

## 316273 Lyreco Highlighter Ink/ GREEN

Lyreco

Chemwatch Hazard Alert Code: 2

Chemwatch: 70-5952

Version No: 2.1.1.1

Safety Data Sheet (Conforms to Regulation (EU) No 2015/830)

Issue Date: 11/09/2016

Print Date: 02/15/2017

S.REACH.GBR.EN

### SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

#### 1.1. Product Identifier

Product name	316273 Lyreco Highlighter Ink/ GREEN
Synonyms	Not Available
Other means of identification	Not Available

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

Relevant identified uses	Highlighter ink.
Uses advised against	Not Applicable

#### 1.3. Details of the supplier of the safety data sheet

Registered company name	Lyreco
Address	Deer Park Court, Donnington Wood Telford, TF2 7NB United Kingdom
Telephone	01952 286130
Fax	Not Available
Website	www.lyreco.co.uk
Email	steve.weston@lyreco.com

#### 1.4. Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	Not Available
Other emergency telephone numbers	Not Available

### SECTION 2 HAZARDS IDENTIFICATION

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

**Considered a hazardous mixture according to Reg. (EC) No 1272/2008 and their amendments. Not classified as Dangerous Goods for transport purposes.**


#### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	0	
Toxicity	0	
Body Contact	2	
Reactivity	0	
Chronic	0	

0 = Minimum  
1 = Low  
2 = Moderate  
3 = High  
4 = Extreme

Classification according to regulation (EC) No 1272/2008 [CLP] [1]	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation)
Legend:	1. Classified by Chemwatch; 2. Classification drawn from EC Directive 67/548/EEC - Annex I ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

#### 2.2. Label elements

CLP label elements	
SIGNAL WORD	<b>WARNING</b>

#### Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

**Supplementary statement(s)**

Not Applicable

**Precautionary statement(s) Prevention**

P101	If medical advice is needed, have product container or label at hand.
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**Precautionary statement(s) Response**

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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**Precautionary statement(s) Storage**

P405	Store locked up.
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**Precautionary statement(s) Disposal**

P501	Dispose of contents/container in accordance with local regulations.
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**2.3. Other hazards**

Cumulative effects may result following exposure\*.

Limited evidence of a carcinogenic effect\*.

Possible skin sensitizer\*.

REACH - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS****3.1. Substances**

See 'Composition on ingredients' in Section 3.2

**3.2. Mixtures**

1.CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP]
1.56-81-5 2.200-289-5 3.Not Available 4.01-2119471987-18-XXXX	10-20	<u>glycerol</u>	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation); H315, H319, H335 <sup>[1]</sup>
1.107-21-1 2.203-473-3 3.603-027-00-1 4.01-2119456816-28-XXXX	10-20	<u>ethylene glycol</u>	Acute Toxicity (Oral) Category 4; H302 <sup>[3]</sup>
1.Not Available 2.Not Available 3.Not Available 4.Not Available	>60	Ingredients determined not to be hazardous	Not Applicable
<b>Legend:</b>	1. Classified by Chemwatch; 2. Classification drawn from EC Directive 67/548/EEC - Annex I ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI 4. Classification drawn from C&L		

**SECTION 4 FIRST AID MEASURES****4.1. Description of first aid measures**

<b>General</b>	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul> <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> </ul>
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	<ul style="list-style-type: none"> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> </ul>
<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> </ul>

#### 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

Treat symptomatically.

To treat poisoning by the higher aliphatic alcohols (up to C7):

- ▶ Gastric lavage with copious amounts of water.
- ▶ It may be beneficial to instill 60 ml of mineral oil into the stomach.
- ▶ Oxygen and artificial respiration as needed.
- ▶ Electrolyte balance: it may be useful to start 500 ml. M/6 sodium bicarbonate intravenously but maintain a cautious and conservative attitude toward electrolyte replacement unless shock or severe acidosis threatens.
- ▶ To protect the liver, maintain carbohydrate intake by intravenous infusions of glucose.
- ▶ Haemodialysis if coma is deep and persistent. [GOSSELIN, SMITH HODGE: Clinical Toxicology of Commercial Products, Ed 5]

#### BASIC TREATMENT

- ▶ Establish a patent airway with suction where necessary.
- ▶ Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- ▶ Administer oxygen by non-rebreather mask at 10 to 15 l/min.
- ▶ Monitor and treat, where necessary, for shock.
- ▶ Monitor and treat, where necessary, for pulmonary oedema.
- ▶ Anticipate and treat, where necessary, for seizures.
- ▶ **DO NOT use emetics.** Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.
- ▶ Give activated charcoal.

