

# Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)



## Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

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

#### 1.1 Product identifier

Trade name Engineering LCD Resin - Ultimate 2TW  
Registration number (REACH) not relevant (mixture)  
Unique formula identifier (UFI) QP5D-FRCK-QP28-5125

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

Relevant identified uses. 3D printing resin

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

Formfutura BV  
Tarweweg 3  
6534 AM Nijmegen  
Netherlands

e-mail: [product.compliance@formfutura.com](mailto:product.compliance@formfutura.com)  
Website: [www.formfutura.com](http://www.formfutura.com)

e-mail (competent person) [product.compliance@formfutura.com](mailto:product.compliance@formfutura.com)

#### 1.4 Emergency telephone number

Emergency information service +31 (0)85 743 4000  
This number is only available during the following office hours: Mon-Fri 09:00 - 17:00

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.2	skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	serious eye damage/eye irritation	2	Eye Irrit. 2	H319
3.4S	skin sensitisation	1	Skin Sens. 1	H317
3.8R	specific target organ toxicity - single exposure (respiratory tract irritation)	3	STOT SE 3	H335
4.1C	hazardous to the aquatic environment - chronic hazard	3	Aquatic Chronic 3	H412

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

Spillage and fire water can cause pollution of watercourses.

#### 2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

- Signal word warning

# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

## - Pictograms

GHS07



## - Hazard statements

H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H412 Harmful to aquatic life with long lasting effects.

## - Precautionary statements

P101 If medical advice is needed, have product container or label at hand.  
P102 Keep out of reach of children.  
P103 Read carefully and follow all instructions.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P501 Dispose of contents/container to hazardous or special waste collection point.

## - Hazardous ingredients for labelling

phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide, IBMA - Ispbornyl Methacrylate

## 2.3 Other hazards

of no significance

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Not relevant (mixture)

### 3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS
IBMA - Ispbornyl Methacrylate	CAS No 7534-94-3	50 – < 75	Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 3 / H335 Aquatic Chronic 3 / H412
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	CAS No 162881-26-7	< 2	Skin Sens. 1A / H317 Aquatic Acute 1 / H400 Aquatic Chronic 4 / H413

Name of substance	Specific Conc. Limits	M-Factors	ATE	Exposure route
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	-	M-factor (acute) = 10.0	-	

For full text of abbreviations: see SECTION 16.

# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

#### Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

#### Following skin contact

Wash with plenty of soap and water.

#### Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

#### Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

### 4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

### 4.3 Indication of any immediate medical attention and special treatment needed

none

## SECTION 5: FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### Suitable extinguishing media

Water spray, BC-powder, Carbon dioxide (CO<sub>2</sub>)

#### Unsuitable extinguishing media

Water jet

### 5.2 Special hazards arising from the substance or mixture

#### Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

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

#### For non-emergency personnel

Remove persons to safety.

#### For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

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

#### Advice on how to contain a spill

Covering of drains

# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

## 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation
- Use local and general ventilation. Use only in well-ventilated areas.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

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

### 7.3 Specific end use(s)

See section 16 for a general overview.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

This information is not available.

Relevant DNELs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
IBMA - Ispbornyl Methacrylate	7534-94-3	DNEL	1.22 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
IBMA - Ispbornyl Methacrylate	7534-94-3	DNEL	0.35 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
IBMA - Ispbornyl Methacrylate	7534-94-3	PNEC	2.33 µg/l	aquatic organisms	freshwater	short-term (single instance)
IBMA - Ispbornyl Methacrylate	7534-94-3	PNEC	0.233 µg/l	aquatic organisms	marine water	short-term (single instance)
IBMA - Ispbornyl Methacrylate	7534-94-3	PNEC	2.45 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
IBMA - Ispbornyl Methacrylate	7534-94-3	PNEC	1.2 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
IBMA - Ispbornyl Methacrylate	7534-94-3	PNEC	0.12 mg/kg	aquatic organisms	marine sediment	short-term (single instance)

# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

Relevant PNECs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
IBMA - Ispbornyl Methacrylate	7534-94-3	PNEC	0.239 mg/kg	terrestrial organisms	soil	short-term (single instance)

## 8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- Type of material

Nitrile

- Material thickness

≥0,35mm

- Breakthrough times of the glove material

>60 minutes (permeation: level 3)

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	light yellow
Odour	characteristic
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	>168 °C at 101.3 kPa
Flammability	this material is combustible, but will not ignite readily
Lower and upper explosion limit	not determined
Flash point	not determined
Auto-ignition temperature	385 °C (auto-ignition temperature (liquids and gases))
Decomposition temperature	not relevant
PH (value)	not determined
Kinematic viscosity	not determined
Solubility(ies)	not determined

# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

Partition coefficient	
Partition coefficient n-octanol/water (log value)	this information is not available
Vapour pressure	0.075 hPa at 20 °C
Density and/or relative density	
Density	1.1 g/cm <sup>3</sup>
Relative vapour density	information on this property is not available
Particle characteristics	not relevant (liquid)

## 9.2 Other information

Information with regard to physical hazard classes	hazard classes acc. to GHS (physical hazards): not relevant
Other safety characteristics	
Temperature class (EU, acc. to ATEX)	T2 (maximum permissible surface temperature on the equipment: 300°C)

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

### 10.2 Chemical stability

See below "Conditions to avoid".

