ENGINEERING RESIN

Rigid 4000

Rigid 4000 Resin for Stiff, Strong, Engineering-Grade Prototypes

Glass-filled Rigid 4000 Resin prints with a smooth, polished finish and is ideal for stiff and strong parts that can withstand minimal deflection. Consider Rigid 4000 Resin for general load-bearing applications.

Mounts and brackets

Jigs and fixtures

Thin-walled parts

Simulates stiffness of PEEK

RIGID 4000 MATERIAL PROPERTIES DATA

Mechanical Properties	METRIC[1]		IMPERIAL[1]		METHOD
	Green[2]	UV[3]	Green[2]	UV[3]	Testing Standard
Ultimate Tensile Strength	33 MPa	69 MPa	4786 psi	10007 psi	ASTM D 638-14
Tensile Modulus	2.1 GPa	4.1 GPa	305 ksi	595 ksi	ASTM D 638-14
Elongation at Break	23%	5.3%	23%	5.3%	ASTM D 638-14
Flexural Strength	43 MPa	105 MPa	6236 psi	15229 psi	ASTM D 790-15
Flexural Modulus	1.4 GPa	3.4 GPa	203 ksi	493 ksi	ASTM D 790-15
Notched IZOD	16 J/m	23 J/m	0.3 ft-lbf/in	0.43 ft-lbf/in	ASTM D256-10
Thermal Properties					
Heat Deflection Temp. @ 1.8 MPa	41 °C	60 °C	105 °F	140 °F	ASTM D 648-16
Heat Deflection Temp. @ 0.45 MPa	48 °C	77 °C	118 °F	170 °F	ASTM D 648-16
Thermal Expansion (0-150°C)	64 μm/m/°C	63 μm/m/°C	36 μin/in/°F	35 μin/in/°F	ASTM E 831-13

[1] Material properties can vary with part geometry, print orientation, print settings, and temperature.

[2] Data was obtained from green parts, printed using Form 3, 100 μm, Rigid 4000 (formerly Rigid v1) settings, without additional treatments.

[2] Data was obtained from parts printed using Form 3, 100 μm, Rigid 4000 (formerly Rigid v1) settings and post-cured with a Form Cure for 15 minutes at 80 °C

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, %	Solvent	24 hr weight gain, %
Acetic Acid 5%	0.8	Hydrogen peroxide (3%)	0.87
Acetone	3.3	Isooctane (aka gasoline)	<0.1
Isopropyl Alcohol	0.38	Mineral oil (light)	0.22
Bleach ~5% NaOCl	0.69	Mineral oil (Heavy)	0.15
Butyl Acetate	<0.1	Salt Water (3.5% NaCl)	0.71
Diesel Fuel	<0.1	Sodium Hydroxide solution (0.025% PH 10)	0.68
Diethyl glycol Monomethyl Ether	1.4	Water	0.70
Hydraulic Oil	0.17	Xylene	<0.1
Skydrol 5	1.1	Strong Acid (HCl conc)	5.3