

4270544 Lyreco Highlighter Ink/ RED

Lyreco

Chemwatch Hazard Alert Code: 3

Chemwatch: 70-5961

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	4270544 Lyreco Highlighter Ink/ RED
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	1		0 = Minimum
Body Contact	3		1 = Low
Reactivity	0		2 = Moderate
Chronic	2		3 = High
			4 = Extreme

Classification according to regulation (EC) No 1272/2008 [CLP] [1]	Skin Corrosion/Irritation Category 2, Serious Eye Damage Category 1, Skin Sensitizer Category 1, Carcinogenicity 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	DANGER

Hazard statement(s)

H315	Causes skin irritation.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
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

Inhalation and/or ingestion may produce health damage*.

Cumulative effects may result following exposure*.

Vapours potentially cause drowsiness and dizziness*.

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	20-30	<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 ^[1]
1.57-55-6 2.200-338-0 3.Not Available 4.01-2119493630-37-XXXX, 01-2119457556-29-XXXX, 01-2119456809-23-XXXX	10-20	<u>propylene glycol</u>	Not Applicable
1.102-71-6 2.203-049-8 3.Not Available 4.01-2119486482-31-XXXX	1-5	<u>triethanolamine</u>	Skin Corrosion/Irritation Category 2, Serious Eye Damage Category 1, Skin Sensitizer Category 1, Carcinogenicity Category 2, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation); H315, H318, H317, H351, H335 ^[1]
1.Not Available 2.Not Available 3.Not Available 4.Not Available	>60	Ingredients determined not to be hazardous	Not Applicable

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 4. Classification drawn from C&L

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

General	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation. <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ 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. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
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	<ul style="list-style-type: none"> ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ 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. ▶ Transport to hospital, or doctor, without delay. ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice.
Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ 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. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ 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. ▶ Transport to hospital, or doctor, without delay.
Ingestion	<ul style="list-style-type: none"> ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice.

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

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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

Fire Incompatibility	None known.
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5.3. Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ The material is not readily combustible under normal conditions.
Fire/Explosion Hazard	<p>Decomposes on heating and produces toxic fumes of:</p> <ul style="list-style-type: none"> , carbon dioxide (CO₂) , acrolein , other pyrolysis products typical of burning organic material. <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

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

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

7.2. Conditions for safe storage, including any incompatibilities

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

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
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UK Workplace Exposure Limits (WELs)	glycerol	Glycerol, mist	10 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	propylene glycol	Propane-1,2-diol total vapour and particulates / Propane-1,2-diol particulates	474 mg/m3 / 10 mg/m3 / 150 ppm	Not Available	Not Available	Not Available

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
propylene glycol	Polypropylene glycols	30 mg/m3	330 mg/m3	2,000 mg/m3
propylene glycol	Propylene glycol; (1,2-Propanediol)	30 mg/m3	1,300 mg/m3	7,900 mg/m3
triethanolamine	Triethanolamine; (Trihydroxytriethylamine)	15 mg/m3	240 mg/m3	1,500 mg/m3

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

8.2. Exposure controls

8.2.1. Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard.
8.2.2. Personal protection	
Eye and face protection	▶ Safety glasses with side shields.
Skin protection	See Hand protection below
Hands/feet protection	▶ Wear chemical protective gloves, e.g. PVC. NOTE: ▶ 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.
Body protection	See Other protection below
Other protection	▶ Overalls.
Thermal hazards	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
PE/EVAL/PE	C
PVA	C
PVC	C
VITON	C
##propylene	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 AK-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	AK-AUS / Class 1 P2	-	AK-PAPR-AUS / Class 1 P2
up to 25 x ES	Air-line*	AK-2 P2	AK-PAPR-2 P2
up to 50 x ES	-	AK-3 P2	-
50+ x ES	-	Air-line**	-

* - Continuous-flow; ** - Continuous-flow or positive pressure demand

^ - 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(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.

