



Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Revision date: 02/12/2020 Supersedes: 05/08/2020 Version: 2.1

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

1.1. Product identifier

Product form : Mixture
Product name : Liquid Oxygen
Type of product : Water treatment chemicals
Product group : Trade product

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

1.2.1. Relevant identified uses

Intended for general public
Main use category : Consumer use
Use of the substance/mixture : Water treatment chemicals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer

Growth Technology Limited
Great Western Way
TA2 6BX Taunton - UK
T +44 (0)1823 325291
info@growthtechnology.com - www.growthtechnology.com

1.4. Emergency telephone number

Emergency number : +44 (0)1823 325291
office hours only:
Monday - Friday
0800 - 1700 (GMT/UTC)

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH Birmingham	0344 892 0111	
United Kingdom	National Poisons Information Service (Cardiff Centre) Gwenwyn Ward, Llandough Hospital	Penarth CF64 2XX Cardiff	0344 892 0111	
United Kingdom	National Poisons Information Service Edinburgh Royal Infirmary of Edinburgh	Little France Crescent EH16 4SA Edinburgh	0344 892 0111	
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	
United Kingdom	National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit	Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle	0344 892 0111	
United Kingdom	National Poisons Information Service (Belfast Centre) Royal Victoria Hospital	Grosvenor Road BT12 6BA Belfast	0344 892 0111	

Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Serious eye damage/eye irritation, Category 1 H318

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Causes serious eye damage.

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS05

Signal word (CLP) :

Danger

Hazardous ingredients :

hydrogen peroxide solution... %

Hazard statements (CLP) :

H318 - Causes serious eye damage.

Precautionary statements (CLP) :

P101 - If medical advice is needed, have product container or label at hand.

P102 - Keep out of reach of children.

P280 - Wear eye protection.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 - Immediately call a POISON CENTER or doctor.

2.3. Other hazards

Other hazards not contributing to the classification : None under normal conditions.

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

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]
hydrogen peroxide solution... %	(CAS-No.) 7722-84-1 (EC-No.) 231-765-0 (EC Index-No.) 008-003-00-9 (REACH-no) 01-2119485845-22	≥ 10 – < 20	Ox. Liq. 1, H271 Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314

Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Specific concentration limits:		
Name	Product identifier	Specific concentration limits
hydrogen peroxide solution... %	(CAS-No.) 7722-84-1 (EC-No.) 231-765-0 (EC Index-No.) 008-003-00-9 (REACH-no) 01-2119485845-22	(5 ≤C < 8) Eye Irrit. 2, H319 (8 ≤C < 50) Eye Dam. 1, H318 (35 ≤C < 50) Skin Irrit. 2, H315 (35 ≤C ≤ 100) STOT SE 3, H335 (50 ≤C < 70) Ox. Liq. 2, H272 (50 ≤C < 70) Skin Corr. 1B, H314 (70 ≤C ≤ 100) Ox. Liq. 1, H271 (70 ≤C ≤ 100) Skin Corr. 1A, H314

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice (show the label where possible). First aid personnel should wear appropriate protective equipment during any rescue.
First-aid measures after inhalation	: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Get medical advice/attention if you feel unwell.
First-aid measures after skin contact	: Take off immediately all contaminated clothing and wash it before reuse. Rinse skin with water/shower.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical advice.
First-aid measures after ingestion	: Rinse mouth. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects	: Causes serious eye damage.
Symptoms/effects after inhalation	: Inhalation of liquid or overexposure to vapours may cause coughing.
Symptoms/effects after skin contact	: None under normal conditions.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: Ingestion may cause nausea and vomiting.

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

Treat symptomatically. Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing agent suitable for surrounding fire.
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5.2. Special hazards arising from the substance or mixture

Reactivity in case of fire	: None to our knowledge. If there is a fire close by, use suitable extinguishing agents.
Hazardous decomposition products in case of fire	: Carbon oxides (CO, CO ₂).

5.3. Advice for firefighters

Firefighting instructions	: Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Keep out of reach of children. Do not handle until all safety precautions have been read and understood.
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Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

6.1.1. For non-emergency personnel

Protective equipment : Concerning personal protective equipment to use, see section 8.
Emergency procedures : Avoid contact with eyes. Evacuate area.

