

# GROWTH TECHNOLOGY LTD

## SAFETY DATA SHEET

According to 1907/2006/EC, article 31 (REACH)

### LIQUID OXYGEN

#### 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

PRODUCT NAME Liquid Oxygen, 17.5% Hydrogen Peroxide

SYNONYMS, TRADE NAMES Liquid Oxygen

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#### 2 HAZARDS IDENTIFICATION

Liquid Oxygen is a source of additional oxygen for hydroponic nutrient solutions. It contains 17.5% hydrogen peroxide in water.

Hydrogen peroxide is a strong oxidising agent

##### CLASSIFICATION

Hydrogen peroxide is classified as oxidising, corrosive and harmful.

#### 3 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC-No	CAS-No	Content	Classification
Hydrogen peroxide	231-765-0	7722-84-1	17.5%	R5, O;R8, C;R35, Xn;R20/R22
water			>82%	

The Full Text for all R-Phrases are Displayed in Section 16

##### COMPOSITION COMMENTS

The Data shown are in accordance with the latest EC Directives

#### 4 FIRST-AID MEASURES

##### INHALATION

Move the exposed person to fresh air at once. Keep warm and at rest. If there is respiratory distress give oxygen. Apply artificial respiration, if respiration stops or shows signs of failing. Do not use mouth to mouth ventilation. Get medical attention immediately.

##### DISCLAIMER

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#### INGESTION

Harmful if swallowed. Wash out mouth with water and give plenty of water to drink, provided person is conscious. Get medical attention immediately.

#### SKIN CONTACT

Remove contaminated clothing and wash skin with soap and plenty of running water, under a shower if affected area is large enough to warrant this. Get medical attention.

#### EYE CONTACT

Rinse immediately eye with plenty of low pressure water for at least 15 minutes.  
Remove any contact lenses. Get medical attention.

### **5 FIRE-FIGHTING MEASURES**

#### EXTINGUISHING MEDIA

The product is non flammable.  
To extinguish fire use water only

#### SPECIAL FIRE FIGHTING PROCEDURES

Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. Wear self-contained (positive pressure if available) breathing apparatus and full protective clothing. Move container from fire area if you can do it without risk. Cool containers that are exposed to flames with water from the side until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Not flammable. Fires should be fought with water since the use of chemical extinguishing media may accelerate decomposition. Small fires: water only; no dry chemical or carbon dioxide. Large fires: flood fire area with water.

#### UNUSUAL FIRE & EXPLOSION HAZARDS

Spontaneous ignition may occur when contact with combustible materials is made. Oxygen released in decomposition will promote combustion. Fires can be of the flaring type but are not explosive unless confined. Vapour concentration greater than 40 percent by weight can be decomposed explosively at 1 atmosphere pressure.

#### SPECIFIC HAZARDS

Severe explosion hazard when exposed to heat, mechanical impact, detonation of a blasting cap, or caused to decompose catalytically. Decomposition can build up large pressures of oxygen and water which may then burst explosively. Avoid oxidisable materials including iron, copper, brass, bronze, chromium, zinc, lead, manganese, silver, catalytic metals. Avoid mechanical impact, uncovering the container, contact with combustible materials, light, temperatures above 35 °C (95 °F), hot wires, catalytic impurities.  
Fire may produce irritating and/or toxic gases.

#### PROTECTIVE MEASURES IN FIRE

Wear full protective clothing and MSHA/NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

### **6 ACCIDENTAL RELEASE MEASURES**

#### PERSONAL PRECAUTIONS

See section 8.

#### ENVIRONMENTAL PRECAUTIONS

Take precautionary measures against discharges into the environment.

## 2

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## SPILL CLEAN UP METHODS

### Caution :

Explosion potential is high. Hydrogen peroxide may ignite combustible materials. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Do not touch spilled material; stop leak if you can do it without risk. Use water spray to reduce vapours; do not get water inside container.

Small spills: flush area with flooding amounts of water.

