formlabs

High Temp

Photopolymer Resin for Form 1+ and Form 2

FLHTAM01 MATERIAL PROPERTIES

Prepared: 09/15/2016

Formlabs High Temp Resin produces high temperature 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					
Tensile Strength at Break	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 refers to post-cured properties obtained after exposing green parts with 290 J/cm² of fluorescent bulb UV light, centered at 365 nm.

SOLVENT COMPATIBILITY

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 %	0.04
Acetone	< 0.01
Bleach, ~5 % NaOCl	0.06
Butyl Acetate	< 0.01
Diesel	< 0.01
Diethyl glycol monomethyl ether	< 0.01
Hydrolic Oil	0.01
Hydrogen Peroxide (3 %)	0.07
Isooctane	< 0.01
Mineral Oil, light	0.02
Mineral Oil, heavy	0.02
Salt Water (3.5 % NaCl)	0.08
Sodium hydroxide (0.025 %, pH = 10)	0.08