

Page : 1/10
Revised edition no : 4.0

Revision date : 2023-01-20 Supersedes version of : 2021-06-18

NOAL_0097B

Country: SE / Language: EN

Oxygen (refrigerated)

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

1.1. Product identifier

Trade name : Oxygen (refrigerated), Oxygen liquid, Lasal 2003 liquid, Medical oxygen liquid, Phargalis 3

liquid, Oxygen HG liquid, Aligal 3 liquid

SDS no : NOAL_0097B

Other means of identification : Oxygen (refrigerated)

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.

Welding, cutting, heating and brazing. Shield gas for welding processes.

Water treatment.

Use for manufacture of electronic/photovoltaic components.

Food applications.

Contact supplier for more information on uses.

Uses advised against : Consumer use.

Uses other than those listed above are not supported, contact your supplier for more

information on other uses.

1.3. Details of the supplier of the safety data sheet

Company identification

Supplier
AIR LIQUIDE GAS AB
Lundavägen 151
212 09 Malmö - SWEDEN
T +46 40 38 10 00
info.sweden@airliquide.com

E-Mail address (competent person) : eunordic-sds@airliquide.com

1.4. Emergency telephone number

Emergency telephone number : 112

Availability (24 / 7)

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 : Refrigerated liquefied gas H281



Page : 2/10 Revised edition no: 4.0

Revision date: 2023-01-20 Supersedes version of: 2021-06-18

Oxygen (refrigerated)

NOAL 0097B Country: SE / Language: EN

2.2. Label elements

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

Hazard pictograms (CLP)





GHS03

Signal word (CLP)

Hazard statements (CLP) : H270 - May cause or intensify fire; oxidiser.

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

Precautionary statements (CLP)

- Prevention : P220 - Keep away from clothing and other combustible materials.

: Danger

P244 - Keep valves and fittings free from oil and grease.

P282 - Wear cold insulating gloves and either face shield or eye protection. cold insulating

gloves, face shield, eye protection.

P220 - Keep away from clothing and other combustible materials.

P282 - Wear cold insulating gloves and either face shield or eye protection.

: P336+P315 - Thaw frosted parts with lukewarm water. Do not rub affected area. Get

immediate medical advice.

P336+P315 - Thaw frosted parts with lukewarm water. Do not rub affected area. Get

immediate medical advice/attention.

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

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

2.3. Other hazards

- Response

None.

Not classified as PBT or vPvB.

The substance/mixture has no endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	Composition [V-%]:	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Oxygen (refrigerated)	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.

3.2. Mixtures Not established.

SECTION 4: First aid measures

4.1. Description of first aid measures

- 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.

AIR LIQUIDE GAS AB Lundavägen 151 212 09 Malmö SWEDEN, +46 40 38 10.00

SE - en

2/10

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

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



Page: 3/10 Revised edition no: 4.0 Revision date: 2023-01-20

Supersedes version of: 2021-06-18

Oxygen (refrigerated)

NOAL 0097B Country: SE / Language: EN

- 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.

See section 11.

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

None

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray or fog.

Product does not burn, use fire control measures appropriate for the surrounding fire.

- Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

Specific hazards : Supports combustion.

Exposure to fire may cause containers to rupture/explode.

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. If possible, stop flow of product.

Use water spray or fog to knock down fire fumes if possible.

If leaking do not spray water onto container. Water surrounding area (from protected

position) to contain fire.

Move containers away from the fire area if this can be done without risk.

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

Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full

face mask.

Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves

for firefighters.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Act in accordance with local emergency plan.

Use protective clothing.

See section 8 of the SDS for more information on personal protective equipment

: See section 5.3 of the SDS for more information. For emergency responders

6.2. Environmental precautions

Try to stop release.

Liquid spillages can cause embrittlement of structural materials.

6.3. Methods and material for containment and cleaning up

Ventilate area

AIR LIQUIDE GAS AB Lundavägen 151 212 09 Malmö SWEDEN, +46 40 38 10.00

SE - en

3/10



Page: 4/10
Revised edition no: 4.0
Revision date: 2023-01-20
Supersedes version of: 2021-06-18

Oxygen (refrigerated)

NOAL_0097B

Country: SE / Language: EN

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Safe handling of the gas receptacle

Safe use of the product

Do not breathe gas.

