

Elastic 50A Resin V1

Resin for Soft Flexible Parts

Our softest Engineering Resin, this 50A Shore durometer material is suitable for prototyping parts normally produced with silicone. Choose Elastic Resin for parts that will bend, stretch, compress, and hold up to repeated cycles without tearing.

Compliant features for robotics

Wearables and consumer goods prototyping

Medical models and devices

Special effects props and models



FLELCL01

*** 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	METRIC ¹		IMPERIAL ¹		METHOD
	Green ²	Post-Cured ³	Green ²	Post-Cured ³	
Tensile Properties	METRIC ¹		IMPERIAL ¹		METHOD
Ultimate Tensile Strength ³	1.61 MPa	3.23 MPa	234 psi	468 psi	ASTM D412-06 (A)
Stress at 50% Elongation	0.92 MPa	0.94 MPa	133 psi	136 psi	ASTM D412-06 (A)
Stress at 100% Elongation	1.54 MPa	1.59 MPa	233 psi	231 psi	ASTM D412-06 (A)
Elongation at Break	100%	160%	100%	160%	ASTM D412-06 (A)
Tear Strength ⁴	8.9 kN/m	19.1 kN/m	51 lbf/in	109 lbf/in	ASTM D624-00
Shore Hardness	40A	50A	40A	50A	ASTM 2240
Compression Set (23 °C for 22 hours)	2%				ASTM D395-03 (B)
Compression Set (70 °C for 22 hours)	3%	9%	3%	9%	ASTM D395-03 (B)

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, %
Acetic Acid 5%	< 1	2.8
Acetone	19.3	37.3
Isopropyl Alcohol	13.3	25.6
Bleach ~5% NaOCl	< 1	2
Butyl Acetate	18.2	39.6
Diesel Fuel	1.2	4.2
Diethyl glycol Monomethyl Ether	12	28.6
Hydraulic Oil	< 1	2.1
Skydrol 5	9.9	21.7
Hydrogen peroxide (3%)	< 1	2.2
Isooctane (aka gasoline)	< 1	3.5
Mineral oil (light)	< 1	< 1
Mineral oil (Heavy)	< 1	< 1
Salt Water (3.5% NaCl)	< 1	1.7
Sodium Hydroxide solution (0.025% PH 10)	< 1	2
Water	< 1	2.3
Xylene	20.4	46.6
Strong Acid (HCl conc)	14.2	39.4

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

² Data was obtained from parts printed using Form 2, 100 µm, Elastic settings, washed in Form Wash for 20 minutes and post-cured with Form Cure at 60 °C for 20 minutes.

³ MTensile testing was performed after 3+ hours at 23 °C, using a Die C dumbbell and 20 in/min cross head speed.

⁴ Tear testing was performed after 3+ hours at 23 °C, using a Die C tear specimen and a 20 in/min cross head speed.