

Elastic 50A

Elastic 50A 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 50A Resin for parts that will bend, stretch, compress, and hold up to repeated cycles without tearing.

Wearables and consumer goods prototyping

Medical models and devices

Compliant features for robotics

Special effects props and models



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Prepared 01 . 07 . 2019
Rev 01 01 . 07 . 2019

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

	METRIC ¹		IMPERIAL ¹		METHOD
	Green	Post-Cured ²	Green	Post-Cured ²	
Ultimate tensile strength ³	1.61 MPa	3.23 MPa	234 psi	468 psi	ASTM D 412-06 (A)
Stress at 50% elongation	.92 MPa	.94 MPa	133 psi	136 psi	ASTM D 412-06 (A)
Stress at 100% elongation	1.54 MPa	1.59 MPa	223 psi	231 psi	ASTM D 412-06 (A)
Elongation at Failure ³	100%	160%	100%	160%	ASTM D 412-06 (A)
Compression set at 23 °C for 22 hrs	2%	2%	2%	2%	ASTM D 395-03 (B)
Compression set at 70 °C for 22 hrs	3%	9%	3%	9%	ASTM D 395-03 (B)
Tear strength ⁴	8.9 kN/m	19.1 kN/m	51 lbf/in	109 lbf/in	ASTM D 624-00
Shore hardness	40A	50A	40A	50A	ASTM 2240

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

²Data was obtained from parts printed using Form 2, 100 µm, Elastic 50A settings, washed in Form Wash for 20 minutes and postcured with Form Cure at 60 °C for 20 minutes.

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

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

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	2.8	Hydrogen Peroxide (3 %)	<1	2.2
Acetone	19.3	37.3	Isooctane	<1	3.5
Isopropyl Alcohol	13.3	25.6	Mineral Oil, light	<1	<1
Bleach, ~5 % NaOCl	<1	2	Mineral Oil, heavy	<1	<1
Butyl Acetate	18.2	39.6	Salt Water (3.5 % NaCl)	<1	1.7
Diesel	1.2	4.2	Sodium hydroxide (0.025 %, pH = 10)	<1	2
Diethyl glycol monomethyl ether	12	28.6	Water	<1	2.3
Hydraulic Oil	<1	2.1	Xylene	20.4	46.6
Skydrol 5	9.9	21.7	Strong Acid (HCl Conc)	14.2	39.4