MATERIAL DATA SHEET

High Temp

High Temp Resin for Heat Resistance

High Temp Resin offers a heat deflection temperature (HDT) of 238 °C @ 0.45 MPa, the highest among Formlabs resins. Use it to print detailed, precise prototypes with high temperature resistance.

Hot air, gas, and fluid flow

Molds and inserts

Heat resistant mounts, housings, and fixtures

FLHTAM02

formlabs

Prepared 09 . 15 . 2016
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Material Properties Data

	FLHTAM02						
	METRIC[1]			IMPERIAL[1]			METHOD
	Green[2]	Post-Cured[3]	Post-Cured + Additional Thermal Cure[4]	Green[2]	Post-Cured[3]	Post-Cured + Additional Thermal Cure[4]	
Mechanical Properties							
Ultimate Tensile Strength	20.9 MPa	58.3 MPa	48.7 MPa	3031 psi	8456 psi	7063 psi	ASTM D 638-14
Elongation at Break	14 %	3.3 %	2.3 %	14%	3.3%	2.3%	ASTM D 638-14
Tensile Modulus	0.75 GPa	2.8 GPa	2.8 GPa	109 ksi	399 ksi	406 ksi	ASTM D 638-14
Flexural Properties							
Flexural Strength at Break	24.1 MPa	94.5 MPa	97.2 MPa	3495 psi	13706 psi	14097 ksi	ASTM D 790-15
Flexural Modulus	0.7 GPa	2.6 GPa	2.8 GPa	100 ksi	400 ksi	406 ksi	ASTM D 790-15
Impact Properties							
Notched IZOD	32.8 J/m	18.2 J/m	16.9 J/m	0.61 ft-lbf/in	0.34 ft-lbf/in	0.32 ft-ibf/in	ASTM D 256-10
Thermal Properties							
Thermal Expansion (0-150 °C)	118.1 µm/m/ °C	79.6 µm/m/ °C	74.5 µm/m/ °C	41.4 µin/in/ °F	44.2 µin/in/ °F	41.4 µin/in/ °F	ASTM E 831-14
Heat Deflection Temp. @ 0.45 MPa	49 °C	120 °C	238 °C	120 °F	248 °F	460 °F	ASTM D 648-16
Heat Deflection Temp. @ 1.8 MPa	44 °C	78 °C	101 °C	111 °F	172 °F	214 °F	ASTM D 648-16

[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, washed for 5 minutes in Form Wash and air dried without post cure.

[3] Data was obtained from parts printed using a Form 2, 100 micron, High Temp settings, and post-cured with Form Cure at 60 °C for 60 minutes.

[4] Data was obtained from parts printed using a Form 2, 100 micron, High Temp settings, and post-cured with Form Cure at 80 °C for 120 minutes plus an additional thermal cure in a lab oven at 160 °C for 180 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:

Solvent	24 hr weight gain (%)	24 hr size gain (%)	Solvent	24 hr weight gain (%)	24 hr size gain (%)
Acetic Acid, 5 %	< 1	< 1	Hydrogen peroxide (3%)	< 1	< 1
Acetone	< 1	< 1	Isooctane (aka gasoline)	< 1	< 1
Isopropyl Alcohol	< 1	< 1	Mineral oil (light)	< 1	< 1
Bleach ~5% NaOCl	< 1	< 1	Mineral oil (Heavy)	< 1	< 1
Butyl Acetate	< 1	< 1	Salt Water (3.5% NaCl)	< 1	< 1
Diesel Fuel	< 1	< 1	Sodium Hydroxide solution (0.025% PH 10)	< 1	< 1
Diethyl glycol Monomethyl Ether	< 1	< 1	Water	< 1	< 1
Hydraulic Oil	< 1	< 1	Xylene	< 1	< 1
Skydrol 5	< 1	< 1	Strong Acid (HCl conc)	1.2	< 1