#### ADVANCED TREATMENT

- ▶ Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- ▶ Positive-pressure ventilation using a bag-valve mask might be of use.
- ▶ Monitor and treat, where necessary, for arrhythmias.
- ▶ Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- ▶ If the patient is hypoglycaemic (decreased or loss of consciousness, tachycardia, pallor, dilated pupils, diaphoresis and/or dextrose strip or glucometer readings below 50 mg), give 50% dextrose.
- ▶ Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- ▶ Drug therapy should be considered for pulmonary oedema.
- ▶ Treat seizures with diazepam.
- ▶ Proparacaine hydrochloride should be used to assist eye irrigation.

#### EMERGENCY DEPARTMENT

- ▶ Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime. Other useful analyses include anion and osmolar gaps, arterial blood gases (ABGs), chest radiographs and electrocardiograph.
- ▶ Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome.
- ▶ Acidosis may respond to hyperventilation and bicarbonate therapy.
- ▶ Haemodialysis might be considered in patients with severe intoxication.
- ▶ Consult a toxicologist as necessary. BRONSTEIN, A.C. and CURRANCE, P.L. EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

For C8 alcohols and above.

Symptomatic and supportive therapy is advised in managing patients.

## SECTION 5 FIREFIGHTING MEASURES

### 5.1. Extinguishing media

The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used.

### 5.2. Special hazards arising from the substrate or mixture

Continued...

<b>Fire Incompatibility</b>	None known.
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### 5.3. Advice for firefighters

<b>Fire Fighting</b>	<ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ The material is not readily combustible under normal conditions.</li> </ul>
<b>Fire/Explosion Hazard</b>	<p>Decomposes on heating and produces toxic fumes of:</p> <ul style="list-style-type: none"> <li>, carbon dioxide (CO<sub>2</sub>)</li> <li>, acrolein</li> <li>, sulfur oxides (SO<sub>x</sub>)</li> <li>, other pyrolysis products typical of burning organic material.</li> </ul> <p>May emit poisonous fumes. May emit corrosive fumes.</p>

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

See section 8

### 6.2. Environmental precautions

See section 12

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

<b>Minor Spills</b>	<p>Slippery when spilled.</p> <ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> </ul>
<b>Major Spills</b>	<p>Slippery when spilled. Moderate hazard.</p>

### 6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 HANDLING AND STORAGE

### 7.1. Precautions for safe handling

<b>Safe handling</b>	<ul style="list-style-type: none"> <li>▶ <b>DO NOT allow clothing wet with material to stay in contact with skin</b></li> <li>▶ Avoid all personal contact, including inhalation.</li> </ul>
<b>Fire and explosion protection</b>	See section 5
<b>Other information</b>	▶ Store in original containers.

### 7.2. Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	▶ Polyethylene or polypropylene container.
<b>Storage incompatibility</b>	<ul style="list-style-type: none"> <li>▶ Avoid strong acids, bases.</li> <li>▶ Avoid reaction with oxidising agents</li> </ul>

### 7.3. Specific end use(s)

See section 1.2

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1. Control parameters

#### DERIVED NO EFFECT LEVEL (DNEL)

Not Available

#### PREDICTED NO EFFECT LEVEL (PNEC)

Not Available

#### OCCUPATIONAL EXPOSURE LIMITS (OEL)

#### INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs)	glycerol	Glycerol, mist	10 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	ethylene glycol	Ethane-1,2-diol particulate / Ethane-1,2-diol vapour	10 mg/m <sup>3</sup> / 52 mg/m <sup>3</sup> / 20 ppm	10 mg/m <sup>3</sup> / 4 mg/m <sup>3</sup> / 40 ppm	Not Available	Sk
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (English)	ethylene glycol	Ethylene glycol	52 mg/m <sup>3</sup> / 20 ppm	104 mg/m <sup>3</sup> / 40 ppm	Not Available	Skin

