


**Engineering LCD Resin - Tough**

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

- 1.1 Product identifier:** Engineering LCD Resin - Tough  
**Other means of identification:**  
Non-applicable
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
Relevant uses: Resin for 3D Printing. For professional users/industrial user only.  
Uses advised against: All uses not specified in this section or in section 7.3
- 1.3 Details of the supplier of the safety data sheet:**  
FormFutura B.V.  
Tarwegweg 3  
6534 AM Nijmegen - Netherlands  
Phone: +31 (0)88 743 4000  
product.compliance@formfutura.com  
www.formfutura.com
- 1.4 Emergency telephone number:** +31 (0)30 274 8888, only for the doctor

**SECTION 2: HAZARDS IDENTIFICATION**

- 2.1 Classification of the substance or mixture:**  
**CLP Regulation (EC) No 1272/2008:**  
Classification of this product has been carried out in accordance with CLP Regulation (EC) No 1272/2008.  
Aquatic Chronic 3: Hazardous to the aquatic environment, long-term hazard, Category 3, H412  
Eye Irrit. 2: Eye irritation, Category 2, H319  
Skin Irrit. 2: Skin irritation, Category 2, H315  
Skin Sens. 1B: Sensitisation, skin, Category 1B, H317
- 2.2 Label elements:**  
**CLP Regulation (EC) No 1272/2008:**  
**Warning**
- 
- Hazard statements:**  
Aquatic Chronic 3: H412 - Harmful to aquatic life with long lasting effects.  
Eye Irrit. 2: H319 - Causes serious eye irritation.  
Skin Irrit. 2: H315 - Causes skin irritation.  
Skin Sens. 1B: H317 - May cause an allergic skin reaction.
- Precautionary statements:**  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.  
P264: Wash thoroughly after handling.  
P272: Contaminated work clothing should not be allowed out of the workplace.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/respiratory protection/eye protection/protective footwear.  
P302+P352: IF ON SKIN: Wash with plenty of water.  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P332+P313: If skin irritation occurs: Get medical advice/attention.  
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.  
P337+P313: If eye irritation persists: Get medical advice/attention.  
P501: Dispose of contents/container in accordance with regulations on hazardous waste or packaging and packaging waste respectively.
- Supplementary information:**  
Contains diisodecyl phenyl phosphite, Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide, pentaerythritol tetraacrylate.
- Additional labeling:**  
UFI: DX00-H1W5-X00Q-0CMH

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**SECTION 2: HAZARDS IDENTIFICATION (continued)**

**2.3 Other hazards:**

Product fails to meet PBT/vPvB criteria  
Endocrine-disrupting properties: The product fails to meet the criteria.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1 Substance:**

Non-applicable

**3.2 Mixture:**

**Chemical description:** Mixture of substances

**Components:**

In accordance with Annex II of Regulation (EC) No 1907/2006 (point 3), the product contains:

