LYRECO PERMANENT MARKER C/TIP BLACK

Lyreco

Chemwatch Hazard Alert Code: **3**

Chemwatch: **4854-12**
Version No: **2.1.1.1**
Safety Data Sheet (Conforms to Regulation (EU) No 2015/830)

Issue Date: **04/22/2013**
Print Date: **02/14/2017**
S.REACH.GBR.EN

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

1.1. Product Identifier

Product name	LYRECO PERMANENT MARKER C/TIP BLACK
Synonyms	151205 PK4 Lyreco Perm Marker B/Tip Asstd Col
Proper shipping name	PAINT or PAINT RELATED MATERIAL
Other means of identification	Not Available

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

Relevant identified uses	Permanent Marker. NOTE: Information on this SDS refers to ink used in pens and markers, however, it applies to these inks in bulk.
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. Classified as Dangerous Goods for transport purposes.

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	3		
Toxicity	2		
Body Contact	2		
Reactivity	1		
Chronic	2		

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

Classification according to regulation (EC) No 1272/2008 [CLP] [1]	Flammable Liquid Category 2, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, Germ cell mutagenicity Category 2, Reproductive Toxicity Category 2, Specific target organ toxicity - single exposure Category 3 (narcotic effects), Chronic Aquatic Hazard Category 3
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**

Continued...

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H341	Suspected of causing genetic defects.
H361	Suspected of damaging fertility or the unborn child.
H336	May cause drowsiness or dizziness.
H412	Harmful to aquatic life with long lasting effects.

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

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

Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/ attention.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.

2.3. Other hazards

Inhalation, skin contact and/or ingestion may produce health damage*.

Cumulative effects may result following exposure*.

May produce discomfort of the respiratory system*.

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]
1.64-17-5 2.200-578-6 3.603-002-00-5 4.01-2119457610-43-XXXX	>50	ethanol	Flammable Liquid Category 2; H225 [3]
1.107-98-2 2.203-539-1 3.603-064-00-3 4.01-2119457435-35-XXXX	10-25	propylene glycol monomethyl ether - alpha isomer	Flammable Liquid Category 3, Specific target organ toxicity - single exposure Category 3 (narcotic effects); H226, H336 [3]
1.298-07-7 2.206-056-4 3.Not Available 4.01-2119972334-35-XXXX	2.5-10	di(2-ethylhexyl) acid phosphate	Metal Corrosion Category 1, Acute Toxicity (Dermal) Category 4, Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1, Germ cell mutagenicity Category 2, Reproductive Toxicity Category 2, Chronic Aquatic Hazard Category 4; H290, H312, H314, H341, H361, H413 [1]
1.Not Available 2.Not Available 3.Not Available 4.Not Available	<5	ingredients, non-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	If skin contact occurs: ▸ Immediately remove all contaminated clothing, including footwear. ▸ Flush skin and hair with running water (and soap if available).

Continued...

	▸ Seek medical attention in event of irritation. If this product comes in contact with the eyes: ▸ Wash out immediately with fresh 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. ▸ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▸ 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. ▸ 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	If this product comes in contact with the eyes: ▸ Wash out immediately with fresh 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. ▸ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: ▸ 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	▸ 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.
Ingestion	▸ 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

All persons handling organic phosphorus ester materials regularly should undergo regular medical examination with special stress on the central nervous systems. Whilst atropine or pyridine-2-aldoxime methiodide (PAM) are beneficial antidotes for acute phosphate ester poisonings, they are of little value in reversing acute or chronic neurological damage due to phosphites and some types of aryl phosphate.
For acute or short term repeated exposures to ethanol:

- Acute ingestion in non-tolerant patients usually responds to supportive care with special attention to prevention of aspiration, replacement of fluid and correction of nutritional deficiencies (magnesium, thiamine pyridoxine, Vitamins C and K).
- Give 50% dextrose (50-100 ml) IV to obtunded patients following blood draw for glucose determination.
- Comatose patients should be treated with initial attention to airway, breathing, circulation and drugs of immediate importance (glucose, thiamine).
- Decontamination is probably unnecessary more than 1 hour after a single observed ingestion. Cathartics and charcoal may be given but are probably not effective in single ingestions.
- Fructose administration is contra-indicated due to side effects.

SECTION 5 FIREFIGHTING MEASURES

5.1. Extinguishing media

- Alcohol stable foam.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

5.3. Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard.
Fire/Explosion Hazard	▸ Liquid and vapour are highly flammable. Combustion products include: , carbon dioxide (CO_2) , other pyrolysis products typical of burning organic material.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

Continued...

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	▸ Remove all ignition sources.
Major Spills	▸ Clear area of personnel and move upwind.