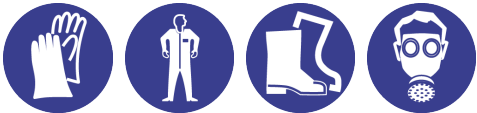
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	ethylene glycol	Ethylene glycol	52 mg/m3 / 20 ppm	104 mg/m3 / 40 ppm	Not Available	Skin
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**EMERGENCY LIMITS**

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
glycerol	Glycerine (mist); (Glycerol; Glycerin)	45 mg/m3	860 mg/m3	2,500 mg/m3
ethylene glycol	Ethylene glycol	30 ppm	40 ppm	60 ppm

Ingredient	Original IDLH	Revised IDLH
glycerol	Not Available	Not Available
ethylene glycol	Not Available	Not Available
Ingredients determined not to be hazardous	Not Available	Not Available

**8.2. Exposure controls**

<b>8.2.1. Appropriate engineering controls</b>	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard.
<b>8.2.2. Personal protection</b>	
<b>Eye and face protection</b>	▶ Safety glasses with side shields.
<b>Skin protection</b>	See Hand protection below
<b>Hands/feet protection</b>	▶ Wear chemical protective gloves, e.g. PVC. <b>NOTE:</b> ▶ The material may produce skin sensitisation in predisposed individuals. The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer.
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	▶ Overalls.
<b>Thermal hazards</b>	Not Available

**Recommended material(s)****GLOVE SELECTION INDEX**

Glove selection is based on a modified presentation of the:

**"Forsberg Clothing Performance Index".**

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

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Material	CPI
BUTYL	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
NITRILE+PVC	C
PE/EVAL/PE	C
PVA	C
PVC	C
TEFLON	C
VITON	C
##ethylene	glycol

\* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

**Respiratory protection**

Type A-P Filter of sufficient capacity.

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 5 x ES	A-AUS / Class 1 P2	-	A-PAPR-AUS / Class 1 P2
up to 25 x ES	Air-line*	A-2 P2	A-PAPR-2 P2
up to 50 x ES	-	A-3 P2	-
50+ x ES	-	Air-line**	-

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

**8.2.3. Environmental exposure controls**

See section 12

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Fluorescent green liquid with neutral odour; mixes with water.		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	Not Available
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	Not Available	<b>Decomposition temperature</b>	Not Available
<b>Melting point / freezing point (°C)</b>	Not Available	<b>Viscosity (cSt)</b>	Not Available
<b>Initial boiling point and boiling range (°C)</b>	Not Available	<b>Molecular weight (g/mol)</b>	Not Applicable
<b>Flash point (°C)</b>	Not Available	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Available	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Available	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Available	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Available	<b>Gas group</b>	Not Available
<b>Solubility in water (g/L)</b>	Miscible	<b>pH as a solution (1%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	222

### 9.2. Other information

Not Available

## SECTION 10 STABILITY AND REACTIVITY

<b>10.1. Reactivity</b>	See section 7.2
<b>10.2. Chemical stability</b>	▶ Unstable in the presence of incompatible materials.
<b>10.3. Possibility of hazardous reactions</b>	See section 7.2
<b>10.4. Conditions to avoid</b>	See section 7.2
<b>10.5. Incompatible materials</b>	See section 7.2
<b>10.6. Hazardous decomposition products</b>	See section 5.3