Identification	Chemical name/Classification	Concentration
CAS: 41637-38-1 EC: 609-946-4 Index: Non-applicable REACH: 01-2119980659-17-XXXX	<b>Esterification products of 4,4'-isopropylidenediphenol, ethoxylated and 2-methylprop-2-enoic acid<sup>1</sup></b> Self-classifie	<b>30 - &lt;40 %</b>
	Regulation 1272/2008 Aquatic Chronic 4: H413	
CAS: 4986-89-4 EC: 225-644-1 Index: 607-122-00-9 REACH: Non-applicable	<b>pentaerythritol tetraacrylate<sup>1</sup></b> ATP CLP00	<b>9 - &lt;30 %</b>
	Regulation 1272/2008 Eye Irrit. 2: H319; Skin Irrit. 2: H315; Skin Sens. 1: H317 - Warning	
CAS: Non-applicable EC: 944-664-8 Index: Non-applicable REACH: Non-applicable	<b>Urethane Acrylate Oligomer<sup>1</sup></b> Self-classifie	<b>9 - &lt;30 %</b>
	Regulation 1272/2008 Eye Irrit. 2: H319; Skin Irrit. 2: H315 - Warning	
CAS: 7534-94-3 EC: 231-403-1 Index: 607-134-00-4 REACH: 01-2119986505-27-XXXX	<b>exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate<sup>1</sup></b> ATP CLP00	<b>3 - &lt;9 %</b>
	Regulation 1272/2008 Eye Irrit. 2: H319; Skin Irrit. 2: H315; STOT SE 3: H335 - Warning	
CAS: 75980-60-8 EC: 278-355-8 Index: 015-203-00-X REACH: 01-2119972295-29-XXXX	<b>Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide<sup>1</sup></b> Self-classifie	<b>2,5 - &lt;3 %</b>
	Regulation 1272/2008 Aquatic Chronic 2: H411; Repr. 2: H361f; Skin Sens. 1B: H317 - Warning	
CAS: 25550-98-5 EC: 247-098-3 Index: Non-applicable REACH: 01-2119962888-14-XXXX	<b>diisodecyl phenyl phosphite<sup>1</sup></b> Self-classifie	<b>0,1 - &lt;0,5 %</b>
	Regulation 1272/2008 Skin Sens. 1: H317 - Warning	
CAS: 108-88-3 EC: 203-625-9 Index: 601-021-00-3 REACH: 01-2119471310-51-XXXX	<b>Toluene<sup>2</sup></b> ATP CLP00	<b>0,01 - &lt;0,1 %</b>
	Regulation 1272/2008 Asp. Tox. 1: H304; Flam. Liq. 2: H225; Repr. 2: H361d; Skin Irrit. 2: H315; STOT RE 2: H373; STOT SE 3: H336 - Danger	
CAS: 110-82-7 EC: 203-806-2 Index: 601-017-00-1 REACH: 01-2119463273-41-XXXX	<b>cyclohexane<sup>2</sup></b> ATP CLP00	<b>0,01 - &lt;0,1 %</b>
	Regulation 1272/2008 Aquatic Acute 1: H400; Aquatic Chronic 1: H410; Asp. Tox. 1: H304; Flam. Liq. 2: H225; Skin Irrit. 2: H315; STOT SE 3: H336 - Danger	
CAS: 108-95-2 EC: 203-632-7 Index: 604-001-00-2 REACH: 01-2119471329-32-XXXX	<b>phenol<sup>2</sup></b> ATP CLP00	<b>&lt;0,01 %</b>
	Regulation 1272/2008 Acute Tox. 3: H301+H311+H331; Muta. 2: H341; Skin Corr. 1B: H314; STOT RE 2: H373 - Danger	

<sup>1</sup> Substances presenting a health or environmental hazard which meet criteria laid down in Regulation (EU) No. 2020/878

<sup>2</sup> Substance with a Union workplace exposure limit

To obtain more information on the hazards of the substances consult sections 11, 12 and 16.

**Other information:**

Identification	Specific concentration limit
exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate CAS: 7534-94-3 EC: 231-403-1	% (w/w) >=10: STOT SE 3 - H335

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**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continued)**

Identification	Specific concentration limit
phenol CAS: 108-95-2 EC: 203-632-7	% (w/w) >=3: Skin Corr. 1B - H314 1<= % (w/w) <3: Skin Irrit. 2 - H315 % (w/w) >=1: Eye Irrit. 2 - H319

**SECTION 4: FIRST AID MEASURES**

**4.1 Description of first aid measures:**

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

**By inhalation:**

This product is not classified as hazardous through inhalation. However, in case of intoxication symptoms it is recommended to remove the person affected from the area of exposure, provide clean air and keep at rest. Request medical attention if symptoms persist.

**By skin contact:**

Remove contaminated clothing and footwear, rinse skin or shower the person affected if appropriate with plenty of cold water and neutral soap. In serious cases see a doctor. If the product causes burns or freezing, clothing should not be removed as this could worsen the injury caused if it is stuck to the skin. If blisters form on the skin, these should never be burst as this will increase the risk of infection.

**By eye contact:**

Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, in which case this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product.

**By ingestion/aspiration:**

Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. Keep the person affected at rest. Rinse out the mouth and throat, as they may have been affected during ingestion.

**4.2 Most important symptoms and effects, both acute and delayed:**

Acute and delayed effects are indicated in sections 2 and 11.

**4.3 Indication of any immediate medical attention and special treatment needed:**

Non-applicable

**SECTION 5: FIREFIGHTING MEASURES**

**5.1 Extinguishing media:**

**Suitable extinguishing media:**

Product is non-flammable under normal conditions of storage, manipulation and use, but the product contains flammable substances. In the case of inflammation as a result of improper manipulation, storage or use preferably use polyvalent powder extinguishers (ABC powder), in accordance with the Regulation on fire protection systems.