8.2.3. Environmental exposure controls

See section 12

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

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

9.2. Other information

Not Available

SECTION 10 STABILITY AND REACTIVITY

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

SECTION 11 TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects**

Inhaled	The material can cause respiratory irritation in some persons. Inhalation of vapours may cause drowsiness and dizziness. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. Aliphatic alcohols with more than 3-carbons cause headache, dizziness, drowsiness, muscle weakness and delirium, central depression, coma, seizures and behavioural changes.				
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual. Overexposure to non-ring alcohols causes nervous system symptoms. Ingestion of propylene glycol produced reversible central nervous system depression in humans following ingestion of 60 ml.				
Skin Contact	The material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. The material may accentuate any pre-existing dermatitis condition A single prolonged exposure is not likely to result in the material causing harm. 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.				
Eye	If applied to the eyes, this material causes severe eye damage.				
Chronic	There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Propylene glycol is though, by some, to be a sensitising principal following the regular use of topical creams by eczema patients.				
4270544 Lyreco Highlighter Ink/ RED	<table border="1"> <tr> <td>TOXICITY</td> <td>IRRITATION</td> </tr> <tr> <td>Not Available</td> <td>Not Available</td> </tr> </table>	TOXICITY	IRRITATION	Not Available	Not Available
TOXICITY	IRRITATION				
Not Available	Not Available				

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glycerol	TOXICITY	IRRITATION
	dermal (guinea pig) LD50: 54000 mg/kg ^[1] Oral (rat) LD50: >20-<39800 mg/kg ^[1]	Not Available
propylene glycol	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >2000 mg/kg ^[1] Oral (rat) LD50: 20000 mg/kg ^[2]	Eye (rabbit): 100 mg - mild Eye (rabbit): 500 mg/24h - mild Skin(human):104 mg/3d Intermittent Mod Skin(human):500 mg/7days mild
	TOXICITY	IRRITATION
	dermal (rat) LD50: >18080 mg/kg ^[2] Oral (rat) LD50: 5559.6 mg/kg ^[2]	Eye (rabbit): 0.1 ml - Eye (rabbit): 10 mg - mild Eye (rabbit): 5.62 mg - SEVERE minor conjunctival irritation no irritation * Skin (human): 15 mg/3d (int)-mild Skin (rabbit): 4 h occluded Skin (rabbit): 560 mg/24 hr- 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

GLYCEROL	At very high concentrations, evidence predicts that glycerol may cause tremor, irritation of the skin, eyes, digestive tract and airway.
PROPYLENE GLYCOL	The acute oral toxicity of propylene glycol is very low, and large quantities are required to cause perceptible health damage in humans.
TRIETHANOLAMINE	The following information refers to contact allergens as a group and may not be specific to this product. While it is difficult to generalise about the full range of potential health effects posed by exposure to the many different amine compounds, characterised by those used in the manufacture of polyurethane and polyisocyanurate foams, it is agreed that overexposure to the majority of these materials may cause adverse health effects. The material may produce severe irritation to the eye causing pronounced inflammation. Studies done show that triethanolamine is of low toxicity following high dose exposure by swallowing, skin contact or inhalation. The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA. Lachrymation, diarrhoea, convulsions, urinary tract changes, changes in bladder weight, changes in testicular weight, changes in thymus weight, changes in liver weight, dermatitis after systemic exposure, kidney, ureter, bladder tumours recorded. Equivocal tumourigen by RTECS criteria. Dermal rabbit value quoted above is for occluded patch in male or female animals * Union Carbide
GLYCEROL & TRIETHANOLAMINE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases.
PROPYLENE GLYCOL & TRIETHANOLAMINE	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Acute Toxicity	☒	Carcinogenicity	✓
Skin Irritation/Corrosion	✓	Reproductivity	☒
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	✓	STOT - Repeated Exposure	☒
Mutagenicity	☒	Aspiration Hazard	☒

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
propylene glycol	LC50	96	Fish	710mg/L	4
propylene glycol	EC50	48	Crustacea	>1000mg/L	4
propylene glycol	EC50	96	Algae or other aquatic plants	10905.921mg/L	3
propylene glycol	EC50	384	Crustacea	311.145mg/L	3
propylene glycol	NOEC	168	Fish	98mg/L	4

triethanolamine	LC50	96	Fish	11800mg/L	4
triethanolamine	EC50	96	Algae or other aquatic plants	169mg/L	1
triethanolamine	EC10	96	Algae or other aquatic plants	7.1mg/L	1
triethanolamine	NOEC	504	Crustacea	16mg/L	1

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
propylene glycol	LOW	LOW
triethanolamine	LOW	LOW