## SECTION 11 TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

<b>Inhaled</b>	The material can cause respiratory irritation in some persons. Not normally a hazard due to non-volatile nature of product Aliphatic alcohols with more than 3-carbons cause headache, dizziness, drowsiness, muscle weakness and delirium, central depression, coma, seizures and behavioural changes.				
<b>Ingestion</b>	Overexposure to non-ring alcohols causes nervous system symptoms. for ethylene glycol: Ingestion symptoms include respiratory failure, central nervous depression, cardiovascular collapse, pulmonary oedema, acute kidney failure, and even brain damage.				
<b>Skin Contact</b>	This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition Most liquid alcohols appear to act as primary skin irritants in humans. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.				
<b>Eye</b>	This material can cause eye irritation and damage in some persons.				
<b>Chronic</b>	There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. There is limited evidence that, skin contact with this product is more likely to cause a sensitisation reaction in some persons compared to the general population. Exposure to ethylene glycol over a period of several weeks may cause throat irritation, mild headache and low backache. Animal studies have proven that trimethylmethane dyes are poorly absorbed from the gastro-intestinal tract. Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.				
<b>316273 Lyreco Highlighter Ink/ GREEN</b>	<table border="1"> <tr> <td><b>TOXICITY</b></td> <td><b>IRRITATION</b></td> </tr> <tr> <td>Not Available</td> <td>Not Available</td> </tr> </table>	<b>TOXICITY</b>	<b>IRRITATION</b>	Not Available	Not Available
<b>TOXICITY</b>	<b>IRRITATION</b>				
Not Available	Not Available				

glycerol	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (guinea pig) LD50: 54000 mg/kg <sup>[1]</sup> Oral (rat) LD50: >20-<39800 mg/kg <sup>[1]</sup>	Not Available
ethylene glycol	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: 9530 mg/kg <sup>[2]</sup>	Eye (rabbit): 100 mg/1h - mild
	Inhalation (rat) LC50: 50.1 mg/L/8 hr <sup>[2]</sup>	Eye (rabbit): 12 mg/m <sup>3</sup> /3D
	Oral (rat) LD50: 4700 mg/kg <sup>[2]</sup>	Eye (rabbit): 1440mg/6h-moderate Eye (rabbit): 500 mg/24h - mild Skin (rabbit): 555 mg(open)-mild

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.\* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

<b>GLYCEROL</b>	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. At very high concentrations, evidence predicts that glycerol may cause tremor, irritation of the skin, eyes, digestive tract and airway.
<b>ETHYLENE GLYCOL</b>	For ethylene glycol: Ethylene glycol is quickly and extensively absorbed through the gastrointestinal tract. [Estimated Lethal Dose (human) 100 ml; RTECS quoted by Orica] Substance is reproductive effector in rats (birth defects). Mutagenic to rat cells.

<b>Acute Toxicity</b>	<input type="checkbox"/>	<b>Carcinogenicity</b>	<input type="checkbox"/>
<b>Skin Irritation/Corrosion</b>	<input checked="" type="checkbox"/>	<b>Reproductivity</b>	<input type="checkbox"/>
<b>Serious Eye Damage/Irritation</b>	<input checked="" type="checkbox"/>	<b>STOT - Single Exposure</b>	<input checked="" type="checkbox"/>
<b>Respiratory or Skin sensitisation</b>	<input type="checkbox"/>	<b>STOT - Repeated Exposure</b>	<input type="checkbox"/>
<b>Mutagenicity</b>	<input type="checkbox"/>	<b>Aspiration Hazard</b>	<input type="checkbox"/>

**Legend:**  – Data available but does not fill the criteria for classification  
 – Data available to make classification  
 – Data Not Available to make classification

## SECTION 12 ECOLOGICAL INFORMATION

### 12.1. Toxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source
glycerol	LC50	96	Fish	>11mg/L	2
glycerol	EC50	96	Algae or other aquatic plants	77712.039mg/L	3
glycerol	EC0	24	Crustacea	>500mg/L	1
ethylene glycol	LC50	96	Fish	2284.940mg/L	3
ethylene glycol	EC50	48	Crustacea	5046.29mg/L	5
ethylene glycol	EC50	96	Algae or other aquatic plants	6500-13000mg/L	1
ethylene glycol	EC50	Not Applicable	Crustacea	=10mg/L	1
ethylene glycol	NOEC	552	Crustacea	>=1000mg/L	2