**Unsuitable extinguishing media:**

IT IS RECOMMENDED NOT to use full jet water as an extinguishing agent.

**5.2 Special hazards arising from the substance or mixture:**

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

**5.3 Advice for firefighters:**

Depending on the magnitude of the fire it may be necessary to use full protective clothing and self-contained breathing apparatus (SCBA). Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...) in accordance with Directive 89/654/EC.

**Additional provisions:**

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

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**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**6.1 Personal precautions, protective equipment and emergency procedures:**

**For non-emergency personnel:**

Isolate leaks provided that there is no additional risk for the people performing this task. Evacuate the area and keep out those without protection. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Above all prevent the formation of any vapour-air flammable mixtures, through either ventilation or the use of an inert medium. Remove any source of ignition. Eliminate electrostatic charges by interconnecting all the conductive surfaces on which static electricity could form, and also ensuring that all surfaces are connected to the ground.

**For emergency responders:**

Wear protective equipment. Keep unprotected persons away. See section 8.

**6.2 Environmental precautions:**

Avoid at all cost any type of spillage into an aqueous medium. Contain the product absorbed appropriately in hermetically sealed containers. Notify the relevant authority in case of exposure to the general public or the environment.

**6.3 Methods and material for containment and cleaning up:**

It is recommended:

Absorb the spillage using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. For any concern related to disposal consult section 13.

**6.4 Reference to other sections:**

See sections 8 and 13.

**SECTION 7: HANDLING AND STORAGE**

**7.1 Precautions for safe handling:**

A.- General precautions for safe use

Comply with the current legislation concerning the prevention of industrial risks with regards manually handling weights. Maintain order, cleanliness and dispose of using safe methods (section 6).

B.- Technical recommendations for the prevention of fires and explosions

Avoid the evaporation of the product as it contains flammable substances, which could form flammable vapour/air mixtures in the presence of sources of ignition. Control sources of ignition (mobile phones, sparks,...) and transfer at slow speeds to avoid the creation of electrostatic charges. Consult section 10 for conditions and materials that should be avoided.

C.- Technical recommendations on general occupational hygiene

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

D.- Technical recommendations to prevent environmental risks

Due to the danger of this product for the environment it is recommended to use it within an area containing contamination control barriers in case of spillage, as well as having absorbent material in close proximity.

**7.2 Conditions for safe storage, including any incompatibilities:**

A.- Technical measures for storage

Minimum Temp.: 5 °C

Maximum Temp.: 30 °C

Maximum time: 15 Months

B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

**7.3 Specific end use(s):**

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters:**

Substances whose occupational exposure limits have to be monitored in the workplace (European OEL, not country-specific legislation):

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**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)**

Directive (EU) 2000/39, Directive 2004/37/EC, Directive (EU) 2006/15, Directive (EU) 2009/161, Directive (EU) 2017/164, Directive (EU) 2019/1831:

Identification	Occupational exposure limits		
	IOELV (8h)	50 ppm	192 mg/m <sup>3</sup>
Toluene CAS: 108-88-3 EC: 203-625-9	IOELV (STEL)	100 ppm	384 mg/m <sup>3</sup>
cyclohexane CAS: 110-82-7 EC: 203-806-2	IOELV (8h)	200 ppm	700 mg/m <sup>3</sup>
	IOELV (STEL)		
phenol CAS: 108-95-2 EC: 203-632-7	IOELV (8h)	2 ppm	8 mg/m <sup>3</sup>
	IOELV (STEL)	4 ppm	16 mg/m <sup>3</sup>

**DNEL (Workers):**

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
Esterification products of 4,4'-isopropylidenediphenol, ethoxylated and 2-methylprop-2-enoic acid CAS: 41637-38-1 EC: 609-946-4	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	2 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	3,52 mg/m <sup>3</sup>	Non-applicable
exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate CAS: 7534-94-3 EC: 231-403-1	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	0,35 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	1,22 mg/m <sup>3</sup>	Non-applicable
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide CAS: 75980-60-8 EC: 278-355-8	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	0,233 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	0,822 mg/m <sup>3</sup>	Non-applicable
diisodecyl phenyl phosphite CAS: 25550-98-5 EC: 247-098-3	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	50 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	70,5 mg/m <sup>3</sup>	Non-applicable
Toluene CAS: 108-88-3 EC: 203-625-9	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	384 mg/kg	Non-applicable
	Inhalation	384 mg/m <sup>3</sup>	384 mg/m <sup>3</sup>	192 mg/m <sup>3</sup>	192 mg/m <sup>3</sup>
cyclohexane CAS: 110-82-7 EC: 203-806-2	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	2016 mg/kg	Non-applicable
	Inhalation	1400 mg/m <sup>3</sup>	1400 mg/m <sup>3</sup>	700 mg/m <sup>3</sup>	700 mg/m <sup>3</sup>
phenol CAS: 108-95-2 EC: 203-632-7	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	1,23 mg/kg	Non-applicable
	Inhalation	Non-applicable	16 mg/m <sup>3</sup>	8 mg/m <sup>3</sup>	Non-applicable

