

# High Temp Resin

## 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**

**Heat resistant mounts, housings, and fixtures**

**Molds and inserts**



**FLHTAM02**

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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	METRIC <sup>1</sup>			IMPERIAL <sup>1</sup>			METHOD
	Green <sup>2</sup>	Post-Cured for 60 min at 60 °C <sup>3</sup>	Post-Cured for 120 min at 80 °C and 180 min at 160 °C <sup>4</sup>	Green <sup>2</sup>	Post-Cured for 60 min at 176 °F <sup>3</sup>	Post-Cured for 120 min at 248 °F and 180 min at 356 °F <sup>4</sup>	
Tensile Properties	METRIC <sup>1</sup>			IMPERIAL <sup>1</sup>			METHOD
Ultimate Tensile Strength	21 MPa	58 MPa	49 MPa	3031 psi	8456 psi	7063 psi	ASTM D638-14
Tensile Modulus	0.75 GPa	2.8 GPa	2.8 GPa	109 ksi	399 ksi	406 ksi	ASTM D638-14
Elongation at Break	14%	3.3%	2.3%	14%	3.3%	2.3%	ASTM D638-14
Flexural Properties	METRIC <sup>1</sup>			IMPERIAL <sup>1</sup>			METHOD
Flexural Strength at Break	24 MPa	95 MPa	97 MPa	3495 psi	13706 psi	14097 psi	ASTM D790-15
Flexural Modulus	0.7 GPa	2.6 GPa	2.8 GPa	100 ksi	400 ksi	406 ksi	ASTM D790-15
Impact Properties	METRIC <sup>1</sup>			IMPERIAL <sup>1</sup>			METHOD
Notched Izod	33 J/m	18 J/m	17 J/m	0.61 ft-lb/in	0.34 ft-lb/in	0.32 ft-lb/in	ASTM D256-10
Thermal Properties	METRIC <sup>1</sup>			IMPERIAL <sup>1</sup>			METHOD
Heat Deflection Temp. @ 1.8 MPa	44 °C	78 °C	101 °C	111 °F	172 °F	214 °F	ASTM D648-16
Heat Deflection Temp. @ 0.45 MPa	49 °C	120 °C	238 °C	120 °F	248 °F	460 °F	ASTM D648-16
Thermal Expansion	118 µm/m/°C	80 µm/m/°C	75 µm/m/°C	41 µin/in/°F	44 µin/in/°F	41 µin/in/°F	ASTM E831-13

## 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 size gain, %	24 hr weight gain, %	Solvent	24 hr size gain, %	24 hr weight gain, %
Acetic Acid 5%	< 1	< 1	Mineral oil (Light)	< 1	< 1
Acetone	< 1	2	Mineral oil (Heavy)	< 1	< 1
Bleach ~5% NaOCl	< 1	< 1	Salt Water (3.5% NaCl)	< 1	< 1
Butyl Acetate	< 1	< 1	Skydrol 5	< 1	1.1
Diesel Fuel	< 1	< 1	Sodium Hydroxide solution (0.025% PH 10)	< 1	< 1
Diethyl glycol Monomethyl Ether	< 1	1	Strong Acid (HCl conc)	1.2	< 1
Hydraulic Oil	< 1	< 1	Tripropylene glycol monomethyl ether	< 1	< 1
Hydrogen peroxide (3%)	< 1	< 1	Water	< 1	< 1
Isooctane (aka gasoline)	< 1	< 1	Xylene	< 1	< 1
Isopropyl Alcohol	< 1	< 1			

<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, High Temp settings, washed for 5 minutes in Form Wash and air dried without post cure.

<sup>3</sup> 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.

<sup>4</sup> 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.