

Safety Data Sheet

Oxygen (refridgerated)

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: AWO019
Issue date: 11/24/2023 Revision date: 11/24/2023 Supersedes version of: 8/19/2014 Version: 2.4

Danger



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

1.1. Product identifier

Trade name : Oxygen (refridgerated), Oxygen for foodstuff (refridgerated)
SDS no : AWO019
Other means of identification : Oxygen (refridgerated)
CAS-No. : 7782-44-7
EC-No. : 231-956-9
EC Index-No. : 008-001-00-8

REACH registration No : Listed in Annex IV / V REACH, exempted from registration.

Chemical formula : O₂

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

Relevant identified uses : Industrial and professional uses. Perform risk assessment prior to use.
Test gas/Calibration gas.
Laboratory use.
Shield gas for welding processes.
Use for manufacture of electronic/photovoltaic components.
Water treatment.
Contact supplier for more information on uses.

1.3. Details of the supplier of the safety data sheet

Woikoski Oy
PL1
52020 Woikoski – Finland
Finland
T +358 40 166 2023
asiakaspalvelu@woikoski.fi - www.woikoski.fi

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
	Myrkytystietokeskus Giftinformationscentralen, Poison Information Centre	P.O.B 790 (Tukholmankatu 17) HUS SF - 00029 Helsinki	+358 9 471 977	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Physical hazards Oxidising Gases, Category 1 H270
Gases under pressure : Refridgerated liquefied gas H281

Safety Data Sheet

Oxygen (refridgerated)

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: AWO019

2.2. Label elements

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

Hazard pictograms (CLP)



GHS03

GHS04

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H270 - May cause or intensify fire; oxidiser.

H281 - Contains refrigerated gas; may cause cryogenic burns or injury.

Precautionary statements (CLP)

- Prevention

: P282 - Wear cold insulating gloves/face shield/eye protection.

- Response

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

- Storage

: P403 - Store in a well-ventilated place.

2.3. Other hazards

None.

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Oxygen (refridgerated)	CAS-No.: 7782-44-7 EC-No.: 231-956-9 EC Index-No.: 008-001-00-8 REACH registration No: *1	100	Ox. Gas 1, H270 Press. Gas (Ref. Liq.), H281

Contains no other components or impurities which will influence the classification of the product.

*1: Listed in Annex IV / V REACH, exempted from registration.

*3: Registration not required: Substance manufactured or imported < 1t/y.

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

- Inhalation

: Remove victim to uncontaminated area.

- Skin contact

: In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.

- Eye contact

: Immediately flush eyes thoroughly with water for at least 15 minutes.

- 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.

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

None.

Safety Data Sheet

Oxygen (refridgerated)

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: AWO019

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray or fog.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

- Specific hazards : Exposure to fire may cause containers to rupture/explode.
Supports combustion.
- Hazardous combustion products : None.

5.3. Advice for firefighters

- Specific methods : 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.
Exposure to fire may cause containers to rupture/explode.
If possible, stop flow of product.
Use water spray or fog to knock down fire fumes if possible.
- Special protective equipment for fire fighters : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus.
Standard EN 943-2: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Gas-tight chemical protective suits for emergency teams.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- Try to stop release.
- Evacuate area.
- Monitor concentration of released product.
- Eliminate ignition sources.
- Use protective clothing.
- Ensure adequate air ventilation.
- Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

6.2. Environmental precautions

- Try to stop release.

6.3. Methods and material for containment and cleaning up

- Ventilate area.
- Liquid spillages can cause embrittlement of structural materials.
- Keep area evacuated and free from ignition sources until any spilled liquid has evaporated (ground free from frost).

6.4. Reference to other sections

- See also sections 8 and 13.

Safety Data Sheet

Oxygen (refrigerated)

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: AWO019

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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.
- Consult supplier for specific recommendations.
- 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.
- 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 sealings.
- Use only with equipment cleaned for oxygen service and rated for container pressure.

Safe handling of the gas receptacle

- : Refer to supplier's container handling instructions.
- Do not allow backfeed into the container.
- 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 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 content of the container.
- 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

- 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.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

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.

Safety Data Sheet

Oxygen (refridgerated)

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: AWO019

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:
- Protect eyes, face and skin from liquid splashes.
PPE compliant to the recommended EN/ISO standards should be selected.
- Eye/face protection : Wear safety glasses with side shields.
Wear goggles and a face shield when transfilling or breaking transfer connections.
Standard EN 166 - Personal eye-protection - specifications.
 - Skin protection : Wear working gloves when handling gas containers.
Standard EN 388 - Protective gloves against mechanical risk, performance level 1 or higher.
: 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.
 - Respiratory protection : None necessary.
 - Thermal hazards : Wear cold insulating gloves when transfilling or breaking transfer connections.
Standard EN 511 - Cold insulating gloves.