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	▸ **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	▸ Store in original containers in approved flame-proof area.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	▸ Packing as supplied by manufacturer. ▸ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type.
Storage incompatibility	▸ Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates. ▸ Avoid strong 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
UK Workplace Exposure Limits (WELs)	ethanol	Ethanol	1920 mg/m3 / 1000 ppm	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs)	propylene glycol monomethyl ether - alpha isomer	1-Methoxypropan-2-ol	375 mg/m3 / 100 ppm	560 mg/m3 / 150 ppm	Not Available	Sk
European Union (EU) First List of Indicative Occupational Exposure Limit Values (IOELVs) (English)	propylene glycol monomethyl ether - alpha isomer	1-Methoxypropanol-2	375 mg/m3 / 100 ppm	568 mg/m3 / 150 ppm	Not Available	Skin
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	propylene glycol monomethyl ether - alpha isomer	1-Methoxypropan-2-ol	375 mg/m3 / 100 ppm	568 mg/m3 / 150 ppm	Not Available	Skin

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
ethanol	Ethyl alcohol; (Ethanol)	Not Available	Not Available	15000 ppm
propylene glycol monomethyl ether - alpha isomer	Propylene glycol monomethyl ether; (Ucar Triol HG-170)	100 ppm	160 ppm	660 ppm
di(2-ethylhexyl) acid phosphate	Bis(2-ethylhexyl) hydrogen phosphate	15 mg/m3	160 mg/m3	980 mg/m3
di(2-ethylhexyl) acid phosphate	Butyl bis(2-ethylhexyl)phosphate	0.96 ppm	11 ppm	63 ppm

Ingredient	Original IDLH	Revised IDLH
ethanol	15,000 ppm	3,300 [LEL] ppm
propylene glycol monomethyl ether - alpha isomer	Not Available	Not Available
di(2-ethylhexyl) acid phosphate	Not Available	Not Available
ingredients, non-hazardous	Not Available	Not Available

8.2. Exposure controls

Continued...

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. · Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
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:
LYRECO PERMANENT MARKER C/TIP BLACK

Material	CPI
BUTYL	A
NEOPRENE	A
NITRILE	B
PVC	B

* 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 AB-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	AB-AUS / Class 1 P2	-	AB-PAPR-AUS / Class 1 P2
up to 25 x ES	Air-line*	AB-2 P2	AB-PAPR-2 P2
up to 50 x ES	-	AB-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	Black highly flammable liquid with a characteristic odour; does not mix 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)**	270
pH (as supplied)	5.5	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	2
Initial boiling point and boiling range (°C)	78	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	21	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	HIGHLY FLAMMABLE.	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	15	**Surface Tension (dyn/cm or mN/m)**	Not Available

Continued...

Lower Explosive Limit (%)	2.3	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	5.9 @ 20C	**Gas group**	Not Available
Solubility in water (g/L)	Immiscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	625.79

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	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. There is some evidence to suggest that the material can cause respiratory irritation in some persons. PGME has an offensive odour, and may cause drowsiness and unconsciousness if higher concentrations are inhaled, and severe reactions involving the eyes, nose and throat. Organic phosphates are very stable and highly hazardous. Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination. Animal testing shows that the most common signs of inhalation overdose is inco-ordination and drowsiness.
Ingestion	Accidental ingestion of the material may be damaging to the health of the individual.
Skin Contact	This material can cause inflammation of the skin on contact in some persons. Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Harmful amounts of PGME may be absorbed through the skin following extensive prolonged contact; this may result in drowsiness, unconsciousness and depression. 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	This material can cause eye irritation and damage in some persons. Direct contact of the eye with ethanol (alcohol) may cause an immediate stinging and burning sensation, with reflex closure of the lid, and a temporary, tearing injury to the cornea together with redness of the conjunctiva.
Chronic	Strong evidence exists that this substance may cause irreversible mutations (though not lethal) even following a single exposure. Based on experience with animal studies, exposure to the material may result in toxic effects to the development of the foetus, at levels which do not cause significant toxic effects to the mother. Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the possibility of producing mutation. 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. Prolonged exposure to ethanol may cause damage to the liver and cause scarring. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Some glycol esters and their ethers cause wasting of the testicles, reproductive changes, infertility and changes to kidney function.

