



High Temp

Photopolymer Resin for Form 1+ and Form 2

FLHTAM01 MATERIAL PROPERTIES

Prepared: 09/15/2016

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.

Formlabs High Temp Resin produces heat resistant plastic parts ideal for a wide variety of applications and is specifically designed to work with your Form 2 or Form 1+ 3D Printer.

	METRIC ¹		IMPERIAL ¹		METHOD
	Green ²	Post-Cured ³	Green ²	Post-Cured ³	
Mechanical Properties					
Ultimate Tensile Strength	33 MPa	51.1 MPa	4790 psi	7410 psi	ASTM D 638-14
Young's Modulus	1.5 GPa	3.6 Gpa	222 ksi	525 ksi	ASTM D 638-14
Elongation at Break	9 %	2 %	9 %	2 %	ASTM D 638-14
Flexural Strength at Break	41.2 MPa	106.9 MPa	5980 psi	15500 psi	ASTM D 790-15
Flexural Modulus	1.1 GPa	3.3 GPa	158 ksi	478 ksi	ASTM D 790-15
Notched IZOD	12.3 J/m	14 J/m	0.23 ft-lbf/in	0.26 ft-lbf/in	ASTM D 256-10
Water Absorption	N/A	0.21 %	N/A	0.21 %	ASTM D 570-98
Thermal Properties					
Heat Deflection Temp. @ 1.8 MPa	42.3 °C	130 °C	108.1 °F	266 °F	ASTM D 648-16
Heat Deflection Temp. @ 0.45 MPa	55.9 °C	289 °C	132.6 °F	552.2 °F	ASTM D 648-16
Thermal Expansion (0 – 150 °C)	120.9 µm/m/°C	87.5 µm/m/°C	67.2 µin/in/°F	48.6 µin/in/°F	ASTM E 831-13

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, High Temp settings, without additional treatments.

³ Data was obtained from parts printed using Form 2, 100 µm, High Temp settings and post-cured with 80.5 mW/cm² of 365 nm fluorescent light 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	<1
Bleach, ~5 % NaOCl	<1
Butyl Acetate	<1
Diesel	<1
Diethyl glycol monomethyl ether	<1
Hydraulic Oil	<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