### 10.3 Possibility of hazardous reactions

No known hazardous reactions.

### 10.4 Conditions to avoid

UV-radiation/sunlight.

### 10.5 Incompatible materials

Oxidisers

### 10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

## SECTION 11: TOXICOLOGICAL INFORMATION

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

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

#### Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Shall not be classified as acutely toxic.

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

## 11.2 Information on other hazards

There is no additional information.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Toxicity

Harmful to aquatic life with long lasting effects.

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
IBMA - Ispbornyl Methacrylate	7534-94-3	EC50	0.658 mg/l	aquatic invertebrates	21 d
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	EC50	>100 mg/l	microorganisms	3 h

### 12.2 Persistence and degradability

Degradability of components of the mixture

Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
IBMA - Ispbornyl Methacrylate	7534-94-3	carbon dioxide generation	70 %	28 d		ECHA
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	carbon dioxide generation	1 %	29 d		ECHA

### 12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components of the mixture

Name of substance	CAS No	BCF	Log KOW	BOD5/COD
IBMA - Ispbornyl Methacrylate	7534-94-3	37	5.09	
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	162881-26-7	<5	5.8 (pH value: 8.3, 22 °C)	

# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

- 12.4 Mobility in soil**  
Data are not available.
- 12.5 Results of PBT and vPvB assessment**  
Data are not available.
- 12.6 Endocrine disrupting properties**  
None of the ingredients are listed.
- 12.7 Other adverse effects**  
Data are not available.

## SECTION 13: DISPOSAL CONSIDERATIONS

- 13.1 Waste treatment methods**  
Sewage disposal-relevant information  
Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.  
Waste treatment of containers/packagings  
Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.
- Remarks**  
Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

## SECTION 14: TRANSPORT INFORMATION

- |  |   |
|--|---|
| <b>14.1 UN number or ID number</b>   | not subject to transport regulations                                  |
| <b>14.2 UN proper shipping name</b>  | not relevant  |
| <b>14.3 Transport hazard class(es)</b>   | none  |
| <b>14.4 Packing group</b>  | not assigned  |
| <b>14.5 Environmental hazards</b>  | non-environmentally hazardous acc. to the dangerous goods regulations |
| <b>14.6 Special precautions for user</b><br>There is no additional information.  |   |
| <b>14.7 Maritime transport in bulk according to IMO instruments</b><br>The cargo is not intended to be carried in bulk.  |   |
| <b>14.8 Information for each of the UN Model Regulations</b><br><b>International Maritime Dangerous Goods Code (IMDG) - Additional information</b><br>Not subject to IMDG.<br><b>International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information</b><br>Not subject to ICAO-IATA. |   |



# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

## SECTION 15: REGULATORY INFORMATION

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

#### Relevant provisions of the European Union (EU)

#### Restrictions according to REACH, Annex XVII

Dangerous substances with restrictions (REACH, Annex XVII)			
Name of substance	Name acc. to inventory	CAS No	No
Engineering LCD Resin - Ultimate 2TW	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		3
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	substances in tattoo inks and permanent make-up		75
IBMA - Ispbornyl Methacrylate	substances in tattoo inks and permanent make-up		75

#### List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list

none of the ingredients are listed

#### Seveso Directive

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
	not assigned		

#### Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

none of the ingredients are listed

#### Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

none of the ingredients are listed

#### Water Framework Directive (WFD)

List of pollutants (WFD)			
Name of substance	CAS No	Listed in	Remarks
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide		a)	

#### Legend

A) Indicative list of the main pollutants

#### Regulation on persistent organic pollutants (POP)

None of the ingredients are listed.

#### National inventories

Country	Inventory	Status
AU	AICS	not all ingredients are listed
CA	DSL	not all ingredients are listed
CN	IECSC	not all ingredients are listed
EU	ECSI	not all ingredients are listed
EU	REACH Reg.	not all ingredients are listed
JP	CSCL-ENCS	not all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	not all ingredients are listed

# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

Country	Inventory	Status
MX	INSQ	not all ingredients are listed
NZ	NZIoC	not all ingredients are listed
PH	PICCS	not all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	not all ingredients are listed
US	TSCA	not all ingredients are listed

## Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH	REACH registered substances
Reg.	
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

## 15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

## SECTION 16: OTHER INFORMATION

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Acute	Hazardous to the aquatic environment - acute hazard
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
Eye Dam.	Seriously damaging to the eye

# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

Abbr.	Descriptions of used abbreviations
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
log KOW	n-Octanol/water
M-factor	Means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
Skin Sens.	Skin sensitisation
STOT SE	Specific target organ toxicity - single exposure
SVHC	Substance of Very High Concern
vPvB	Very Persistent and very Bioaccumulative

## Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

## Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

## List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

# Engineering LCD Resin - Ultimate 2TW

Version number: SDS 1.0

Date of compilation: 2022-04-13

---

## **Disclaimer**

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.