

Elastic

Elastic Resin for Soft Flexible Parts

\$199 / L

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.

Wearables and consumer goods prototyping

Medical models and devices

Compliant features for robotics

Special effects props and models



FLELCL01

formlabs 

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 23C for 22 hrs | 2% | 2% | 2% | 2% | ASTM D 395-03 (B) |
| Compression set at 70C 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 settings, washed in Form Wash for 20 minutes and postcured with Form Cure at 60C 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:

| Mechanical Properties | 24 hr size gain (%) | 24 hr weight gain (%) | Mechanical Properties | 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 |