formlabs

Clear

Photopolymer Resin for Form 1+ and Form 2

FLGPCL03 MATERIAL PROPERTIES

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Formlabs Clear Resin produces strong plastic parts ideal for a wide variety of applications and is specifically designed to work with your Form 2 or Form 1+ 3D Printer. This material can be easily painted, and when the surface is finished or coated, produces a highly clear part. Upon post-cure, tensile strength and stiffness exceeds that of injection-molded or 3D-printed ABS.

The following material properties are comparable for all our Standard Resins, White, Grey, and Black.

	METRIC[1]		IMPERIAL[1]		METHOD
	Green[2]	**Postcured[3]**	**Green[2]**	**Postcured[3]**	
Tensile Properties					
Ultimate Tensile Strength	38 MPa	65 MPa	5510 psi	9380 psi	ASTM D 638-10
Young's Modulus	1.6 GPa	2.8 GPa	234 ksi	402 ksi	ASTM D 638-10
Elongation at Failure	12%	6.2%	12%	6.2%	ASTM D 638-10
Flexural Properties					
Flexural Modulus	1.25 GPa	2.2 GPa	181 ksi	320 ksi	ASTM C 790-10
Impact Properties					
Notched IZOD	16 J/m	25 J/m	0.3 ft-lbf/in	0.46 ft-lbf/in	ASTM D 256-10
Temperature Properties					
Heat deflection temp. @ 264 psi	42.7 °C	58.4 °C	108.9 °F	137.1 °F	ASTM D 648-07
Heat deflection temp. @ 66 psi	49.7 °C	73.1 °C	121.5 °F	163.6 °F	ASTM D 648-07

NOTES:

[1]Material properties can vary with part geometry, print orientation, print settings and temperature.

[2]Data was obtained from green parts, printed using Form 2, 100 µm, Clear settings, without additional treatments.

[3] Data was obtained from parts printed using Form 2, 100 µm, Clear settings and post-cured with 1.25 mW/cm^2 of 405 nm LED light at 60 °C for 60 minutes.

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:

Mechanical Properties	24 HR WEIGHT GAIN (%)
Acetic Acid, 5 %	< 1
Acetone	sample cracked
Isopropyl Alcohol	< 1
Bleach, ~5 % NaOCl	< 1
Butyl Acetate	< 1
Diesel	< 1
Diethyl glycol monomethyl ether	1.7
Hydrolic Oil	< 1
Skydrol 5	1
Hydrogen Peroxide (3 %)	< 1
Isooctane	< 1
Mineral Oil, light	< 1
Mineral Oil, heavy	< 1
Salt Water (3.5 % NaCl)	< 1
Sodium hydroxide (0.025 %, pH = 10)	< 1
Water	< 1
Xylene	< 1
Strong Acid (HCl Conc)	distorted