

Safety Data Sheet – Oxygen

DANGER



Safety Data Sheet (SDS)

Oxygen

Uni-O-100

1 PRODUCT AND COMPANY DETAILS	
1.1 Product Identifier	
Product Name	Uni-O-100
Proper Shipping Name	OXYGEN
Chemical Formula	O ₂
1.2 Recommended use and restrictions on use	
Use(s)	Industrial and professional. Perform risk assessment prior to use. Test gas/Calibration gas. Welding, cutting, heating and brazing. Shield gas for welding processes. Use for manufacture of electronic/photovoltaic components. Water treatment. Laser gas. Laboratory use. Food applications. Contact supplier for more information on uses.
Restrictions	Consumer use.
1.3 Supplier details	
Supply Company	Plusgas PO Box 1340 Browns Plains Q 4118
General Enquiries	TEL (07) 3800 2080

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Technical Enquiries Specific to product	plusgas.com.au Tel: (07) 3800 2080
In Emergency Dial 000. Police or Fire Brigade	
2 HAZARDS IDENTIFICATION	
2.1 Classification of the substance or mixture	
Classification according to WHS Regulation Physical hazards Oxidising Gases, Category 1 H270 Gases under pressure : Compressed gas H280	
2.2 Label Elements	
Signal word	Danger
Pictogram	<p style="text-align: center;"> GHS03 GHS04 </p>
Hazard statement(s)	H270 - May cause or intensify fire; oxidiser. H280 - Contains gas under pressure; may explode if heated.
Prevention Statement(s)	P220 - Keep away from combustible materials. P244 - Keep valves and fittings free from oil and grease..
Response Statement(s)	P370+P376 - In case of fire: stop leak if safe to do so..
Storage statement	P403 - Store in a well-ventilated place.
Disposal Statement	None allocated
2.3 Other Hazards	
None	
3 COMPOSITION AND INFORMATION ON INGREDIENTS	
3.1 Substances	

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Name	Product Identifier	%	Classification according to WHS Regulation
Oxygen	(CAS-No.) 7782-44-7 (EC-No.) 231-956-9 (EC Index-No.) 008-001-00-8 (Registration-No.) *1	100	Ox. Gas 1, H270 Press. Gas (Comp.), H280
<p><i>Contains no other components or impurities which will influence the classification of the product.</i></p> <p><i>*1: Listed in Annex IV / V REACH, exempted from registration.</i></p> <p><i>*2: Registration deadline not expired.</i></p> <p><i>*3: Registration not required: Substance manufactured or imported < 1t/y.</i></p> <p>Full text of R-phrases see section 16. Full text of H-statements see section 16.</p>			
3.2 Mixtures			
Not applicable			
4 FIRST AID			
4.1 Description of first aid measures			
Eye	Adverse effects not expected from this product.		
Inhalation	Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped. Remove victim to uncontaminated area.		
Skin	Adverse effects not expected from this product.		
Ingestion	Ingestion is not considered a potential route of exposure.		
4.2 Most important symptoms and effects, both acute and delayed			
Continuous inhalation of concentrations higher than 75% may cause nausea, dizziness, respiratory difficulty and convulsion. Refer to section 11.			
4.3 Indication of any immediate medical attention and special treatment needed			
Obtain medical assistance.			
5 FIRE FIGHTING MEASURES			
5.1 Extinguishing media			

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<ul style="list-style-type: none"> - Suitable extinguishing media - Unsuitable extinguishing media 	<p>Water spray or fog. Do not use water jet to extinguish.</p>
<p>5.2 Special hazards arising from the substance or mixture</p>	
<p>Specific hazards</p> <p>Hazardous combustion products</p>	<p>Exposure to fire may cause containers to rupture/explode. Supports combustion. None.</p>
<p>5.3 Advice for fire-fighters</p>	
<p>Specific methods</p>	<p>Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems. If possible, stop flow of product. Use water spray or fog to knock down fire fumes if possible. Move containers away from the fire area if this can be done without risk.</p>
<p>Special protective equipment for fire fighters</p>	<p>Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters. Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.</p>
<p>5.4 Hazchem code</p>	<p>2S</p>
<p>6 ACCIDENTAL RELEASE MEASURES</p>	
<p>6.1 Personal precautions, protective equipment and emergency procedures</p>	
<p>Try to stop release. Evacuate area. Consider the risk of potentially explosive atmospheres. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Eliminate ignition sources. Ensure adequate air ventilation. Act in accordance with local emergency plan. Stay upwind.</p>	
<p>6.2 Environmental precautions</p>	
<p>Try to stop release.</p>	
<p>6.3 Methods and material for containment and cleaning up</p>	
<p>Ventilate area.</p>	

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6.4 Reference to other sections

See sections 8 and 13 for exposure controls and disposal.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Safe use of the product

The product must be handled in accordance with good industrial hygiene and safety procedures.

Only experienced and properly instructed persons should handle gases under pressure.