Large spills: dike far ahead of spill for later disposal.

When diluted to less than 1% spills can be put to drain with plenty of water.

## 7 HANDLING AND STORAGE

### USAGE PRECAUTIONS

Avoid contact with eyes, skin or clothing or inhalation.

Safety showers and eyebaths should be available. Ensure adequate ventilation. Extinguish ignition sources. No smoking. Care should be taken when opening containers as pressure may have built up. Avoid any contact with combustible, flammable or corrosive products.

Wash thoroughly after handling and before eating, drinking or smoking.

### STORAGE PRECAUTIONS

Store in a cool, dry and well ventilated area, away from incompatible chemicals and materials. Avoid exposure to sunlight, heat and ignition sources or contamination by combustible dust. Store on concrete flooring that can be swilled and drained.

Large quantities must be stored in vented containers fitted with valves to release pressure build-up. For bulk storage, store in passivated stainless steel (grade 304L or 316L) or HDPE containers. Do not store in mild steel or any other metal container.

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### EXPOSURE LIMITS

TLV: 1 ppm; 1.4 mg/m<sup>3</sup> (as TWA) (ACGIH 1992-1993).

OSHA PEL: TWA 1 ppm (1.4 mg/m<sup>3</sup>)

NIOSH REL: TWA 1 ppm (1.4 mg/m<sup>3</sup>)

NIOSH IDLH: 75 ppm

### PROTECTIVE EQUIPMENT

Protective gloves, safety goggles / face shields and protective clothing.

### RESPIRATORY EQUIPMENT

In the event where significant exposure is possible (e.g. in dealing with spills, fire or exposure to vapour and/or toxic fumes) wear self-contained breathing apparatus.

### HAND PROTECTION

Protective gloves must be used.

### EYE PROTECTION

Wear approved safety goggles / face shields

### HYGIENE MEASURES

Wash at the end of each work shift and before eating, drinking, smoking or using the toilet.

### SKIN PROTECTION

Wear protective clothing.

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## 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	clear liquid
COLOUR	colourless
ODOUR:	pungent, characteristic odour
BOILING POINT	104 °C
FREEZING POINT	-14.5 °C
SOLUBILITY IN WATER	fully miscible with water
SPECIFIC GRAVITY	1.10 at 20 °C
VAPOUR PRESSURE	23.2 mmHg at 20 °C
VAPOUR DENSITY	>1 (air = 1)
pH – VALUE	5.1

## 10 STABILITY AND REACTIVITY

### STABILITY

Avoid exposure to heat, high temperatures, pressure build-up and contamination by dusts or combustible materials. Do not allow product to dry out.

### MATERIALS TO AVOID

Reacts violently with readily oxidisable organic materials, acids, alkali's, reducing agents, and other oxidisers. Catalytically decomposed by heavy metals and their salts, enzymes and contaminants such as dirt and dust. May react vigorously with flammable liquids and gases and other combustible materials.

### HAZARDOUS DECOMPOSITION PRODUCTS

Decomposes liberating oxygen which assists the burning of combustible materials. Decomposition is highly exothermic. Contamination by an oxidisable or an organic material presents an explosion hazard.

## 11 TOXICOLOGICAL INFORMATION

### GENERAL

Abnormally low blood pressure and apnoea have been reported with severe poisonings. Cerebral oedema, cerebral gas embolism, cerebral infarction, and seizures have been reported following ingestion of concentrated (35%) solutions. Death has been reported as a result of embolic cerebrovascular injury.

Serious gastro-intestinal complications have resulted from the ingestion of concentrated solutions and enemas with dilute peroxide solutions.

Inhalation of vapours from concentrated (greater than 10%) solutions may result in severe pulmonary irritation. Interstitial lung disease and respiratory arrest have also been reported following massive exposures.

Dermal exposure to dilute (3%) solutions generally results in a bleaching of the affected area in association with a tingling sensation and lasts 2 to 3 hours, if washed promptly after contact.