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 regularily) checked for leaks before use.

Do not smoke while handling product.

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.

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.

Avoid suck back of water, acid and alkalis.

Refer to supplier's container handling instructions.

Do not allow backfeed into the container.

Protect containers 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 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 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.

SE - en



Page : 5/10

Revised edition no : 4.0
Revision date : 2023-01-20
Supersedes version of : 2021-06-18

NOAL 0097B

Oxygen (refrigerated)

Country: SE / Language: EN

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

OEL (Occupational Exposure Limits) : None available.

DNEL (Derived-No Effect Level) : None available.

PNEC (Predicted No-Effect Concentration) : None available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation.

Systems under pressure should be regularily 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.

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.

• Eye/face protection : Wear goggles and a face shield when transfilling or breaking transfer connections.

Standard EN 166 - Personal eye-protection - specifications.

Skin protection

- Hand protection : Wear working gloves when handling gas containers.

Standard EN 388 - Protective gloves against mechanical risk, performance level 1 or higher.

Wear cold insulating gloves when transfilling or breaking transfer connections.

Standard EN 511 - Cold insulating gloves.

- Other : 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 : Self contained breathing apparatus is recommended, where unknown exposure may be

expected, e.g. during maintenance activities on installation systems.

None necessary.

• Thermal hazards : None in addition to the above sections.

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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

- Physical state at 20°C / 101.3kPa- Colour: Liquid- Bluish liquid.

Odour : No odour warning properties.

Odour threshold is subjective and inadequate to warn of overexposure.

pH : Not applicable for gases and gas mixtures.

Melting point / Freezing point : -219 °C -219 °C

Boiling point : -183 °C

Flash point : Not applicable for gases and gas mixtures.

Flammability : Non flammable. Explosive limits : Non flammable.

AIR LIQUIDE GAS AB SE - en 5/10



Page : 6/10

Revised edition no : 4.0
Revision date : 2023-01-20
Supersedes version of : 2021-06-18

Oxygen (refrigerated)

NOAL_0097B

Country: SE / Language: EN

Lower explosion limit : Not available
Upper explosion limit : Not available
Vapour pressure [20°C] : Not applicable.
Vapour pressure [50°C] : Not applicable.
Density : Not available

Vapour density : Not applicable for gases and gas mixtures.

Relative density, liquid (water=1) : 1.1
Relative density, gas (air=1) : 1.1
Water solubility : 39 mg/l

Partition coefficient n-octanol/water (Log Kow) : Not applicable for inorganic products.

Auto-ignition temperature : Non flammable.

Decomposition temperature : Not applicable.

Viscosity, kinematic : No reliable data available.

Particle characteristics : Not applicable for gases and gas mixtures.

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosive properties : Not applicable.

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

Evaporation rate : Not applicable for gases and gas mixtures.

Gas group : Press. Gas (Ref. Liq.)

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

None.

Violently oxidises organic material.

Reactivity : This mixture contains components with the following reactivity : Violently oxidises organic

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

10.4. Conditions to avoid

Avoid moisture in installation systems.

Water, humidity.

10.5. Incompatible materials

May react violently with combustible materials. May react violently with reducing agents.

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. 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.



Page: 7/10

Revised edition no: 4.0 Revision date: 2023-01-20 Supersedes version of: 2021-06-18

NOAL 0097B

Country: SE / Language: EN

Oxygen (refrigerated)

SECTION 11: Toxicological information

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

: No toxicological effects from this product. Acute toxicity

: No known 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

: Not applicable for gases and gas mixtures. **Aspiration hazard**

11.2. Information on other hazards

Other information : The substance/mixture has no endocrine disrupting properties.

SECTION 12: Ecological information

12.1. Toxicity

Assessment : No ecological damage caused by this product

EC50 48h - Daphnia magna [mg/l] : No data available. : No data available. EC50 72h - Algae [mg/l] : No data available. LC50 96 h - Fish [mg/l]

12.2. Persistence and degradability

Assessment : No ecological damage caused by this product.