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

**DO NOT discharge into sewer or waterways.**

### 12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
glycerol	LOW	LOW
ethylene glycol	LOW (Half-life = 24 days)	LOW (Half-life = 3.46 days)

### 12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
glycerol	LOW (LogKOW = -1.76)
ethylene glycol	LOW (BCF = 200)

### 12.4. Mobility in soil

Ingredient	Mobility
glycerol	HIGH (KOC = 1)
ethylene glycol	HIGH (KOC = 1)

**12.5. Results of PBT and vPvB assessment**

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT Criteria fulfilled?	Not Available	Not Available	Not Available

**12.6. Other adverse effects**

No data available

**SECTION 13 DISPOSAL CONSIDERATIONS****13.1. Waste treatment methods**

<b>Product / Packaging disposal</b>	Legislation addressing waste disposal requirements may differ by country, state and/ or territory. <ul style="list-style-type: none"> <li>▶ <b>DO NOT allow wash water from cleaning or process equipment to enter drains.</b></li> <li>▶ Recycle wherever possible.</li> </ul>
<b>Waste treatment options</b>	Not Available
<b>Sewage disposal options</b>	Not Available

**SECTION 14 TRANSPORT INFORMATION****Labels Required**

<b>Marine Pollutant</b>	NO
<b>HAZCHEM</b>	Not Applicable

**Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

<b>14.1. UN number</b>	Not Applicable										
<b>14.2. UN proper shipping name</b>	Not Applicable										
<b>14.3. Transport hazard class(es)</b>	<table border="1"> <tbody> <tr> <td>Class</td> <td>Not Applicable</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </tbody> </table>	Class	Not Applicable	Subrisk	Not Applicable						
Class	Not Applicable										
Subrisk	Not Applicable										
<b>14.4. Packing group</b>	Not Applicable										
<b>14.5. Environmental hazard</b>	Not Applicable										
<b>14.6. Special precautions for user</b>	<table border="1"> <tbody> <tr> <td>Hazard identification (Kemler)</td> <td>Not Applicable</td> </tr> <tr> <td>Classification code</td> <td>Not Applicable</td> </tr> <tr> <td>Hazard Label</td> <td>Not Applicable</td> </tr> <tr> <td>Special provisions</td> <td>Not Applicable</td> </tr> <tr> <td>Limited quantity</td> <td>Not Applicable</td> </tr> </tbody> </table>	Hazard identification (Kemler)	Not Applicable	Classification code	Not Applicable	Hazard Label	Not Applicable	Special provisions	Not Applicable	Limited quantity	Not Applicable
Hazard identification (Kemler)	Not Applicable										
Classification code	Not Applicable										
Hazard Label	Not Applicable										
Special provisions	Not Applicable										
Limited quantity	Not Applicable										

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

<b>14.1. UN number</b>	Not Applicable														
<b>14.2. UN proper shipping name</b>	Not Applicable														
<b>14.3. Transport hazard class(es)</b>	<table border="1"> <tbody> <tr> <td>ICAO/IATA Class</td> <td>Not Applicable</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>Not Applicable</td> </tr> </tbody> </table>	ICAO/IATA Class	Not Applicable	ICAO / IATA Subrisk	Not Applicable	ERG Code	Not Applicable								
ICAO/IATA Class	Not Applicable														
ICAO / IATA Subrisk	Not Applicable														
ERG Code	Not Applicable														
<b>14.4. Packing group</b>	Not Applicable														
<b>14.5. Environmental hazard</b>	Not Applicable														
<b>14.6. Special precautions for user</b>	<table border="1"> <tbody> <tr> <td>Special provisions</td> <td>Not Applicable</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>Not Applicable</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>Not Applicable</td> </tr> <tr> <td>Passenger and Cargo Packing Instructions</td> <td>Not Applicable</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>Not Applicable</td> </tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td> <td>Not Applicable</td> </tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td> <td>Not Applicable</td> </tr> </tbody> </table>	Special provisions	Not Applicable	Cargo Only Packing Instructions	Not Applicable	Cargo Only Maximum Qty / Pack	Not Applicable	Passenger and Cargo Packing Instructions	Not Applicable	Passenger and Cargo Maximum Qty / Pack	Not Applicable	Passenger and Cargo Limited Quantity Packing Instructions	Not Applicable	Passenger and Cargo Limited Maximum Qty / Pack	Not Applicable
Special provisions	Not Applicable														
Cargo Only Packing Instructions	Not Applicable														
Cargo Only Maximum Qty / Pack	Not Applicable														
Passenger and Cargo Packing Instructions	Not Applicable														
Passenger and Cargo Maximum Qty / Pack	Not Applicable														
Passenger and Cargo Limited Quantity Packing Instructions	Not Applicable														
Passenger and Cargo Limited Maximum Qty / Pack	Not Applicable														

