



# Safety Data Sheet

## Liquid Oxygen

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830  
Reference number: SDS\_LOX  
Date of issue: 12/23/2023 Revision date: 6/27/2024 Version: 1.0

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

#### 1.1. Product identifier

Trade name : Liquid Oxygen  
SDS no : SDS\_LOX

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

Relevant identified uses : Industrial and professional use for chemical analysis, calibration, (routine) quality control, laboratory use, under controlled conditions.  
Perform risk assessment prior to use.

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

#### 1.4. Emergency telephone number

Emergency telephone number : +974 4460 1079

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

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

Not regulated.

#### 2.2. Label elements

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

Not applicable

#### 2.3. Other hazards

Not classified as PBT or vPvB.  
The substance/mixture has no endocrine disrupting properties.

### SECTION 3: Composition/Information on ingredients

**3.1. Substances** Not applicable

#### 3.2. Mixtures

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

Full text of H- and EUH-statements: see section 16

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.

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### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

- |                |                                                              |
|----------------|--------------------------------------------------------------|
| - Inhalation   | : Adverse effects not expected from this product.            |
| - Skin contact | : Adverse effects not expected from this product.            |
| - Eye contact  | : 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

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.<br>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              | : 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.<br>If possible, stop flow of product.<br>Use water spray or fog to knock down fire fumes if possible.<br>Move containers away from the fire area if this can be done without risk. |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 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.<br>Stay upwind.<br>See section 8 of the SDS for more information on personal protective equipment |
| For emergency responders    | : See section 5.3 of the SDS for more information.                                                                                               |

#### 6.2. Environmental precautions

No additional information available

#### 6.3. Methods and material for containment and cleaning up

Ventilate area.

#### 6.4. Reference to other sections

See also sections 8 and 13.

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### 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.
- 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 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.
- Avoid suck back of water, acid and alkalis.
- Do not breathe gas.
- Avoid release of product into work area.

Safe handling of the gas receptacle

- : 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.
- 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

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

Systems under pressure should be regularly checked for leakages.  
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 safety glasses with side shields.

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 risks, performance level 1 or higher.

- Other

: 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.

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

When indicated by a risk assessment, Respiratory Protective Equipment must be used. The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD.

##### • 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
- Color

: Liquid

: Mixture contains one or more component(s) which have the following colour(s):  
Bluish liquid.

#### Odor

: Odourless.

Odour threshold is subjective and inadequate to warn of overexposure.

#### pH

: Not applicable for gases and gas mixtures.

#### Melting point / Freezing point

: Not applicable for gases and gas mixtures.

#### Boiling point

: Not applicable for gas mixtures.

#### Flash point

: Not applicable for gases and gas mixtures.

#### Flammability

: Non flammable.

#### Lower explosion limit

: Not available

#### Upper explosion limit

: Not available

#### Vapor pressure [20°C]

: Not available

#### Vapor pressure [50°C]

: Not available

#### Density

: Not available

#### Vapor density

: Not applicable for gases and gas mixtures.

#### Relative density, liquid (water=1)

: Not available

#### Relative density, gas (air=1)

: Lighter or similar to air.

#### Water solubility

: Not available

#### Partition coefficient n-octanol/water (Log Kow)

: Not applicable for gas mixtures.

#### Auto-ignition temperature

: Non flammable.

#### Decomposition temperature

: Not applicable.

#### Viscosity, kinematic

: Not applicable for gases and gas mixtures.

#### Particle characteristics

: Not applicable for gases and gas mixtures.

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### 9.2. Other information

#### 9.2.1. Information with regard to physical hazard classes

Oxidizing properties : No oxidising properties.

#### 9.2.2. Other safety characteristics

Other data : None.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Data for mixtures are not available.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

None.

### 10.4. Conditions to avoid

Avoid moisture in installation systems.

### 10.5. Incompatible materials

For additional information on compatibility refer to ISO 11114.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

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

|                                       |                                               |
|---------------------------------------|-----------------------------------------------|
| Acute toxicity                        | : No 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

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.

### 12.2. Persistence and degradability

Assessment : No ecological damage caused by this product.



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### 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

The substance/mixture has no endocrine disrupting properties.

### 12.7. Other adverse effects

Other adverse effects : No known effects from this product.

Effect on the ozone layer : Classification criteria are not met.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Contact supplier if guidance is required.

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.eu> 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 05 : Gases in pressure containers other than those mentioned in 16 05 04.

### 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

Not regulated for transport

### 14.2. UN proper shipping name

No data available

### 14.3. Transport hazard class(es)

No additional information available

### 14.4. Packing group

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

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

Transport by sea (IMDG) : None.

### 14.6. Special precautions for user

Packing Instruction(s)

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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:  
- 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 : Contains no REACH candidate substance  
Seveso Directive : 2012/18/EU (Seveso III) : Not covered.

#### National regulations

- Regulatory reference : Ensure all national/local regulations are observed.

### 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.
- 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 - 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
- Training advice : None.
- Further information : Classification using data from databases maintained by the European Industrial Gases Association (EIGA). Data is maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at : <http://www.eiga.eu>.  
Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).



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

### 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.

**End of document**