**DNEL (General population):**

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
Esterification products of 4,4'-isopropylidenediphenol, ethoxylated and 2-methylprop-2-enoic acid CAS: 41637-38-1 EC: 609-946-4	Oral	Non-applicable	Non-applicable	0,5 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	1 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	0,87 mg/m <sup>3</sup>	Non-applicable
exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate CAS: 7534-94-3 EC: 231-403-1	Oral	Non-applicable	Non-applicable	0,21 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	0,21 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	0,36 mg/m <sup>3</sup>	Non-applicable
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide CAS: 75980-60-8 EC: 278-355-8	Oral	Non-applicable	Non-applicable	0,0833 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	0,0833 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	0,145 mg/m <sup>3</sup>	Non-applicable
Toluene CAS: 108-88-3 EC: 203-625-9	Oral	Non-applicable	Non-applicable	8,13 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	226 mg/kg	Non-applicable
	Inhalation	226 mg/m <sup>3</sup>	226 mg/m <sup>3</sup>	56,5 mg/m <sup>3</sup>	56,5 mg/m <sup>3</sup>
cyclohexane CAS: 110-82-7 EC: 203-806-2	Oral	Non-applicable	Non-applicable	59,4 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	1186 mg/kg	Non-applicable
	Inhalation	412 mg/m <sup>3</sup>	412 mg/m <sup>3</sup>	206 mg/m <sup>3</sup>	206 mg/m <sup>3</sup>

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**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)**

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
phenol CAS: 108-95-2 EC: 203-632-7	Oral	Non-applicable	Non-applicable	0,4 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	0,4 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	1,32 mg/m <sup>3</sup>	Non-applicable

**PNEC:**



Identification		Short exposure		Long exposure	
exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate CAS: 7534-94-3 EC: 231-403-1	STP	2,45 mg/L	Fresh water	0,00233 mg/L	
	Soil	0,239 mg/kg	Marine water	0,000233 mg/L	
	Intermittent	0,0179 mg/L	Sediment (Fresh water)	1,2 mg/kg	
	Oral	Non-applicable	Sediment (Marine water)	0,12 mg/kg	
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide CAS: 75980-60-8 EC: 278-355-8	STP	Non-applicable	Fresh water	0,0014 mg/L	
	Soil	0,0222 mg/kg	Marine water	0,00014 mg/L	
	Intermittent	0,014 mg/L	Sediment (Fresh water)	0,115 mg/kg	
	Oral	Non-applicable	Sediment (Marine water)	0,0115 mg/kg	
Toluene CAS: 108-88-3 EC: 203-625-9	STP	13,61 mg/L	Fresh water	0,68 mg/L	
	Soil	2,89 mg/kg	Marine water	0,68 mg/L	
	Intermittent	0,68 mg/L	Sediment (Fresh water)	16,39 mg/kg	
	Oral	Non-applicable	Sediment (Marine water)	16,39 mg/kg	
cyclohexane CAS: 110-82-7 EC: 203-806-2	STP	3,24 mg/L	Fresh water	0,207 mg/L	
	Soil	3,38 mg/kg	Marine water	0,207 mg/L	
	Intermittent	0,207 mg/L	Sediment (Fresh water)	16,68 mg/kg	
	Oral	Non-applicable	Sediment (Marine water)	16,68 mg/kg	
phenol CAS: 108-95-2 EC: 203-632-7	STP	2,1 mg/L	Fresh water	0,008 mg/L	
	Soil	0,136 mg/kg	Marine water	0,001 mg/L	
	Intermittent	0,031 mg/L	Sediment (Fresh water)	0,091 mg/kg	
	Oral	Non-applicable	Sediment (Marine water)	0,009 mg/kg	