8.2.3. Environmental exposure controls

None necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
- Physical state at 20°C / 101.3kPa	: Gas.
- Colour	: Bluish liquid.
Odour	: No odour warning properties.
Melting point / Freezing point	: -219 °C -219 °C
Boiling point	: -183 °C
Flammability	: Not available
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: Not applicable for gases and gas mixtures.
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: Not available
pH	: Not applicable.
Viscosity, kinematic	: Not applicable.
Water solubility [20°C]	: 39 mg/l
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure [20°C]	: Not applicable.
Vapour pressure [50°C]	: Not available
Density and/or relative density	: Not applicable.
Relative vapour density (air=1)	: 1.1
Particle characteristics	: Not applicable.

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosive properties	: Not applicable.
Explosion limits	: Non flammable.
Oxidising properties	: Oxidiser.
- Coefficient of oxygen equivalency (Ci)	: 1
Critical temperature [°C]	: -118 °C

9.2.2. Other safety characteristics

Molar mass	: 32 g/mol
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Safety Data Sheet

Oxygen (refridgerated)

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Reference number: AWO019

Evaporation rate	: Not applicable for gases and gas mixtures.
Gas group	: Press. Gas (Ref. Liq.).
Other data	: 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 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

Risk of explosion if spilt on organic structural materials (e.g. wood or asphalt).
Violently oxidises organic material.

10.4. Conditions to avoid

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

10.5. Incompatible materials

May react violently with combustible materials.
May react violently with reducing agents.
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.
Keep equipment free from oil and grease. For more guidance, refer to the EIGA Doc. 33 - Cleaning of Equipment for Oxygen Service downloadable at <http://www.eiga.eu>.
For additional information on compatibility refer to ISO 11114.
Consult supplier for specific recommendations.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	: No known toxicological effects from this product.
Skin corrosion/irritation	: No known effects from this product.
Serious eye damage/irritation	: No known effects from this product.
Respiratory or skin sensitisation	: No known effects from this product.
Germ cell mutagenicity	: No known effects from this product.
Carcinogenicity	: No known effects from this product.
Toxic for reproduction : Fertility	: No known effects from this product.
Toxic for reproduction : unborn child	: No known effects from this product.
STOT-single exposure	: No known effects from this product.
STOT-repeated exposure	: No known effects from this product.
Aspiration hazard	: Not applicable for gases and gas mixtures.

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Assessment	: No ecological damage caused by this product.
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Safety Data Sheet

Oxygen (refridgerated)

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: AWO019

EC50 48h - Daphnia magna : No data available.
EC50 72h Algae : No data available.
LC50-96 h - fish : No data available.

12.2. Persistence and degradability

Assessment : No ecological damage caused by this product.

12.3. Bioaccumulative potential

Assessment : No ecological damage caused by this product.

12.4. Mobility in soil

Assessment : No ecological damage caused by this product.

12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB.

12.6. Endocrine disrupting properties

Assessment :

12.7. Other adverse effects

Other adverse effects : Can cause frost damage to vegetation.
Effect on the ozone layer : None.
Effect on global warming : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Consult supplier for specific recommendations.
May be vented to atmosphere in a well ventilated place.
Do not discharge into any place where its accumulation could be dangerous.
List of hazardous waste codes (from Commission Decision 2000/532/EC as amended) : 16 05 04 *: Gases in pressure containers (including halons) containing hazardous substances.

13.2. Additional information

None.

SECTION 14: Transport information

14.1. UN number or ID number

In accordance with ADR / RID / IMDG / IATA / ADN
UN-No. : 1073

14.2. UN proper shipping name

Transport by road/rail (ADR/RID) : OXYGEN, REFRIGERATED LIQUID

14.3. Transport hazard class(es)

Transport by road/rail (ADR/RID)

Class : 2
Classification code : 30
Hazard identification number : 225
Tunnel Restriction : C/E - Tank carriage: Passage forbidden through tunnels of category C, D and E. Other carriage: Passage forbidden through tunnels of category E

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.

Safety Data Sheet

Oxygen (refridgerated)

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: AWO019

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

Packing Instruction(s)

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 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. Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

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

EU-Regulations

Restrictions on use : None.
Other information, restriction and prohibition regulations : Ensure all national/local regulations are observed.
Oxygen (refridgerated), Oxygen for foodstuff (refridgerated) is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.
Seveso Directive : 2012/18/EU (Seveso III) : Listed.

National regulations

No additional information available

15.2. Chemical safety assessment

A CSA does not need to be carried out for this product.

SECTION 16: Other information

Indication of changes : Safety data sheet in accordance with commission regulation (EU) No 2020/878.
Training advice : Ensure operators understand the hazard of oxygen enrichment.
Further information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.

Full text of H- and EUH-statements	
H270	May cause or intensify fire; oxidiser.
H281	Contains refrigerated gas; may cause cryogenic burns or injury.
Ox. Gas 1	Oxidising Gases, Category 1
Press. Gas (Ref. Liq.)	Gases under pressure : Refrigerated liquefied gas



Safety Data Sheet

Oxygen (refridgerated)

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: AWO019

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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