6.1.2. For emergency responders

Protective equipment : Concerning personal protective equipment to use, see section 8.
Emergency procedures : Avoid contact with eyes. Evacuate unnecessary personnel.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop leak without risks if possible. Cover spill with non combustible material, e.g.: sand, earth, vermiculite. For a large spillage, contain the spillage by bunding.
Methods for cleaning up : Take up liquid spill into absorbent material. Shovel or sweep up and put in a closed container for disposal. Clean contaminated surfaces with an excess of water.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

SECTION 8. SECTION 11. SECTION 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with eyes.
Hygiene measures : Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.
Storage conditions : Store in a well-ventilated place. Keep cool.
Storage area : Store in a well-ventilated place.
Special rules on packaging : Keep only in original container.

7.3. Specific end use(s)

Water treatment chemicals.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

hydrogen peroxide solution... % (7722-84-1)

United Kingdom - Occupational Exposure Limits

Local name	Hydrogen peroxide
WEL TWA (mg/m ³)	1.4 mg/m ³
WEL TWA (ppm)	1 ppm
WEL STEL (mg/m ³)	2.8 mg/m ³
WEL STEL [ppm]	2 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

hydrogen peroxide solution... % (7722-84-1)

DNEL/DMEL (General population)

Acute - local effects, inhalation	1.93 µg/m ³
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Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Long-term - local effects, inhalation	210 µg/m ³
PNEC (Water)	
PNEC aqua (freshwater)	12.6 µg/L
PNEC aqua (marine water)	12.6 µg/L
PNEC aqua (intermittent, freshwater)	13.8 µg/L
PNEC (Sediment)	
PNEC sediment (freshwater)	47 µg/kg dw
PNEC sediment (marine water)	47 µg/kg dw
PNEC (Soil)	
PNEC soil	2.3 µg/kg dw

8.2. Exposure controls

Appropriate engineering controls:

Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

Personal protective equipment:

Always wash hands after handling the product. Wear eye or face protection.

Materials for protective clothing:

Not required for normal conditions of use

Hand protection:

Not required for normal conditions of use

Eye protection:

EN 166. Chemical goggles or safety glasses

Skin and body protection:

Not required for normal conditions of use

Respiratory protection:

No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear, colorless liquid.
Colour	: Colourless.
Odour	: Pungent.
Odour threshold	: No data available
pH	: 5.1
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: 100 – 107 °C
Flash point	: No data available

Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 1.04
Density	: 1040 kg/m ³
Solubility	: Soluble in water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: Does not meet the criteria for classification as oxidising.
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

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

10.5. Incompatible materials

No additional information available

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 toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

hydrogen peroxide solution... % (7722-84-1)

LD50 oral rat	694 – 1026 mg/kg 70.1% w/w
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Skin corrosion/irritation	: Not classified pH: 5.1
Serious eye damage/irritation	: Causes serious eye damage. pH: 5.1
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified
Not rapidly degradable	

12.2. Persistence and degradability

Liquid Oxygen	
Persistence and degradability	Expected to be biodegradable.

hydrogen peroxide solution... % (7722-84-1)

Persistence and degradability	Readily biodegradable.
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12.3. Bioaccumulative potential

Liquid Oxygen	
Bioaccumulative potential	Bioaccumulation is not expected to occur.

hydrogen peroxide solution... % (7722-84-1)

Bioaccumulative potential	Bioaccumulation is not expected to occur.
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12.4. Mobility in soil

Liquid Oxygen	
Ecology - soil	Expected to be highly mobile in soil.

hydrogen peroxide solution... % (7722-84-1)

Ecology - soil	Expected to be highly mobile in soil.
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12.5. Results of PBT and vPvB assessment