**8.2 Exposure controls:**


**A.- Individual protection measures, such as personal protective equipment**

As a preventative measure it is recommended to use basic Personal Protective Equipment, with the corresponding <<CE marking>> in accordance with Regulation (EU) 2016/425. For more information on Personal Protective Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1. All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

**B.- Respiratory protection**

Pictogram	PPE	Labelling	CEN Standard	Remarks
	Filter mask for gases and vapours (Filter type: FFP2)	<b>CE</b> <b>CAT III</b>	EN 405:2002+A1:2010	Replace when there is a taste or smell of the contaminant inside the face mask. If the contaminant comes with warnings it is recommended to use isolation equipment.
	Filter mask for gases and vapours (Filter type: A)	<b>CE</b> <b>CAT III</b>	EN 405:2002+A1:2010	Replace when there is a taste or smell of the contaminant inside the face mask. If the contaminant comes with warnings it is recommended to use isolation equipment.

**C.- Specific protection for the hands**

Pictogram	PPE	Labelling	CEN Standard	Remarks
	Protective gloves against minor risks (Material: Nitrile)	<b>CE</b> <b>CAT I</b>		Replace gloves in case of any sign of damage. For prolonged periods of exposure to the product for professional users/industrials, we recommend using CE III gloves in line with standards EN 420:2004+A1:2010 and EN ISO 374-1:2016+A1:2018



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**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)**

As the product is a mixture of several substances, the resistance of the glove material can not be calculated in advance with total reliability and has therefore to be checked prior to the application.



D.- Eye and face protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory face protection	Panoramic glasses against splash/projections.		EN 166:2002 EN ISO 4007:2018	Clean daily and disinfect periodically according to the manufacturer's instructions. Use if there is a risk of splashing.

E.- Body protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
	Work clothing			Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 6529:2013, EN ISO 6530:2005, EN ISO 13688:2013, EN 464:1994.
	Anti-slip work shoes		EN ISO 20347:2012	Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 20345:2012 y EN 13832-1:2007

F.- Additional emergency measures

Emergency measure	Standards	Emergency measure	Standards
 Emergency shower	ANSI Z358-1 ISO 3864-1:2011, ISO 3864-4:2011	 Eyewash stations	DIN 12 899 ISO 3864-1:2011, ISO 3864-4:2011

**Environmental exposure controls:**

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

**Volatile organic compounds:**

With regard to Directive 2010/75/EU, this product has the following characteristics:

V.O.C. (Supply):	0,08 % weight
V.O.C. density at 20 °C:	Non-applicable
Average carbon number:	6,56
Average molecular weight:	88,62 g/mol

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 Information on basic physical and chemical properties:**

For complete information see the product datasheet.

**Appearance:**

Physical state at 20 °C:	Liquid
Appearance:	Viscous
Colour:	Colourless
Odour:	Resin
Odour threshold:	Non-applicable *

**Volatility:**

Boiling point at atmospheric pressure:	Non-applicable *
Vapour pressure at 20 °C:	Non-applicable *
Vapour pressure at 50 °C:	Non-applicable *

\*Not relevant due to the nature of the product, not providing information property of its hazards.

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**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)**

Evaporation rate at 20 °C:	Non-applicable *
<b>Product description:</b>	
Density at 20 °C:	Non-applicable *
Relative density at 20 °C:	Non-applicable *
Dynamic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 40 °C:	>20,5 mm <sup>2</sup> /s
Concentration:	Non-applicable *
pH:	≈6 - 8 (at 100 %)
Vapour density at 20 °C:	Non-applicable *
Partition coefficient n-octanol/water 20 °C:	Non-applicable *
Solubility in water at 20 °C:	Non-applicable *
Solubility properties:	Non-applicable *
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	Non-applicable *
<b>Flammability:</b>	
Flash Point:	Non Flammable (>60 °C)
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	260 °C
Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *
<b>Particle characteristics:</b>	
Median equivalent diameter:	Non-applicable
<b>9.2 Other information:</b>	
<b>Information with regard to physical hazard classes:</b>	
Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *
Corrosive to metals:	Non-applicable *
Heat of combustion:	Non-applicable *
Aerosols-total percentage (by mass) of flammable components:	Non-applicable *
<b>Other safety characteristics:</b>	
Surface tension at 20 °C:	Non-applicable *
Refraction index:	Non-applicable *

\*Not relevant due to the nature of the product, not providing information property of its hazards.

