

# Rigid

## Rigid Resin for Stiffness and Precision

Rigid Resin is reinforced with glass to offer very high stiffness and a polished finish. This material is highly resistant to deformation over time and is great for printing thin walls and features. Requires Resin Tank LT.

Turbines and fan blades

Jigs, fixtures, and tooling

Manifolds

Electrical casings and automotive housings



FLRGWH01

formlabs 

**Prepared** 01 . 23 . 2018  
**Rev** 01 01 . 23 . 2018

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 Data

	METRIC <sup>1</sup>		IMPERIAL <sup>1</sup>		METHOD
	Green <sup>2</sup>	Post-Cured <sup>3</sup>	Green <sup>2</sup>	Post-Cured <sup>3</sup>	
<b>Tensile Properties</b>					
Ultimate Tensile Strength	40 MPa	75 MPa	5801 psi	10907 psi	ASTM D 638-14
Tensile Modulus	2.2 GPa	4.1 GPa	319 ksi	594 ksi	ASTM D 638-14
Elongation	13.3 %	5.6 %	13.3 %	5.6 %	ASTM D 638-14
<b>Flexural Properties</b>					
Flexural Stress at 5% Strain	49 MPa	121 MPa	7135 psi	17593 psi	ASTM D 790-15
Flexural Modulus	1.37 GPa	3.7 GPa	198 ksi	537 ksi	ASTM D 790-15
<b>Impact Properties</b>					
Notched IZOD	not tested	18.8 J/m	not tested	0.37 ft-lbf/in	ASTM D256-10
<b>Temperature Properties</b>					
Heat Deflection Temp. @ 1.8 MPa	not tested	74 °C	not tested	165.2 °F	ASTM D 648-16
Heat Deflection Temp. @ 0.45 MPa	not tested	88 °C	not tested	190.4 °F	ASTM D 648-16
Thermal Expansion (-30 to 30° C)	not tested	53 µm/m/°C	not tested	29.5 µin/in/°F	ASTM E 831-13

<sup>1</sup>Material properties can vary with part geometry, print orientation, print settings, and temperature.

<sup>2</sup>Data was obtained from green parts, printed using Form 2, 100 µm, Rigid settings, without additional treatments.

<sup>3</sup>Data was obtained from parts printed using Form 2, 100 µm, Rigid settings and post-cured with a Formcure for 120 minutes at 80 C.

## 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 (%)
Acetic Acid, 5 %	0.8	Hydrogen Peroxide (3 %)	0.87
Acetone	3.27	Isooctane	0.05
Isopropyl Alcohol	0.38	Mineral Oil, light	0.22
Bleach, ~5 % NaOCl	0.69	Mineral Oil, heavy	0.15
Butyl Acetate	0.09	Salt Water (3.5 % NaCl)	0.71
Diesel	0.06	Sodium hydroxide (0.025 %, pH = 10)	0.68
Diethyl glycol monomethyl ether	1.37	Water	0.7
Hydraulic Oil	0.17	Xylene	0.09
Skydrol 5	1.11	Strong Acid (HCl Conc)	5.34