

Product: Oxygen
UN No: 1072

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

Product identifier : Oxygen
Chemical formula : O₂
Synonyms : Oxygen, Oxygen Gas, Gaseous Oxygen, GOX

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

Use of the Substance/Mixture : Medical applications
Restrictions on use : No data available

Details of the Supplier : CK Special Gases Ltd
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Leicester Road, Ibstock
Leicestershire
LE67 6HP

Email Address : sales@ckgas.com

Telephone : +44(0)1530 267209
Emergency Telephone (24 hours) : Web Version

2. HAZARDS IDENTIFICATION

Classification according to Regulation 1272/2008 (CLP)
Flammable gases – Category 1 H270 : May cause or intensify fire; oxidiser.
Gases under pressure - Compressed gas. H280:Contains gas under pressure; may explode if heated.

Label Elements according to Regulation 1272/2008 (CLP)

Hazard pictograms/symbols



Signal Word : Danger

Hazard Statements : H270:May cause or intensify fire; oxidiser.
H280:Contains gas under pressure; may explode if heated.

SAFETY DATA SHEET

MSDS No: CKSG-01-1072

Product: Oxygen
UN No: 1072

Precautionary Statements : Prevention : P220:Keep away from clothing and other combustible materials
P244:Keep valves and fittings free from grease and oil.

Response : P370+P376:In case of fire: Stop leak if safe to do so.

Storage : P403:Store in a well-ventilated place.

Classification (Directive)

O Oxidising

R8 Contact with combustible material may cause a fire.

Other Hazards

High pressure oxidizing gas.

Vigorously accelerates combustion.

Keep oil, grease and combustibles away.

May react violently with combustible materials.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture : Substance

Components	EINECS / ELINCS Number	CAS Number	Concentration (Volume)
Oxygen	231-956-9	7782-44-7	100 %

Components	Classification (Directive)	Classification (CLP)	REACH Reg. #
Oxygen	O R8	Ox. Gas 1 Press. Gas	

If REACH registration numbers do not appear the substance is either exempt from registration, does not meet the minimum volume threshold for registration, or the registration date has not yet come due. Refer to section 16 for full text of each relevant R-phrase and H-phrases.

Concentration is nominal. For the exact product composition, please refer to CK Special Gases technical specifications.

4. FIRST AID MEASURES

Description of first aid measures

General advice : Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Product: Oxygen

UN No: 1072

Eye contact :

Seek medical advice.

Skin contact :

Seek medical advice.

Ingestion :

Ingestion is not considered a potential route of exposure.

Inhalation :

Consult a physician after significant exposure. Remove to fresh air. If breathing has stopped or is laboured, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately.

Most important symptoms and effects, both acute and delayed

Symptoms :

No data available.

Indication of any immediate medical attention and special treatment needed

No data available.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media :

All known extinguishing media can be used.

Extinguishing media which must not be used for safety reasons :

No data available.

Special hazards arising from the substance or mixture :

Upon exposure to intense heat or flame, cylinder will vent rapidly and or rupture violently. Oxidant. Strongly supports combustion. May react violently with combustible materials. Some materials which are non-combustible in air may burn in the presence of an oxidizer. Move away from container and cool with water from a protected position. Keep adjacent cylinders cool by spraying with large amounts of water until fire burns itself out. If possible stop flow of product.

Advice for fire-fighters :

Wear self-contained breathing apparatus for fire fighting if necessary.

Further information :

Some materials that are non-combustible in air will burn in the presence of an oxygen enriched atmosphere (greater than 23.5%). Fire resistant clothing may burn and offer no protection in oxygen rich atmospheres.

Product: Oxygen
UN No: 1072

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective

equipment and emergency procedures :Clothing exposed to high concentrations may retain oxygen 30 minutes or longer and become a potential fire hazard. Stay away from ignition sources. Evacuate personnel to safe areas. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ventilate the area.

Environmental precautions : Do not discharge into any place where its accumulation could be dangerous. Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up : Ventilate the area.

Additional advice : If possible, stop flow of product. Increase ventilation to the release area and monitor concentrations. If leak is from cylinder or cylinder valve, call the CK Special Gases emergency telephone number. If the leak is in the user's system, close the cylinder valve, safely vent the pressure, and purge with an inert gas before attempting repairs.