12.3. Bioaccumulative potential

: No data available. Assessment

12.4. Mobility in soil

Assessment : 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

Assessment : No data available.

Not classified as PBT or vPvB.

12.6. Endocrine disrupting properties

The substance/mixture has no endocrine disrupting properties.

12.7. Other adverse effects

Other adverse effects : Can cause frost damage to vegetation.

Effect on the ozone layer : None. Effect on global warming None.



Page : 8/10
Revised edition no : 4.0

Revision date : 2023-01-20 Supersedes version of : 2021-06-18

Oxygen (refrigerated)

NOAL_0097B

Country: SE / Language: EN

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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 container to supplier.

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

External treatment and disposal of waste should comply with applicable local and/or national regulations.

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

Transport by air (ICAO-TI / IATA-DGR) : Oxygen, refrigerated liquid

Transport by sea (IMDG) : OXYGEN, REFRIGERATED LIQUID

14.3. Transport hazard class(es)

Labelling



2.2: Non-flammable, non-toxic gases.

5.1: Oxidizing substances.

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

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 established.
Transport by air (ICAO-TI / IATA-DGR) : Not established.
Transport by sea (IMDG) : Not established.

14.5. Environmental hazards

Transport by road/rail (ADR/RID) : None.

Transport by air (ICAO-TI / IATA-DGR) : None.

Transport by sea (IMDG) : None.

AIR LIQUIDE GAS AB Lundavägen 151 212 09 Malmö SWEDEN, +46 40 38 10 00 SE - en

8/10



Page : 9/10

Revised edition no : 4.0
Revision date : 2023-01-20
Supersedes version of : 2021-06-18

Oxygen (refrigerated)

NOAL_0097B

Country: SE / Language: EN

14.6. Special precautions for user

Packing Instruction(s)

Transport by road/rail (ADR/RID) : P203

Transport by air (ICAO-TI / IATA-DGR)

Passenger and Cargo Aircraft : Forbidden.
Cargo Aircraft only : Forbidden.
Transport by sea (IMDG) : P203

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

No additional information available

SECTION 15: Regulatory information

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

EU-Regulations

Restrictions on use : None.

National legislation : Ensure all national/local regulations are observed.

Seveso Directive : 2012/18/EU (Seveso III) : Listed.

Covered.

National regulations

Ensure all national/local regulations are observed.

Germany

Water hazard class (WGK) : WGK nwg, Non-hazardous to water (Classification according to AwSV)

National Rules and Recommendations : [German regulations] BetriebssicherheitsV mit TRBSen insbesondere TRBS 3145 / TRGS

725 Ortsbewegliche Druckgasbehälter", TRBS 2141, BGRegel 500 Teil 2.33: "Umgang mit Gasen", GefahrstoffV mit Technischen Regeln Gefährliche Stoffe TRGS insbesondere TRGS 407 "Tätigkeiten mit Gasen - Gefährdungsbeurteilung", TRGS 400, 500, 510, 900."

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed SZW-lijst van mutagene stoffen : The substance is not listed

SZW-lijst van reprotoxische stoffen – Borstvoeding : The substance is not listed

SZW-lijst van reprotoxische stoffen –

: The substance is not listed

Vruchtbaarheid

SZW-lijst van reprotoxische stoffen – Ontwikkeling : The substance is not listed

Switzerland

Storage class (LK) : LK 2 - Liquefied or pressurized gases

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.

AIR LIQUIDE GAS AB Lundavägen 151 212 09 Malmö SWEDEN, +46 40 38 10 00



Page: 10/10
Revised edition no: 4.0
Revision date: 2023-01-20

Revision date : 2023-01-20 Supersedes version of : 2021-06-18

Oxygen (refrigerated)

NOAL_0097B

Country: SE / Language: EN

Abbreviations and acronyms

: 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

UFI: Unique Formula Identifier

: Ensure operators understand the hazard of oxygen enrichment.

: Classification in accordance with the procedures and calculation methods of Regulation

(EC) 1272/2008 (CLP).

Key literature references and sources of data are maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at http://www.Eiga.eu .

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	

DISCLAIMER OF LIABILITY

Training advice

Further information

: 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.

End of document