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
glycerol	LOW (LogKOW = -1.76)
propylene glycol	LOW (BCF = 1)
triethanolamine	LOW (BCF = 3.9)

12.4. Mobility in soil

Ingredient	Mobility
glycerol	HIGH (KOC = 1)
propylene glycol	HIGH (KOC = 1)
triethanolamine	LOW (KOC = 10)

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**

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

SECTION 14 TRANSPORT INFORMATION**Labels Required**

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (ADR): 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)	<table border="0"> <tr> <td>Class</td> <td>Not Applicable</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </table>	Class	Not Applicable	Subrisk	Not Applicable
Class	Not Applicable				
Subrisk	Not Applicable				
14.4.Packing group	Not Applicable				
14.5.Environmental hazard	Not Applicable				
14.6. Special precautions for user	<table border="0"> <tr> <td>Hazard identification (Kemler)</td> <td>Not Applicable</td> </tr> <tr> <td>Classification code</td> <td>Not Applicable</td> </tr> </table>	Hazard identification (Kemler)	Not Applicable	Classification code	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

14.1. UN number	Not Applicable	
14.2. UN proper shipping name	Not Applicable	
14.3. Transport hazard class(es)	ICAO/IATA Class	Not Applicable
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	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

14.1. UN number	Not Applicable	
14.2. UN proper shipping name	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)

UK Workplace Exposure Limits (WELs)

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

PROPYLENE GLYCOL(57-55-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

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

European Union (EU) No-Longer Polymers List (NLP) (67/548/EEC)
UK Workplace Exposure Limits (WELs)

TRIETHANOLAMINE(102-71-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances

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

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

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
propylene glycol	57-55-6	Not Available	01-2119493630-37-XXXX, 01-2119457556-29-XXXX, 01-2119456809-23-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	Not Classified, Acute Tox. 4, Acute Tox. 3, Eye Irrit. 2, Skin Irrit. 2, Skin Sens. 1, Resp. Sens. 1, STOT SE 3, Carc. 2, Eye Dam. 1	Wng, GHS06, Dgr, GHS08, GHS05	H301, H315, H317, H334, H335, H351, H332, H318
1	Acute Tox. 4	GHS07, Wng	H302, H332
2	Acute Tox. 4	GHS07, Wng	H302, H332
1	Acute Tox. 4	GHS07, Wng	H302
2	Acute Tox. 4	GHS07, Wng	H302
1	Acute Tox. 4, Eye Irrit. 2	GHS07, Wng	H302, H319
1	Acute Tox. 4	GHS07, Wng	H302
2	Acute Tox. 4	GHS07, Wng	H302
1	Acute Tox. 4	GHS07, Wng	H302
2	Acute Tox. 4	GHS07, Wng	H302
1	Not Classified	GHS07, Wng, Wng, GHS06, Dgr, GHS08, GHS05, GHS07, Wng, GHS09	H302, H301, H315, H317, H334, H335, H351, H332, H318, H302, H332, H302, H332, H302, H302, H302, H319, H302, H302, H302, H302, H302, H319, H315, H335, H336, H317
2	Not Classified, Acute Tox. 4, Aquatic Chronic 1, Eye Irrit. 2, Skin Irrit. 2, STOT SE 3, Aquatic Chronic 2, Skin Sens. 1	GHS07, Wng, GHS09	H302, H319, H315, H335, H336, H317

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

Ingredient	CAS number	Index No	ECHA Dossier
triethanolamine	102-71-6	Not Available	01-2119486482-31-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Eye Irrit. 2	GHS07, Wng	H319
2	Not Classified, Eye Irrit. 2, Skin Irrit. 2, Acute Tox. 4, Eye Dam. 1, STOT RE 2, Skin Corr. 1B, STOT SE 3, Aquatic Chronic 2, Skin Sens. 1, Met. Corr. 1, Skin Corr. 1C, Resp. Sens. 1, Aquatic Chronic 4, Eye Irrit. 2A	Wng, GHS05, GHS08, Dgr, GHS09	H302, H318, H373, H314, H332, H335, H317, H290, H334, H312

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 (propylene glycol; glycerol; triethanolamine)

China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
Legend:	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

H290	May be corrosive to metals.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H336	May cause drowsiness or dizziness.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause 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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