Consider pressure relief device(s) in gas installations.

Ensure the complete gas system was (or is regularly) checked for leaks before use.

Do not smoke while handling product.

Keep equipment free from oil and grease.

Use no oil or grease.

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.

Use only oxygen approved lubricants and oxygen approved seals.

Use only with equipment cleaned for oxygen service and rated for cylinder pressure.

Avoid suck back of water, acid and alkalis.

Do not breathe gas.

7.1.2 Safe handling of the gas receptacle

Refer to supplier's container handling instructions.

Do not allow backfeed into the container.

Protect cylinders from physical damage; do not drag, roll, slide or drop.

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.

If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.

Never attempt to repair or modify container valves or safety relief devices.

Damaged valves should be reported immediately to the supplier.

Keep container valve outlets clean and free from contaminants particularly oil and water.

Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.

Close container valve after each use and when empty, even if still connected to equipment.

Never attempt to transfer gases from one cylinder/container to another.

Never use direct flame or electrical heating devices to raise the pressure of a container.

Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

Suck back of water into the container must be prevented.

Open valve slowly to avoid pressure shock.

7.2 Conditions for safe storage, including any incompatibilities

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<p>Observe all regulations and local requirements regarding storage of containers. Containers should not be stored in conditions likely to encourage corrosion. Container valve guards or caps should be in place. Containers should be stored in the vertical position and properly secured to prevent them from falling over. Stored containers should be periodically checked for general condition and leakage. Keep container below 50°C in a well ventilated place. Segregate from flammable gases and other flammable materials in store. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials.</p>	
7.3 Specific end use(s)	
No information provided.	
8 EXPOSURE CONTROLS AND PERSONAL PROTECTION	
8.1 Control parameters	
<p>OEL (Occupational Exposure Limits) : DNEL (Derived-No Effect Level) : PNEC (Predicted No-Effect Concentration) :</p>	<p>No data available. No data available. No data available.</p>
8.2 Exposure Controls	
<p>8.2.1. Appropriate engineering controls Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Avoid oxygen rich (>23,5%) atmospheres. Gas detectors should be used when oxidising gases may be released. Consider the use of a work permit system e.g. for maintenance activities.</p> <p>8.2.2. Individual protection measures, e.g. personal protective equipment A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered: PPE compliant to the recommended EN/ISO standards should be selected.</p>	
Respiratory protection	None necessary.
Thermal hazards	None in addition to below.
Eye / Face	Wear safety glasses with side shields. Standard EN 166 - Personal eye-protection - specifications
Hands	Wear working gloves when handling gas containers. Standard EN 388 - Protective gloves against mechanical risk.
Body	Consider the use of flame resistant safety clothing. Standard EN ISO 14116 - Limited flame spread materials. Wear safety shoes while handling containers. Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

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8.2.3. Environmental exposure controls

Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Physical Description/Properties

Appearance	Physical state at 20 °C / 101.3kPa Colourless gas.	
Odour	No odour warning properties.	
Flammability	Non flammable	
Boiling Point = -183 °C	Flash Point = Not applicable for gases and gas mixtures.	
Melting Point = -219 °C	Auto Ignition Temperature Non flammable	
Critical Temperature -118 °C	pH: Not applicable	
Specific Gravity Liquid	Relative Vapour Density = 0.9.	
Solubility (water): 1185 mg/l	Partition coefficient: 0.37	
Vapour Pressure (at 50°C) Not applicable	Vapour Pressure (at 20°C) Not applicable	
Decomposition temperature Not applicable	Viscosity: Not available	
Oxidising properties: Oxidiser - Coefficient of oxygen equivalency (Ci) : 1		
Explosive properties: Not applicable	Molar mass = 32 g/mol	
Partition coefficient n-octanol/water [log Kow] : Not applicable for inorganic gases.		

9.2 Other Information

None

10 STABILITY AND REACTIVITY

10.1 Reactivity

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

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Violently oxidises organic material.


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10.4 Conditions to avoid	
Avoid moisture in installation systems.	
10.5 Incompatible materials	
May react violently with combustible materials. May react violently with reducing agents. 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. For additional information on compatibility refer to ISO 11114.	
10.6 Hazardous decomposition products	
None	
11 TOXICOLOGICAL INFORMATION	
11.1 Information on toxicological effects	
Acute toxicity	Classification criteria are not met. Acetylene has low inhalation toxicity, the LOAEC for mild intoxication in humans with no residual effects is 100 000ppm (107,000 mg/m ³). There are no data on oral and dermal toxicity (studies are not technically feasible as the substance is a gas at room temperature.)
Skin corrosion/irritation	No known toxicological effects form this product.
Serious eye damage/irritation	No known toxicological effects form this product.
Respiratory or skin sensitisation	No known toxicological effects form this product.
Germ cell mutagenicity	No known toxicological effects form this product.
Carcinogenicity	No known toxicological effects form this product.
Toxic for reproduction : Fertility	No known toxicological effects form this product.
Toxic for reproduction : unborn child	No known toxicological effects form this product.
STOT - single exposure	No known toxicological effects form this product.
STOT - repeated exposure	No known toxicological effects form this product.