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

<b>14.1. UN number</b>	Not Applicable
<b>14.2. UN proper shipping name</b>	Not Applicable



14.3. Transport hazard class(es)	IMDG Class	Not Applicable
	IMDG Subrisk	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	EMS Number	Not Applicable
	Special provisions	Not Applicable
	Limited Quantities	Not Applicable

**Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

14.1. UN number	Not Applicable	
14.2. UN proper shipping name	Not Applicable	
14.3. Transport hazard class(es)	Not Applicable	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Classification code	Not Applicable
	Special provisions	Not Applicable
	Limited quantity	Not Applicable
	Equipment required	Not Applicable
	Fire cones number	Not Applicable

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

**SECTION 15 REGULATORY INFORMATION****15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture****GLYCEROL(56-81-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

European Customs Inventory of Chemical Substances ECICS (English)

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

UK Workplace Exposure Limits (WELs)

**ETHYLENE GLYCOL(107-21-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

European Customs Inventory of Chemical Substances ECICS (English)

European Trade Union Confederation (ETUC) Priority List for REACH Authorisation

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

UK Workplace Exposure Limits (WELs)

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : 98/24/EC, 92/85/EC, 94/33/EC, 91/689/EEC, 1999/13/EC, Commission Regulation (EU) 2015/830, Regulation (EC) No 1272/2008 and their amendments

**15.2. Chemical safety assessment**

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

**ECHA SUMMARY**

Ingredient	CAS number	Index No	ECHA Dossier
glycerol	56-81-5	Not Available	01-2119471987-18-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Not Classified	Wng, GHS08, Dgr	H315, H319, H372, H335
2	Not Classified, Skin Irrit. 2, Eye Irrit. 2, STOT RE 2, STOT RE 1, STOT SE 3	Wng, GHS08, Dgr	H315, H319, H372, H335

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
ethylene glycol	107-21-1	603-027-00-1	01-2119456816-28-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Tox. 4	GHS07, Wng	H302
2	Acute Tox. 4, STOT RE 2, STOT SE 3, STOT RE 1, Skin Irrit. 2, Not Classified, Aquatic Chronic 3, Eye Irrit. 2, STOT SE 1, Muta. 1B, Repr. 1B, Org. Perox. G	GHS08, Wng, Dgr	H336, H372, H319, H332, H370, H335, H340, H360, H315, H301

Continued...

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (glycerol; ethylene glycol)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
<b>Legend:</b>	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

## SECTION 16 OTHER INFORMATION

### Full text Risk and Hazard codes

<b>H301</b>	Toxic if swallowed.
<b>H302</b>	Harmful if swallowed.
<b>H332</b>	Harmful if inhaled.
<b>H336</b>	May cause drowsiness or dizziness.
<b>H340</b>	May cause genetic defects.
<b>H360</b>	May damage fertility or the unborn child.
<b>H370</b>	Causes damage to organs.
<b>H372</b>	Causes damage to organs through prolonged or repeated exposure.

### Other information

#### Ingredients with multiple cas numbers

Name	CAS No
glycerol	56-81-5, 29796-42-7, 30049-52-6, 37228-54-9, 75398-78-6, 78630-16-7, 8013-25-0

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection

EN 340 Protective clothing

EN 374 Protective gloves against chemicals and micro-organisms

EN 13832 Footwear protecting against chemicals

EN 133 Respiratory protective devices

### Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average

PC – STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

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