**SECTION 10: STABILITY AND REACTIVITY**

**10.1 Reactivity:**

No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7.

**10.2 Chemical stability:**

Chemically stable under the indicated conditions of storage, handling and use.

**10.3 Possibility of hazardous reactions:**

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

**10.4 Conditions to avoid:**

Applicable for handling and storage at room temperature:

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**Engineering LCD Resin - Tough**

**SECTION 10: STABILITY AND REACTIVITY (continued)**

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Not applicable	Not applicable	Precaution	Precaution	Not applicable

**10.5 Incompatible materials:**

Acids	Water	Oxidising materials	Combustible materials	Others
Avoid strong acids	Not applicable	Avoid direct impact	Not applicable	Avoid alkalis or strong bases

**10.6 Hazardous decomposition products:**

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO), carbon monoxide and other organic compounds.

**SECTION 11: TOXICOLOGICAL INFORMATION**

**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008:**

The experimental information related to the toxicological properties of the product itself is not available

**Dangerous health implications:**

In case of exposure that is repetitive, prolonged or at concentrations higher than the recommended occupational exposure limits, adverse effects on health may result, depending on the means of exposure:

**A- Ingestion (acute effect):**

- Acute toxicity : Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for consumption. For more information see section 3.
- Corrosivity/Irritability: The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.

**B- Inhalation (acute effect):**

- Acute toxicity : Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for inhalation. For more information see section 3.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

**C- Contact with the skin and the eyes (acute effect):**

- Contact with the skin: Produces skin inflammation.
- Contact with the eyes: Produces eye damage after contact.

**D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):**

- Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for the effects mentioned. For more information see section 3.  
IARC: Toluene (3); phenol (3)
- Mutagenicity: Based on available data, the classification criteria are not met. However, it contains substances classified as dangerous with mutagenic effects. For more information see section 3.
- Reproductive toxicity: Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

**E- Sensitizing effects:**

- Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous with sensitising effects. For more information see section 3.
- Skin: Prolonged contact with the skin can result in episodes of allergic contact dermatitis.

**F- Specific target organ toxicity (STOT) - single exposure:**

Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for inhalation. For more information see section 3.

**G- Specific target organ toxicity (STOT)-repeated exposure:**

- Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met. However, it does contain substances which are classified as dangerous due to repetitive exposure. For more information see section 3.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

**H- Aspiration hazard:**

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**Engineering LCD Resin - Tough**

**SECTION 11: TOXICOLOGICAL INFORMATION (continued)**

Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

**Other information:**

Non-applicable

**Specific toxicology information on the substances:**

Identification	Acute toxicity		Genus
	LD50 oral	LD50 dermal	
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide CAS: 75980-60-8 EC: 278-355-8	>5000 mg/kg	Non-applicable	Rat
	Non-applicable	Non-applicable	
	Non-applicable	Non-applicable	
Toluene CAS: 108-88-3 EC: 203-625-9	5580 mg/kg	12124 mg/kg	Rat
	12124 mg/kg	28,1 mg/L (4 h)	Rat
	28,1 mg/L (4 h)	Non-applicable	Rat
cyclohexane CAS: 110-82-7 EC: 203-806-2	5100 mg/kg	Non-applicable	Rat
	Non-applicable	Non-applicable	
	Non-applicable	Non-applicable	
phenol CAS: 108-95-2 EC: 203-632-7	100 mg/kg	630 mg/kg	Rat
	630 mg/kg	Non-applicable	Rabbit
	Non-applicable	Non-applicable	

**11.2 Information on other hazards:**

**Endocrine disrupting properties**

Endocrine-disrupting properties: The product fails to meet the criteria.

**Other information**

Non-applicable

**SECTION 12: ECOLOGICAL INFORMATION**

The experimental information related to the eco-toxicological properties of the product itself is not available

