

Clear Resin V5

An optimally-balanced Clear Resin for transparent applications

Clear Resin V5 is an exceptionally clear and color-neutral General Purpose Resin, offering an optimal balance of fast print speed, high dimensional accuracy, and presentation-ready appearance.

Clear Resin V5 creates highly transparent and colorless parts that can be polished to near optical transparency. Create parts that are stiff and strong with a smooth surface finish that rivals acrylic.

Clear Resin V5 is a new material formulation that leverages the Form 4 ecosystem to print three times faster than the previous version.

Transparent enclosures, optical components, and lighting prototypes

Parts showcasing internal features

Molds, masters, and other rapid tooling

Fluidic devices



FLGPCL05

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To the best of our knowledge the information contained herein is accurate. However, Formlabs, Inc. makes no warranty, expressed or implied, regarding the accuracy of these results to be obtained from the use thereof.

Material Properties	METRIC ¹			IMPERIAL ¹			METHOD
	Green	Post-Cured for 5 min at ambient temperature ²	Post-Cured for 15 min at 60 °C ³	Green	Post-Cured for 5 min at ambient temperature ²	Post-Cured for 15 min at 140 °F ³	
Tensile Properties	METRIC ¹			IMPERIAL ¹			METHOD
Ultimate Tensile Strength	46 MPa	51 MPa	60 MPa	6672 psi	7340 psi	8702 psi	ASTM D638-14
Tensile Modulus	2200 MPa	2575 MPa	2750 MPa	319 ksi	373 ksi	399 ksi	ASTM D638-14
Elongation at Break	13%	10%	8%	13%	10%	8%	ASTM D638-14
Flexural Properties	METRIC ¹			IMPERIAL ¹			METHOD
Flexural Strength	82 MPa	91 MPa	103 MPa	11893 psi	13198 psi	14938 psi	ASTM D790-15
Flexural Modulus	2000 MPa	2450 MPa	2750 MPa	290 ksi	355 ksi	399 ksi	ASTM D790-15
Impact Properties	METRIC ¹			IMPERIAL ¹			METHOD
Notched Izod	31 J/m	29 J/m		0.580 ft-lb/in	0.542 ft-lb/in		ASTM D4812-11
Thermal Properties	METRIC ¹			IMPERIAL ¹			METHOD
Heat Deflection Temp. @ 1.8 MPa	54 °C	57 °C		129 °F	135 °F		ASTM D648-16
Heat Deflection Temp. @ 0.45 MPa	61 °C	69 °C		142 °F	156 °F		ASTM D648-16

Polished Optical Properties	Post-Cured for 5 min at ambient temperature ²		Post-Cured for 15 min at 60 °C ³	
Transmission @ 2 mm	85%		85%	ASTM D1003-21
a* @ 2 mm	-4.02		-4.31	ASTM E1348-15
b* @ 2 mm	7.52		5.58	ASTM E1348-15
Transmission @ 10 mm	59%		59%	ASTM D1003-21
a* @ 10 mm	-4.25		-3.98	ASTM E1348-15
b* @ 10 mm	5.98		5.94	ASTM E1348-15

Transmission refers to the amount of visible light that passes through the part
a* and b* are more commonly associated with the CIELAB color space, where they denote axes for color measurement:
a* axis: Ranges from green to red, with negative values indicating green and positive values indicating red.
b* axis: Ranges from blue to yellow, with negative values indicating blue and positive values indicating yellow.

SOLVENT COMPATIBILITY

Percent weight gain over 24 hours for a printed and post-cured 1 x 1 x 1 cm cube immersed in respective solvent:

Solvent	24 hr weight gain, %	Solvent	24 hr weight gain, %	Solvent	24 hr weight gain, %
Acetic Acid 5%	0.9	Hydrogen peroxide (3%)	0.9	Sodium Hydroxide solution (0.025% PH 10)	0.8
Acetone	5.1	Isooctane (aka gasoline)	< 0.1	Strong Acid (HCl conc)	0.5
Bleach ~5% NaOCl	0.7	Isopropyl Alcohol	0.3	Tripropylene glycol monomethyl ether	0.5
Butyl Acetate	0.3	Mineral oil (Heavy)	0.2	Water	0.9
Diesel Fuel	0.1	Mineral oil (Light)	0.2	Xylene	< 0.1
Diethyl glycol Monomethyl Ether	1.1	Salt Water (3.5% NaCl)	0.8		
Hydraulic Oil	0.1	Skydrol 5	0.7		

¹ Material properties may vary based on part geometry, print orientation, print settings, temperature, and disinfection or sterilization methods used.

² Data was obtained from parts printed on a Form 4 printer with 100 µm Clear Resin V5 settings, washed in a Form Wash for 5 minutes in >99% Isopropyl Alcohol, and post-cured at room temperature for 5 minutes in a Form Cure.

³ Data was obtained from parts printed on a Form 4 printer with 100 µm Clear Resin V5 settings, washed in a Form Wash for 5 minutes in >99% Isopropyl Alcohol, and post-cured at 60°C for 15 minutes in a Form Cure.