TOXIC DOSE – LD50 (ORAL, RAT) 4060 mg/kg

### INGESTION

Irritation of digestive system. Larger amounts may result in gastro-intestinal perforation. The sudden generation of oxygen may cause acute injury.

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**SKIN CONTACT**

Will cause irritation and bleaching.

**EYE CONTACT**

Corrosive and may cause corneal damage.

**12 ECOLOGICAL INFORMATION**

**ECOTOXICITY**

Slightly toxic to aquatic life. Decomposes to oxygen and water.

**PARTITIONING**            Log (P Octanol/Water) = -1.1

**WATER HAZARD CLASSIFICATION**

none

**13 DISPOSAL CONSIDERATIONS**

**GENERAL INFORMATION**

Treat as for spillages. Wear appropriate protective clothing. Care should be taken to prevent accidental mixing with acids or reducing agents in drains. There is a potential hazard if spilt product comes in contact with finely divided organic material. Do not attempt to neutralise with strong acids or bases. Neutralisation generates much heat.

**DISPOSAL METHODS**

Large and small spillages: dilute. May be washed to drain with large quantities of water. Dispose of waste in accordance with waste disposal and water authority regulations.

**14 TRANSPORT INFORMATION**

UK ROAD Class	8 (corrosive)
UK ROAD	Packing Group III
UK SEA	Packing Group III
UN number ROAD	2984
UN number SEA	2984
ADR Class	8 (corrosive)
ADR label number	8
ADR Packing Group	III
ADR Hazard number	58
Air Class	8
Air Packing Group	III
IMDG Class	8
IMDG Packing Group	III
IMDG Code (Page)	5150
IMCO Class	5.1, OXIDISING
RID Class	8
RID Packing Group	III
Hazchem code	2P

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CEFIC Tremcard number TEC (R) 43

IATA special provision A17

Conveyance class 5.1

UK customs number CUS 18460

## 15 REGULATORY INFORMATION

LABELLING O (oxidising); C (corrosive); Xn (harmful)

CONTAINS hydrogen peroxide (17.5%)

RISK PHRASES  
R5 heating may cause an explosion  
R8 contact with combustible material may cause fire  
R35 causes severe burns  
R20/22 harmful by inhalation and if swallowed

SAFETY PHRASES  
S1/2 keep locked up and out of the reach of children  
S17 keep away from combustible material  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice  
S28 After contact with skin, wash immediately with plenty of water  
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection  
S45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)

### UK REGULATORY REFERENCES

Chemicals (Hazard Information & Packaging) Regulations. The Control of Substances Hazardous to Health Regulations 1988. Health and Safety at Work Act 1974.

### ENVIRONMENTAL LISTING

Control of Pollution Act 1974.

### EU DIRECTIVES

System of specific information relating to Dangerous Preparations. 2001/58/EC. Dangerous Preparations Directive 1999/45/EC.

### STATUTORY INSTRUMENTS

Notification of New Substances Regulations (NONS) 1993. The Export and Import of Dangerous Chemicals Regulations 2005 number 928.

### APPROVED CODE OF PRACTICE

Classification and Labelling of Substances and Preparations Dangerous for Supply (EU 2001/59/EC). Safety Data Sheets for Substances and Preparations (REACH)

### GUIDANCE NOTES

Workplace Exposure Limits EH40. Introduction to Local Exhaust Ventilation HS(G)37. CHIP for everyone HSG(108).

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#### NATIONAL REGULATIONS

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002. No. 1689.

Workplace Exposure Limits 2005 (EH40).

The Carriage of Dangerous Goods and use of transportable pressure equipment regulations 2004.

Control of Substances hazardous to health regulations 2002 (as amended).

#### 16 OTHER INFORMATION

ISSUED BY                      HS&E Manager

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#### RISK PHRASES IN FULL

R5                      heating may cause an explosion  
R8                      contact with combustible material may cause fire  
R35                     causes severe burns  
R20/22                harmful by inhalation and if swallowed

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