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Liqcreate Bio-Med Flex

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

Product description

Liqcreate Bio-Med Flex is a flexible clear photopolymer resin with Shore A of 73 and can be processed on most resin based 3D-printers operating with a wavelength between 385 and 405 nm. 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 Flex 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 Flex can be disinfected with commonly used disinfectants or sterilized by steam sterilization.

Key benefits

- Biocompatible
- Autoclavable
- Excellent elongation
- Good tear strength

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 Flex	1 kg	Order number LBMF01000

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Liqcreate Bio-Med Flex Technical Data

Liquid properties

Appearance	clear liquid
Viscosity	850 mPa·s at 25°C
Density	1.12 g/cm^2

$E_{c\ (405nm)}$	7.84 mJ/cm^2
$D_{p\ (405nm)}$	0.16 mm
$E_{c\ (385nm)}$	4.48 mJ/cm^2
$D_{p\ (385nm)}$	0.07 mm

Polymer properties

Description	ASTM / ISO Method	Metric[1]	Imperial[1]
Tensile strength	D638M	5.0 MPa	0.73 ksi
Elongation at break	D638M	180 - 250 %	
Tear strength	D624	20 – 28 kN/m	114 – 160 lbf/in
Water sorption	D570-98	0,76%	
Shore A Hardness	D2240	73	73
Cytotoxicity	ISO 10993-5:2009	Pass	
Sensitization	ISO 10993-10:2021	Pass	
Irritation	ISO 10993-23:2021	Pass	

[1]UV Post-cured 10 minutes submerged in water in the Elegoo Mercury X curing unit followed by 120 minutes at 60°C / 140°F in the Formlabs Formcure (1st generation). These values may vary and depend on individual machine processing and post-curing.

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Liqcreate Bio-Med Flex sterilization properties

Polymer properties				
Description	Method	After UV-cure	After steam sterilization 121°C	After steam sterilization 134°C
Tensile strength	D638	5.0 MPa	3.7 MPa	3.6 MPa
Elongation at break	D638	240 %	183 %	166 %
Tear strength	D624	22 kN/m	18 kN/m	21 kN/m
Shore A	D2240	73	70	75

[1]UV Post-cured 10 minutes submerged in water in the Elegoo Mercury X curing unit followed by 120 minutes at 60°C / 140°F in the Formlabs Formcure (1st generation).

Liqcreate Bio-Med Flex properties after disinfecting

Polymer properties						
Description	Method	After UV-cure	70% IPA based	99% IPA based	70% Ethanol based	99% Ethanol based
Tensile strength	D638	5.0 MPa	3.4 MPa	3.3 MPa	3.5 MPa	3.6 MPa
Elongation at break	D638	240 %	233 %	231 %	242 %	238 %a
Tear strength	D624	22 kN/m	21 kN/m	20 kN/m	20 kN/m	22 kN/m
Shore A	D2240	73	74	71	72	71

[1]UV Post-cured 10 minutes submerged in water in the Elegoo Mercury X curing unit followed by 120 minutes at 60°C / 140°F in the Formlabs Formcure (1st generation).

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Liqcreate Bio-Med Flex processing workflow

For reaching the properties as described above and to ensure 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 / 68-77°F. 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 in an ultrasonic cleaner.
5. leave the parts to dry under ambient conditions for a minimum of 60 minutes.
6. Cure the part in a transparent glass of water for 10 minutes in an Elegoo Mercury X or other curing unit which cures at 405nm wavelength.
7. Take the part out of the water and cure the parts for 120 minutes at 60°C / 140°F in the Formlabs Formcure (first generation) or stronger curing unit.

Biocompatibility

Liqcreate Bio-Med Flex 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 this 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.