammable, Non-Toxic Gas.
TDG Subsidiary Classes	5.1
Proper shipping name	OXYGEN, COMPRESSED
ERAP Index	3 000
Explosive Limit and Limited Quantity Index	0.125 L (0,125 L)
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	75 L

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

14.3 Air and Sea transport

IMDG

UN-No. (IMDG)	1072
Proper Shipping Name (IMDG)	OXYGEN, COMPRESSED
Class (IMDG)	2 - Gases
MFAG-No	122

IATA

UN-No. (IATA)	1072
Proper Shipping Name (IATA)	Oxygen, compressed
Class (IATA)	2

SECTION 15: Regulatory information

15.1 National Regulations for oxygen

Listed on the Canadian DSL (Domestic Substances List)

15.2 International regulations oxygen

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

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

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)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on INSQ (Mexican national Inventory of Chemical Substances)

Indication of changes training advise

Ensure operators understand the hazards of oxygen enrichment.

NFPA health hazard

Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard

Materials that will not burn.

NFPA reactivity

Normally stable, even under fire exposure conditions, and are not reactive with water.

NFPA specific hazard

This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.

HMIS III Rating

Health

Minimal Hazard - No significant risk to health.

Flammability

Minimal Hazard - Materials that will not burn.

Physical

Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Oxygen

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

Serious Hazard - Materials that may form explosive mixtures with water and are capable of detonation or explosive reaction in the presence of a strong initiating source. Materials may polymerize, decompose, self-react, or undergo other chemical change at normal temperature and pressure with moderate risk of explosion.