	TOXICITY	IRRITATION
LYRECO PERMANENT MARKER C/TIP BLACK	Not Available	Not Available
ethanol	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 17100 mg/kg[1]	Eye (rabbit): 500 mg SEVERE
	Inhalation (rat) LC50: 64000 ppm/4hr[2]	Eye (rabbit):100mg/24hr-moderate
	Oral (rat) LD50: >1187-2769 mg/kg[1]	Skin (rabbit):20 mg/24hr-moderate
		Skin (rabbit):400 mg (open)-mild
propylene glycol monomethyl ether - alpha isomer	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg[1]	Eye (rabbit) 230 mg mild
	Inhalation (rat) LC50: 10000 ppm/5 hr[2]	Eye (rabbit) 500 mg/24 h.
	Oral (rat) LD50: 5207.2 mg/kg[1]	Eye (rabbit): 100 mg SEVERE
		Skin (rabbit) 500 mg open - mild

Continued...

	TOXICITY	IRRITATION
di(2-ethylhexyl) acid phosphate	Dermal (rabbit) LD50: 1250 mg/kg[2]	Eye (rabbit): 0.25 mg/24h-SEVERE
	Oral (rat) LD50: 4940 mg/kg[2]	Eye (rabbit): 5 mg - moderate
		Skin (rabbit): 5 mg/24h - SEVERE
		Skin (rabbit):500 mg(open)-mod

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*

ETHANOL	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.
PROPYLENE GLYCOL MONOMETHYL ETHER - ALPHA ISOMER	for propylene glycol ethers (PGEs): Typical propylene glycol ethers include propylene glycol n-butyl ether (PnB); dipropylene glycol n-butyl ether (DPnB); dipropylene glycol methyl ether acetate (DPMA); tripropylene glycol methyl ether (TPM). NOTE: For PGE - mixed isomers: Exposure of pregnant rats and rabbits to the substance did not give rise to teratogenic effects at concentrations up to 3000 ppm.
DI(2-ETHYLHEXYL) ACID PHOSPHATE	for acid mists, aerosols, vapours Data from assays for genotoxic activity in vitro suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5. The material may produce severe irritation to the eye causing pronounced inflammation. Alkyl esters of phosphoric acid exhibit a low to moderate acute toxicity and metabolised. The material may cause severe 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. Asthma-like symptoms may continue for months or even years after exposure to the material ceases.
LYRECO PERMANENT MARKER C/TIP BLACK & DI(2-ETHYLHEXYL) ACID PHOSPHATE	No significant acute toxicological data identified in literature search.

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
ethanol	LC50	96	Fish	42mg/L	4
ethanol	EC50	48	Crustacea	2mg/L	4
ethanol	EC50	96	Algae or other aquatic plants	17.921mg/L	4
ethanol	EC50	24	Algae or other aquatic plants	0.0129024mg/L	4
ethanol	NOEC	2016	Fish	0.000375mg/L	4
propylene glycol monomethyl ether - alpha isomer	LC50	96	Fish	1005.858mg/L	3
propylene glycol monomethyl ether - alpha isomer	EC50	48	Crustacea	>500mg/L	1
propylene glycol monomethyl ether - alpha isomer	EC50	96	Algae or other aquatic plants	7152.973mg/L	3
propylene glycol monomethyl ether - alpha isomer	EC50	384	Crustacea	227.843mg/L	3
propylene glycol monomethyl ether - alpha isomer	NOEC	96	Fish	=4600mg/L	1
di(2-ethylhexyl) acid phosphate	LC50	96	Fish	0.02mg/L	4
di(2-ethylhexyl) acid phosphate	EC50	48	Crustacea	60.7mg/L	4
di(2-ethylhexyl) acid phosphate	EC50	48	Algae or other aquatic plants	>0.1mg/L	4

Continued...

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*

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
ethanol	LOW (Half-life = 2.17 days)	LOW (Half-life = 5.08 days)
propylene glycol monomethyl ether - alpha isomer	LOW (Half-life = 56 days)	LOW (Half-life = 1.7 days)
di(2-ethylhexyl) acid phosphate	HIGH	HIGH

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
ethanol	LOW (LogKOW = -0.31)
propylene glycol monomethyl ether - alpha isomer	LOW (BCF = 2)
di(2-ethylhexyl) acid phosphate	LOW (BCF = 6)

12.4. Mobility in soil

Ingredient	Mobility
ethanol	HIGH (KOC = 1)
propylene glycol monomethyl ether - alpha isomer	HIGH (KOC = 1)
di(2-ethylhexyl) acid phosphate	LOW (KOC = 17160)

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	▸ Recycle wherever possible or consult manufacturer for recycling options.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO
HAZCHEM	•3YE

Land transport (ADR)

14.1.UN number	1263
14.2.UN proper shipping name	PAINT or PAINT RELATED MATERIAL
14.3. Transport hazard class(es)	Class: 3 Subrisk: Not Applicable
14.4.Packing group	II
14.5.Environmental hazard	Not Applicable

Continued...