**12.1 Toxicity:**

**Acute toxicity:**

Identification	Concentration		Species	Genus
	LC50	EC50		
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide CAS: 75980-60-8 EC: 278-355-8	>1 - 10 mg/L (96 h)			Fish
	>1 - 10 mg/L (48 h)			Crustacean
	>1 - 10 mg/L (72 h)			Algae
Toluene CAS: 108-88-3 EC: 203-625-9	5,5 mg/L (96 h)		Oncorhynchus kisutch	Fish
	3,78 mg/L (48 h)		Ceriodaphnia dubia	Crustacean
	Non-applicable			
cyclohexane CAS: 110-82-7 EC: 203-806-2	>0.1 - 1 mg/L (96 h)			Fish
	>0.1 - 1 mg/L (48 h)			Crustacean
	>0.1 - 1 mg/L (72 h)			Algae
phenol CAS: 108-95-2 EC: 203-632-7	14 mg/L (96 h)		Leuciscus idus	Fish
	12 mg/L (24 h)		Daphnia magna	Crustacean
	370 mg/L (96 h)		Chlorella vulgaris	Algae

**Chronic toxicity:**

Identification	Concentration		Species	Genus
	NOEC	NOEC		
phenol CAS: 108-95-2 EC: 203-632-7	0,077 mg/L		Cirrhina mrigala	Fish
	0,16 mg/L		Daphnia magna	Crustacean

**12.2 Persistence and degradability:**

**Substance-specific information:**

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**Engineering LCD Resin - Tough**
**SECTION 12: ECOLOGICAL INFORMATION (continued)**

Identification	Degradability		Biodegradability	
	Parameter	Value	Parameter	Value
Toluene CAS: 108-88-3 EC: 203-625-9	BOD5	2,5 g O2/g	Concentration	100 mg/L
	COD	Non-applicable	Period	14 days
	BOD5/COD	Non-applicable	% Biodegradable	100 %
cyclohexane CAS: 110-82-7 EC: 203-806-2	BOD5	Non-applicable	Concentration	100 mg/L
	COD	Non-applicable	Period	28 days
	BOD5/COD	Non-applicable	% Biodegradable	0 %
phenol CAS: 108-95-2 EC: 203-632-7	BOD5	1,68 g O2/g	Concentration	100 mg/L
	COD	2,33 g O2/g	Period	14 days
	BOD5/COD	0,72	% Biodegradable	85 %

**12.3 Bioaccumulative potential:**
**Substance-specific information:**

Identification	Bioaccumulation potential	
	Parameter	Value
Toluene CAS: 108-88-3 EC: 203-625-9	BCF	90
	Pow Log	2.73
	Potential	Moderate
cyclohexane CAS: 110-82-7 EC: 203-806-2	BCF	66
	Pow Log	3.44
	Potential	Moderate
phenol CAS: 108-95-2 EC: 203-632-7	BCF	17
	Pow Log	1.48
	Potential	Low

**12.4 Mobility in soil:**

Identification	Absorption/desorption		Volatility	
	Parameter	Value	Parameter	Value
Toluene CAS: 108-88-3 EC: 203-625-9	Koc	178	Henry	672,8 Pa·m <sup>3</sup> /mol
	Conclusion	Moderate	Dry soil	Yes
	Surface tension	2,793E-2 N/m (25 °C)	Moist soil	Yes
cyclohexane CAS: 110-82-7 EC: 203-806-2	Koc	Non-applicable	Henry	Non-applicable
	Conclusion	Non-applicable	Dry soil	Non-applicable
	Surface tension	2,465E-2 N/m (25 °C)	Moist soil	Non-applicable
phenol CAS: 108-95-2 EC: 203-632-7	Koc	50	Henry	2,2E-2 Pa·m <sup>3</sup> /mol
	Conclusion	Very High	Dry soil	Yes
	Surface tension	1,847E-2 N/m (231,01 °C)	Moist soil	Yes

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

Product fails to meet PBT/vPvB criteria

**12.6 Endocrine disrupting properties:**

Endocrine-disrupting properties: The product fails to meet the criteria.

**12.7 Other adverse effects:**

Not described

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

Code	Description	Waste class (Regulation (EU) No 1357/2014)
20 01 27*	paint, inks, adhesives and resins containing hazardous substances	Dangerous

**Type of waste (Regulation (EU) No 1357/2014):**

HP14 Ecotoxic, HP13 Sensitising, HP4 Irritant – skin irritation and eye damage

**Waste management (disposal and evaluation):**

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## Engineering LCD Resin - Tough

### SECTION 13: DISPOSAL CONSIDERATIONS (continued)

Consult the authorized waste service manager on the assessment and disposal operations in accordance with Annex 1 and Annex 2 (Directive 2008/98/EC). As under 15 01 (2014/955/EC) of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. Waste should not be disposed of to drains. See paragraph 6.2.

