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Liqcreate Bio-Med Clear

A biocompatible 3D-printing resin for Digital Light Processing (DLP), Liquid Crystal Display (LCD) and laser based 3D-printers. Liqcreate Bio-Med Clear is perfect for applications that require non-cytotoxic, non-sensitizing and non-irritating features.

Product description

Liqcreate Bio-Med Clear is a rigid clear photopolymer resin and can be processed on most resin based 3D-printers. 3D-printed parts from this material exhibit biocompatible properties when post-cured according to the manufacturers guidelines(page 4). After washing and post-curing, printed parts from Liqcreate Bio-Med Clear are capable of passing the biocompatibility tests of: Cytotoxicity (ISO 10993-5:2009), Sensitization (ISO 10993-10:2021) and Irritation (ISO 10993-23:2021). Printed parts from Bio-Med Clear can be disinfected with commonly used disinfectants or sterilized by steam sterilization.

Key benefits

- Biocompatible
- Steam sterilization possible
- High accuracy
- Dimensional stable

3D-Printer compatibility

- Asiga UV series
- Elegoo & Anycubic series
- Phrozen series
- Open 385 - 420nm DLP, LCD and SLA 3D-printers

Order information

Order directly at the Liqcreate store or send your inquiry to order@liqcreate.com with the following order numbers.

Liqcreate Bio-Med Clear	250gram	Order number LBM00250
Liqcreate Bio-Med Clear	1 kg	Order number LBMC01000

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Liqcreate Bio-Med Clear Technical Data

Liquid properties

Appearance	Clear liquid
Viscosity	475 cps at 25°C
Density	1.18 g/cm^2

Ec $_{(405nm)}$	6.10 mJ/cm^2
D_p $_{(405nm)}$	0.12 mm
Ec $_{(385nm)}$	4.10 mJ/cm^2
D_p $_{(385nm)}$	0.05 mm

Polymer properties

Description	ASTM / ISO Method	Metric[1]	Imperial[1]
Tensile strength	D638M	55 MPa	8.00 ksi
Elongation at break	D638M	5 - 10 %	5 - 10 %
Tensile modulus	D638M	2.0 GPa	290 ksi
Flexural strength	D790	89 MPa	12.91 ksi
Flexural modulus	D790	2.2 GPa	319 ksi
Flexural strength	ISO 20795-2	78 MPa	11.31 ksi
Flexural modulus	ISO 20795-2	1.7 GPa	274 ksi
IZOD Impact notched	ISO 180	3.04 kJ/m^2	1.45 ft-lb/in^2
IZOD Impact notched	D256	28 J/m	0.53 ft-lb/in
Water sorption	D570-98	0,54%	0,54%
Degradation temperature	Internal method	> 250°C[2]	> 482°F[2]
HDT-B 0.45 MPa	ISO75	62°C	144°F
HDT-A 1.80 MPa	ISO75	48°C	118°F
Shore D Hardness	D2240	85	85
Cytotoxicity	ISO 10993-5:2009	Comply	
Sensitization	ISO 10993-10:2021	Comply	
Irritation	ISO 10993-23:2021	Comply	

[1]Post-cured 30 minutes with high power LED curing at 60°C in the Wicked Engineering curebox. These values may vary and depend on individual machine processing and post-curing. Aways follow the recommend post-curing workflow from the manufacturer to ensure biocompatibility. [2]Material will soften above HDT value but not break/crack up to 250°C without force on the part, discoloration above 180°C.

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Liqcreate Bio-Med Clear sterilization properties

Polymer properties				
Description	Method	After UV-cure	After steam sterilization 121°C	After steam sterilization 134°C
Flexural strength	ISO 20795-2	78 MPa	75 MPa	73 MPa
Flexural modulus	ISO 20795-2	1.7 GPa	2.2 GPa	2.2 GPa
Flexural strength	D790	89 MPa	80 MPa	75 MPa
Flexural modulus	D790	2.2 GPa	2.5 GPa	2.4 GPa

Post-cured 30 minutes with high power LED curing at 60°C in the Wicked Engineering curebox.

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Liqcreate Bio-Med Clear processing workflow

For reaching the properties as described above and to insure biocompatibility it is important to follow the validated workflow described below.

Print process

Before printing make sure to shake the bottle for 2 minutes and that the parts are printed in an environment at 20-25°C. Validated printer settings can be found on our website: Compatible 3D-printers with Liqcreate resins | Liqcreate.

Wash and cure process

1. Remove the parts from the build platform.
2. Remove the support structures.
3. Wash the parts for 2 minutes in IPA or ethanol in an ultrasonic cleaner.
4. Wash the parts for a second time for 2 minutes in fresh IPA/Ethanol.
5. leave the parts to dry under ambient conditions for a minimum of 60 minutes.
6. Cure the parts for 30 minutes at 60°C in the Wicked Engineering Curebox.

Biocompatibility

Liqcreate Bio-Med Clear has been proven capable of passing the cytotoxicity testing according to ISO 10993-5:2009, sensitization testing according to ISO 10993-10:2021 and irritation testing according to ISO 10993-23:2021 within a specific workflow. When using this product for making a regulated medical device the user must assume all the responsibility for registration and use of this device.

Visit www.liqcreate.com for more information about this product.