14.6. Special precautions for user	Hazard identification (Kemler): 33 Classification code: F1 Hazard Label: 3 Special provisions: 163 640C 640D 650 Limited quantity: 5 L

Air transport (ICAO-IATA / DGR)

14.1. UN number	1263
14.2. UN proper shipping name	Paint (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base); Paint related material (including paint thinning or reducing compounds)
14.3. Transport hazard class(es)	ICAO/IATA Class: 3 ICAO / IATA Subrisk: Not Applicable ERG Code: 3L
14.4. Packing group	II
14.5. Environmental hazard	Not Applicable
14.6. Special precautions for user	Special provisions: A3 A72 A192 Cargo Only Packing Instructions: 364 Cargo Only Maximum Qty / Pack: 60 L Passenger and Cargo Packing Instructions: 353 Passenger and Cargo Maximum Qty / Pack: 5 L Passenger and Cargo Limited Quantity Packing Instructions: Y341 Passenger and Cargo Limited Maximum Qty / Pack: 1 L

Sea transport (IMDG-Code / GGVSee)

14.1. UN number	1263
14.2. UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
14.3. Transport hazard class(es)	IMDG Class: 3 IMDG Subrisk: Not Applicable
14.4. Packing group	II
14.5. Environmental hazard	Not Applicable
14.6. Special precautions for user	EMS Number: F-E, S-E Special provisions: 163 367 Limited Quantities: 5 L

Inland waterways transport (ADN)

14.1. UN number	1263
14.2. UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound)
14.3. Transport hazard class(es)	3 Not Applicable
14.4. Packing group	II
14.5. Environmental hazard	Not Applicable
14.6. Special precautions for user	Classification code: F1 Special provisions: 163; 367; 640C; 640D; 650 Limited quantity: 5 L Equipment required: PP, EX, A Fire cones number: 1

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

ETHANOL(64-17-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

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 Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31
European Customs Inventory of Chemical Substances ECICS (English)	European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)	UK Workplace Exposure Limits (WELs)

PROPYLENE GLYCOL MONOMETHYL ETHER - ALPHA ISOMER(107-98-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)
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 Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances - updated by ATP: 31
European Customs Inventory of Chemical Substances ECICS (English)	European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
European Trade Union Confederation (ETUC) Priority List for REACH Authorisation	UK Workplace Exposure Limits (WELs)

DI(2-ETHYLHEXYL) ACID PHOSPHATE(298-07-7) 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)

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
ethanol	64-17-5	603-002-00-5	01-2119457610-43-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2	GHS02, Dgr	H225
2	Flam. Liq. 2	GHS02, Dgr	H225
1	Flam. Liq. 2	GHS02, Dgr	H225
2	Flam. Liq. 2	GHS02, Dgr	H225
2	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3, Repr. 2, STOT RE 1, Skin Irrit. 2, Not Classified, Flam. Aerosol 1, Muta. 1B, Repr. 1A, Acute Tox. 3, STOT SE 1, Met. Corr. 1, Skin Corr. 1B, Aquatic Acute 1, Aquatic Chronic 1	Dgr, GHS01, Wng, GHS08, GHS06, GHS05	H225, H319, H304, H340, H335, H372, H336, H315, H360, H220, H301, H311, H331, H370
1	Carc. 2	GHS08, Wng	H351
2	Carc. 2	GHS08, Wng	H351
1	Flam. Liq. 2	GHS02, Dgr	H225
2	Flam. Liq. 2	GHS02, Dgr	H225
1	Flam. Liq. 2	GHS02, Dgr	H225
2	Flam. Liq. 2	GHS02, Dgr	H225
1	Flam. Liq. 2	GHS02, Dgr	H225

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

Ingredient	CAS number	Index No	ECHA Dossier
propylene glycol monomethyl ether - alpha isomer	107-98-2	603-064-00-3	01-2119457435-35-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 3, STOT SE 3	GHS07, GHS02, Wng	H226, H336
2	Flam. Liq. 3, STOT SE 3, Not Classified, Acute Tox. 4, Eye Irrit. 2	GHS02, Wng, GHS08, GHS03	H336, H371, H335, H225

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

Ingredient	CAS number	Index No	ECHA Dossier
di(2-ethylhexyl) acid phosphate	298-07-7	Not Available	01-2119972334-35-XXXX

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

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 monomethyl ether - alpha isomer; ethanol; di(2-ethylhexyl) acid phosphate)

Continued...

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

H220	Extremely flammable gas.
H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H302+H312	Harmful if swallowed or if contact with skin
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H340	May cause genetic defects.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H370	Causes damage to organs.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H413	May cause long lasting harmful effects to aquatic life.

Other information

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