**Regulations related to waste management:**

In accordance with Annex II of Regulation (EC) No 1907/2006 (REACH) the community or state provisions related to waste management are stated

Community legislation: Directive 2008/98/EC, 2014/955/EU, Regulation (EU) No 1357/2014

### SECTION 14: TRANSPORT INFORMATION

This product is not regulated for transport (ADR/RID,IMDG,IATA)

### SECTION 15: REGULATORY INFORMATION

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

Candidate substances for authorisation under the Regulation (EC) No 1907/2006 (REACH): Non-applicable

Substances included in Annex XIV of REACH ("Authorisation List") and sunset date: Non-applicable

Regulation (EC) No 1005/2009, about substances that deplete the ozone layer: Non-applicable

Article 95, REGULATION (EU) No 528/2012: Non-applicable

REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable

**Seveso III:**

Non-applicable

**Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII REACH, etc ....):**

Shall not be used in:

- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- tricks and jokes,
- games for one or more participants, or any article intended to be used as such, even with ornamental aspects.

**Specific provisions in terms of protecting people or the environment:**

It is recommended to use the information included in this safety data sheet as a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, use, storage and disposal of this product.

**Other legislation:**

The product could be affected by sectorial legislation

**15.2 Chemical safety assessment:**

The supplier has not carried out evaluation of chemical safety.

### SECTION 16: OTHER INFORMATION

**Legislation related to safety data sheets:**

The SDS shall be supplied in an official language of the country where the product is placed on the market. This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) No 1907/2006 (COMMISSION REGULATION (EU) 2020/878).

**Modifications related to the previous Safety Data Sheet which concerns the ways of managing risks.:**

COMMISSION REGULATION (EU) 2020/878

**Texts of the legislative phrases mentioned in section 2:**

H412: Harmful to aquatic life with long lasting effects.

H315: Causes skin irritation.

H317: May cause an allergic skin reaction.

H319: Causes serious eye irritation.

**Texts of the legislative phrases mentioned in section 3:**

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**Engineering LCD Resin - Tough**

**SECTION 16: OTHER INFORMATION (continued)**

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

**CLP Regulation (EC) No 1272/2008:**

Acute Tox. 3: H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled.

Aquatic Acute 1: H400 - Very toxic to aquatic life.

Aquatic Chronic 1: H410 - Very toxic to aquatic life with long lasting effects.

Aquatic Chronic 2: H411 - Toxic to aquatic life with long lasting effects.

Aquatic Chronic 4: H413 - May cause long lasting harmful effects to aquatic life.

Asp. Tox. 1: H304 - May be fatal if swallowed and enters airways.

Eye Irrit. 2: H319 - Causes serious eye irritation.

Flam. Liq. 2: H225 - Highly flammable liquid and vapour.

Muta. 2: H341 - Suspected of causing genetic defects.

Repr. 2: H361d - Suspected of damaging the unborn child.

Repr. 2: H361f - Suspected of damaging fertility.

Skin Corr. 1B: H314 - Causes severe skin burns and eye damage.

Skin Irrit. 2: H315 - Causes skin irritation.

Skin Sens. 1: H317 - May cause an allergic skin reaction.

Skin Sens. 1B: H317 - May cause an allergic skin reaction.

STOT RE 2: H373 - May cause damage to organs through prolonged or repeated exposure.

STOT SE 3: H335 - May cause respiratory irritation.

STOT SE 3: H336 - May cause drowsiness or dizziness.

**Classification procedure:**

Aquatic Chronic 3: Calculation method

Skin Irrit. 2: Calculation method

Skin Sens. 1B: Calculation method

Eye Irrit. 2: Calculation method

**Advice related to training:**

Training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

**Principal bibliographical sources:**

<http://echa.europa.eu>

<http://eur-lex.europa.eu>

**Abbreviations and acronyms:**

ADR: European agreement concerning the international carriage of dangerous goods by road

IMDG: International maritime dangerous goods code

IATA: International Air Transport Association

ICAO: International Civil Aviation Organisation

COD: Chemical Oxygen Demand

BOD5: 5day biochemical oxygen demand

BCF: Bioconcentration factor

LD50: Lethal Dose 50

LC50: Lethal Concentration 50

EC50: Effective concentration 50

LogPOW: Octanolwater partition coefficient

Koc: Partition coefficient of organic carbon

UFI: unique formula identifier

IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at European and state level, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

- END OF SAFETY DATA SHEET -