7. HANDLING AND STORAGE

Precautions for safe handling

All gauges, valves, regulators, piping and equipment to be used in oxygen service must be cleaned for oxygen service. Oxygen is not to be used as a substitute for compressed air. Never use an oxygen jet for cleaning purposes of any sort, especially clothing, as it increases the likelihood of an engulfing fire. Only experienced and properly instructed persons should handle compressed gases/cryogenic liquids. Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed 50°C (122°F) . Before using the product, determine its identity by reading the label. Know and understand the properties and hazards of the product before use. When doubt exists as to the correct handling procedure for a particular gas, contact the supplier. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Use an adjustable strap wrench to remove over-tight or rusted caps. Before connecting the container, check the complete gas system for suitability, particularly for pressure rating and materials. Before connecting the container for use, ensure that back feed from the system into the container is prevented. Ensure the complete gas system is compatible for pressure rating and materials of construction. Ensure the complete gas system has been checked for leaks before use. Employ suitable pressure regulating devices on all containers when the gas is being emitted to systems with lower pressure rating than that of the container. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Do not use containers as rollers or supports or for any other purpose than to

Product: Oxygen
UN No: 1072

contain the gas as supplied. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Do not smoke while handling product or cylinders. Never re-compress a gas or a gas mixture without first consulting the supplier. Never attempt to transfer gases from one cylinder/container to another.

Always use backflow protective device in piping. When returning cylinder install valve outlet cap or plug leak tight. Never permit oil, grease, or other readily combustible substances to come into contact with valves or containers containing oxygen or other oxidants. Do not use rapidly opening valves (e.g. ball valves). Open valve slowly to avoid pressure shock. Never pressurize the entire system at once. Use only with equipment cleaned for oxygen service and rated for cylinder pressure. Never use direct flame or electrical heating devices to raise the pressure of a container. Containers should not be subjected to temperatures above 50°C (122°F). Prolonged periods of cold temperature below -30°C (-20°F) should be avoided.

Conditions for safe storage, including any incompatibilities

Containers should be stored in a purpose build compound which should be well ventilated, preferably in the open air. Full containers should be stored so that oldest stock is used first. Stored containers should be periodically checked for general condition and leakage. Observe all regulations and local requirements regarding storage of containers. Protect containers stored in the open against rusting and extremes of weather. Containers should not be stored in conditions likely to encourage corrosion. Containers should be stored in the vertical position and properly secured to prevent toppling. The container valves should be tightly closed and where appropriate valve outlets should be capped or plugged. Container valve guards or caps should be in place. Keep containers tightly closed in a cool, well-ventilated place. Store containers in location free from fire risk and away from sources of heat and ignition. Full and empty cylinders should be segregated. Do not allow storage temperature to exceed 50°C (122°F). Display "No Smoking or Open Flames" signs in the storage areas. Return empty containers in a timely manner.

Technical measures/Precautions

Containers should be segregated in the storage area according to the various categories (e.g. flammable, toxic, etc.) and in accordance with local regulations.

Specific end use(s)

Refer to section 1 or the extended SDS if applicable

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

If applicable, refer to the extended section of the SDS for further information on CSA.

Exposure controls

Engineering measures
Ensure adequate ventilation.

Product: Oxygen**UN No: 1072**

Personal protective equipment

Respiratory protection :

Hand protection :

Eye protection :

Skin and body protection :

Special instructions for protection and hygiene :

Users of breathing apparatus must be trained.

Sturdy work gloves are recommended for handling cylinders.

The breakthrough time of the selected glove(s) must be greater than the intended use period.

Safety glasses recommended when handling cylinders.

Safety shoes are recommended when handling cylinders.

Ensure adequate ventilation, especially in confined areas. Gloves must be clean and free of oil and grease.

9. PHYSICAL

Information on basic physical and chemical properties

Appearance :	Compressed gas. Colourless gas
Odour :	No odour warning properties.
Odour threshold :	No data available.
pH :	Not applicable.
Melting point/range :	-362 °F (-219 °C)
Boiling point/range :	-297 °F (-183 °C)
Flash point :	Not applicable.
Evaporation rate :	Not applicable.
Flammability (solid, gas) :	No data available.
Upper/lower explosion/flammability limit :	No data available.
Vapour pressure :	Not applicable.
Water solubility :	0.039 g/l
Relative vapour density :	1.1 (air = 1).
Relative density :	1.1 (water = 1).
Partition coefficient (n-octanol/water) :	Not applicable.
Autoignition temperature :	Not applicable.
Decomposition temperature :	No data available.
Viscosity :	Not applicable.
Explosive properties :	No data available.
Oxidizing properties :	Cl = 1
Molecular Weight :	32 g/mol
Density :	0.0013 g/cm ³ (0.081 lb/ft ³) at 21 °C (70 °F) Note: (as vapour)
Specific Volume :	0.7540 m ³ /kg (12.08 ft ³ /lb) at 21 °C (70 °F)