Liquid Oxygen	
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

12.6. Other adverse effects

No additional information available

Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830






SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 2984	UN 2984	UN 2984	UN 2984	UN 2984
14.2. UN proper shipping name				
HYDROGEN PEROXIDE, AQUEOUS SOLUTION	HYDROGEN PEROXIDE, AQUEOUS SOLUTION	Hydrogen peroxide, aqueous solution	HYDROGEN PEROXIDE, AQUEOUS SOLUTION	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Transport document description				
UN 2984 HYDROGEN PEROXIDE, AQUEOUS SOLUTION, 5.1, III, (E)	UN 2984 HYDROGEN PEROXIDE, AQUEOUS SOLUTION, 5.1, III	UN 2984 Hydrogen peroxide, aqueous solution, 5.1, III	UN 2984 HYDROGEN PEROXIDE, AQUEOUS SOLUTION, 5.1, III	UN 2984 HYDROGEN PEROXIDE, AQUEOUS SOLUTION, 5.1, III
14.3. Transport hazard class(es)				
5.1	5.1	5.1	5.1	5.1
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user


Overland transport

Classification code (ADR) : O1
Special provisions (ADR) : 65
Limited quantities (ADR) : 5I
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P504, IBC02, R001
Special packing provisions (ADR) : PP10, B5
Mixed packing provisions (ADR) : MP15
Portable tank and bulk container instructions (ADR) : T4
Portable tank and bulk container special provisions (ADR) : TP1, TP6, TP24
Tank code (ADR) : LGBV
Tank special provisions (ADR) : TU3, TC2, TE8, TE11, TT1
Vehicle for tank carriage : AT
Transport category (ADR) : 3
Special provisions for carriage - Loading, unloading and handling (ADR) : CV24
Hazard identification number (Kemler No.) : 50

Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Orange plates	:	
Tunnel restriction code (ADR)	:	E
EAC code	:	2R
Transport by sea		
Special provisions (IMDG)	:	65
Limited quantities (IMDG)	:	5 L
Excepted quantities (IMDG)	:	E1
Packing instructions (IMDG)	:	P504
IBC packing instructions (IMDG)	:	IBC02
IBC special provisions (IMDG)	:	B5
Tank instructions (IMDG)	:	T4
Tank special provisions (IMDG)	:	TP1, TP6, TP24
EmS-No. (Fire)	:	F-H
EmS-No. (Spillage)	:	S-Q
Stowage category (IMDG)	:	B
Stowage and handling (IMDG)	:	SW1
Segregation (IMDG)	:	SG16, SG59, SG72
Properties and observations (IMDG)	:	Colourless liquid. Slowly decomposes, evolving oxygen; the rate of decomposition increases in contact with metals, except aluminium.
Air transport		
PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y541
PCA limited quantity max net quantity (IATA)	:	1L
PCA packing instructions (IATA)	:	551
PCA max net quantity (IATA)	:	2.5L
CAO packing instructions (IATA)	:	555
CAO max net quantity (IATA)	:	30L
Special provisions (IATA)	:	A803
ERG code (IATA)	:	5L
Inland waterway transport		
Classification code (ADN)	:	O1
Special provisions (ADN)	:	65
Limited quantities (ADN)	:	5 L
Excepted quantities (ADN)	:	E1
Equipment required (ADN)	:	PP
Number of blue cones/lights (ADN)	:	0
Rail transport		
Classification code (RID)	:	O1
Special provisions (RID)	:	65
Limited quantities (RID)	:	5L
Excepted quantities (RID)	:	E1
Packing instructions (RID)	:	P504, IBC02, R001
Special packing provisions (RID)	:	PP10, B5
Mixed packing provisions (RID)	:	MP15
Portable tank and bulk container instructions (RID)	:	T4
Portable tank and bulk container special provisions (RID)	:	TP1, TP6, TP24
Tank codes for RID tanks (RID)	:	LGBV
Special provisions for RID tanks (RID)	:	TU3, TC2, TE8, TE11, TT1
Transport category (RID)	:	3
Special provisions for carriage - Loading, unloading and handling (RID)	:	CW24
Colis express (express parcels) (RID)	:	CE8
Hazard identification number (RID)	:	50

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance 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.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

A chemical safety assessment according to (EC) regulation 1907/2006 (REACH) has not been carried out for this product

SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BLV	Biological limit value
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC-No.	European Community number
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet

Liquid Oxygen

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

Full text of H- and EUH-statements:	
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Ox. Liq. 1	Oxidising Liquids, Category 1
Ox. Liq. 2	Oxidising Liquids, Category 2
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H271	May cause fire or explosion; strong oxidiser.
H272	May intensify fire; oxidiser.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Eye Dam. 1	H318	Calculation method

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.