

SPECIALTY RESIN

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

Heat resistant mounts, housings, and fixtures

Molds and inserts



V2

FLFLGR02

* May not be available in all regions

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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 DATA

High Temp Resin

| | 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 | |
| Tensile Properties | | | | | | | |
| 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 | | | | | | | |
| Flexural Strength at Break | 24 MPa | 95 MPa | 97 MPa | 3495 psi | 13706 psi | 14097 psi | 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 | 33 J/m | 18 J/m | 17 J/m | 061 ft-lbf/in | 0.34 ft-lbf/in | 0.32 ft-lbf/in | ASTM D256-10 |
| Temperature Properties | | | | | | | |
| Heat Deflection Temp. @ 1.8 MPa | 44 °C | 78 °C | 101 °C | 111 °F | 172 °F | 214 °F | ASTM D 648-16 |
| Heat Deflection Temp. @ 0.45 MPa | 49 °C | 120 °C | 238 °C | 120 °F | 248 °F | 460 °F | ASTM D 648-16 |
| 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 E 831-13 |

¹Material properties may vary with part geometry, print orientation and temperature.

²Data 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.

³Data 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.

⁴Data 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 size gain (%) | 24 hr weight gain (%) | Solvent | 24 hr size gain (%) | 24 hr weight gain (%) |
|---------------------------------|---------------------|-----------------------|--|---------------------|-----------------------|
| Acetic Acid 5% | <1 | <1.0 | Mineral oil (Light) | <1 | <1.0 |
| Acetone | <1 | <1.0 | Mineral oil (Heavy) | <1 | <1.0 |
| Bleach ~5% NaOCl | <1 | <1.0 | Salt Water (3.5% NaCl) | <1 | <1.0 |
| Butyl Acetate | <1 | <1.0 | Skydrol 5 | <1 | <1.0 |
| Diesel Fuel | <1 | <1.0 | Sodium Hydroxide solution (0.025% PH 10) | <1 | <1.0 |
| Diethyl glycol Monomethyl Ether | <1 | <1.0 | Strong Acid (HCl conc) | 1.2 | 1.2 |
| Hydraulic Oil | <1 | <1.0 | Tripropylene glycol monomethyl ether | <1 | <1.0 |
| Hydrogen peroxide (3%) | <1 | <1.0 | Water | <1 | <1.0 |
| Isooctane (aka gasoline) | <1 | <1.0 | Xylene | <1 | <1.0 |
| Isopropyl Alcohol | <1 | <1.0 | | | |