Product: Oxygen
UN No: 1072

10. STABILITY AND REACTIVITY

Reactivity :	Refer to possibility of hazardous reactions and/or incompatible materials sections.
Chemical Stability :	Stable under normal conditions.
Possibility of hazardous reactions :	No data available.
Conditions to avoid :	No data available.
Incompatible materials :	Flammable materials. Organic materials. Avoid oil, grease and all other combustible materials.
Hazardous decomposition products :	No data available.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Likely routes of exposure

Effects on Eye :	No adverse effect.
Effects on Skin :	No adverse effect.
Inhalation Effects :	Breathing 75% 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 pure oxygen under pressure may cause lung damage and also central nervous system effects.
Ingestion Effects :	Ingestion is not considered a potential route of exposure.
Symptoms :	No data available.

Acute toxicity

Acute Oral Toxicity :	No data is available on the product itself.
Inhalation :	No data is available on the product itself.
Acute Dermal Toxicity :	No data is available on the product itself.
Skin corrosion/irritation :	No data available.
Serious eye damage/eye irritation :	No data available.
Sensitization. :	No data available.

Chronic toxicity or effects from long term exposures

Carcinogenicity :	No data available.
Reproductive toxicity :	No data is available on the product itself.
Germ cell mutagenicity :	No data is available on the product itself.
Specific target organ systemic toxicity (single exposure) :	No data available.
Specific target organ systemic toxicity (repeated exposure) :	Premature infants exposed to high oxygen concentrations may suffer delayed retinal damage that can progress to retinal detachment and blindness. Retinal damage may also occur in adults exposed to 100% oxygen for extended periods (24 to 48 hr). At two or more atmospheres central

Product: Oxygen
UN No: 1072

Aspiration hazard : nervous system (CNS) toxicity occurs. Symptoms include nausea, vomiting, dizziness or vertigo, muscle twitching, vision changes and loss of consciousness and generalized seizures. At three atmospheres, CNS toxicity occurs in less than two hours and at six atmospheres in only a few minutes. No data available.

12. ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity : No data is available on the product itself.

Toxicity to other organisms : No data is available on the product itself.

Persistence and degradability : No data available.

Bioaccumulative potential : No data is available on the product itself.

Mobility in soil : No data available.

Results of PBT and vPvB assessment : If applicable, refer to the extended section of the SDS for further information on CSA.

Other adverse effects : No ecological damage caused by this product.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods : Contact supplier if guidance is required. Return unused product in original cylinder to supplier.

Contaminated packaging : Return cylinder to supplier.

14. TRANSPORT INFORMATION

ADR

UN/ID No. :	UN1072
Proper shipping name :	OXYGEN, COMPRESSED
Class or Division :	2
Tunnel Code :	(E)
Label(s) :	2.2 (5.1)
ADR/RID Hazard ID no. :	25

SAFETY DATA SHEET

MSDS No: CKSG-01-1072

Product: Oxygen
UN No: 1072

IATA

UN/ID No. : UN1072
Proper shipping name : Oxygen, compressed
Class or Division : 2.2
Label(s) : 2.2 (5.1)

IMDG

UN/ID No. : UN1072
Proper shipping name : OXYGEN, COMPRESSED
Class or Division : 2.2
Label(s) : 2.2 (5.1)

RID

UN/ID No. : UN1072
Proper shipping name : OXYGEN, COMPRESSED
Class or Division : 2
Label(s) : 2.2 (5.1)

Further Information

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. The transportation information is not intended to convey all specific regulatory data relating to this material. For complete transportation information, contact a CK Special Gases customer service representative.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Country	Regulatory list	Notification
USA	TSCA	Included on Inventory.
EU	EINECS	Included on Inventory.
Canada	DSL	Included on Inventory.
Australia	AICS	Included on Inventory.
South Korea	ECL	Included on Inventory.
China	SEPA	Included on Inventory.
Philippines	PICCS	Included on Inventory.
Japan	ENCS	Included on Inventory.

Chemical Safety Assessment

Refer to extended SDS for CSA information

This product is either exempt from REACH, does not meet the minimum volume threshold for a CSA, or the CSA has not yet been completed.

Product: Oxygen
UN No: 1072

16. OTHER INFORMATION

Ensure all national/local regulations are observed.

R-phrases – Components

R8 Contact with combustible material may cause fire.

Hazard Statements: H270 May cause or intensify fire; oxidiser.

Prepared by : CK Special Gases Ltd

For additional information, please visit our website at www.ckgas.com

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.