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Aspiration hazard	Not applicable for gases and gas mixtures.
12 ECOLOGICAL INFORMATION	
12.1 Toxicity	
No ecological damage caused by this product.	
12.2 Persistence and degradability	
No ecological damage caused by this product.	
12.3 Bio-accumulative potential	
No data available.	
12.4 Mobility in soil	
Because of its high volatility, the product is unlikely to cause ground or water pollution. Partition into soil is unlikely.	
12.5. Results of PBT and vPvB assessment	
No data available.	
12.5 Other adverse effects	
Effect on the ozone layer : No known effects from this product. Effect on global warming : No known effects from this product.	
13 DISPOSAL CONSIDERATIONS	
13.1 Waste treatment methods	
Waste disposal	Contact supplier if guidance is required. May be vented to atmosphere in a well ventilated place. 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. Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at http://www.eiga.org for more guidance on suitable disposal methods. Return unused product in original cylinder to supplier.
Legislation	16 05 04 *: Gases in pressure containers (including halons) containing dangerous substances.
13.2. Additional information	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	

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14 TRANSPORT INFORMATION	
14.1. UN number	1072
14.2. UN proper shipping name	
Transport by road/rail (ADG) :	OXYGEN, COMPRESSED
Transport by air (ICAO-TI / IATA-DGR) :	OXYGEN, COMPRESSED
Transport by sea (IMDG)	OXYGEN, COMPRESSED
14.3. Transport hazard class(es)	
Labelling	
	
2.2 : Non-flammable, non-toxic gases 5.1 : Oxidizing substances	
Transport by road/rail (ADG)	
Class : 2	
Hazchem code : 2S	
Hazard identification number : 25	
Tunnel Restriction : E - Passage forbidden through tunnels of category E	
Transport by air (ICAO-TI / IATA-DGR)	
Class / Div. (Sub. risk(s)) : 2.2(5.1)	
Transport by sea (IMDG)	
Class / Div. (Sub. risk(s)) : 2.2(5.1)	
Emergency Schedule (EmS) - Fire : F-C	
Emergency Schedule (EmS) - Spillage : S-W	
14.4. Packing group	
Transport by road/rail (ADR/RID) :	Not applicable
Transport by air (ICAO-TI / IATA-DGR) :	Not applicable
Transport by sea (IMDG) :	Not applicable
14.5 Environmental hazards	
Transport by road/rail (ADR/RID) :	None.
Transport by air (ICAO-TI / IATA-DGR) :	None.
Transport by sea (IMDG) :	None.
14.6 Special precautions for user	
Hazchem Code	2S.
Packing Instruction(s)	Transport by road/rail (ADR/RID) : P200 Transport by air (ICAO-TI / IATA-DGR) Passenger and Cargo Aircraft : 200 Cargo Aircraft only : 200 Transport by sea (IMDG) : P200

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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: <ul style="list-style-type: none">- 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.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.	
15 REGULATORY INFORMATION	
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
National regulations Ensure all national/local regulations are observed.	
15.2. Chemical safety assessment	
A CSA does not need to be carried out for this product.	
16 OTHER INFORMATION	
Indication of changes Revised safety data sheet in accordance with commission regulation (EU) No 453/2010	
Abbreviations and acronyms	

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ATE - Acute Toxicity Estimate. CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008. REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006. EINECS - European Inventory of Existing Commercial Chemical Substances. CAS# - Chemical Abstract Service number. PPE - Personal Protection Equipment. LC50 - Lethal Concentration to 50 % of a test population. RMM - Risk Management Measures. PBT - Persistent, Bioaccumulative and Toxic. vPvB - Very Persistent and Very Bioaccumulative. STOT- SE : Specific Target Organ Toxicity - Single Exposure. CSA - Chemical Safety Assessment. EN - European Standard. UN - United Nations. ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road. IATA - International Air Transport Association. IMDG code - International Maritime Dangerous Goods. RID - Regulations concerning the International Carriage of Dangerous Goods by Rail. WGK - Water Hazard Class. STOT - RE : Specific Target Organ Toxicity - Repeated Exposure.

Training advice

Ensure operators understand the hazard of oxygen enrichment.

Full text of H-statements

Ox. Gas 1	Oxidising Gases, Category 1
Press. Gas (Comp.)	Gases under pressure : Compressed gas
H270	May cause or intensify fire; oxidiser.
H280	Contains gas under pressure; may explode if heated.

DISCLAIMER OF LIABILITY

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

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.

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Safety Data Sheet Receipt Form

I hereby acknowledge that I have been provided with a copy of the Plusgas Safety Data Sheet for Oxygen

Issue 1 dated March 2022.

To be returned to Plusgas at

31 Anders Street Jimboomba Queensland 4280

Name	
Title	
Company	
Signed	Dated