

Flexible 80A Resin

Resin for Hard Flexible Prototypes

Flexible 80A Resin is the most stiff soft-touch material in our library of Flexible and Elastic Resins, with an 80A Shore durometer to simulate the flexibility of rubber or TPU.

Balancing softness with strength, Flexible 80A Resin can withstand bending, flexing, and compression, even through repeated cycles. This material is well-suited for cushioning, damping, and shock absorption.

Cartilage and ligament anatomy

Seals, gaskets, masks

Handles, grips, overmolds



FLFL8001



FLFL8011

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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	Post-Cured ²	Green	Post-Cured ²	
Tensile Properties	METRIC ¹		IMPERIAL ¹		METHOD
Ultimate Tensile Strength ³	3.7 MPa	8.9 MPa	539 psi	1290 psi	ASTM D412-06 (A)
Stress at 50% Elongation	1.5 MPa	3.1 MPa	218 psi	433 psi	ASTM D412-06 (A)
Stress at 100% Elongation	3.5 MPa	6.3 MPa	510 psi	909 psi	ASTM D412-06 (A)
Elongation at Break	100%	120%	100%	120%	ASTM D412-06 (A)
Shore Hardness	70A	80A	70A	80A	ASTM 2240
Compression Set (23 °C for 22 hours)	Not Tested	3%	Not Tested	3%	ASTM D395-03 (B)
Compression Set (70 °C for 22 hours)	Not Tested	5%	Not Tested	5%	ASTM D395-03 (B)
Tear Strength ⁴	11 kN/m	24 kN/m	61 lb/in	137 lb/in	ASTM D624-00
Ross Flex Fatigue at 23 °C	Not Tested	>200,000 cycles	Not Tested	>200,000 cycles	ASTM D1052, (notched), 60° bending, 100 cycles/minute
Ross Flex Fatigue at -10 °C	Not Tested	>50,000 cycles	Not Tested	>50,000 cycles	ASTM D1052, (notched), 60° bending, 100 cycles/minute
Bayshore Resilience	Not Tested	28%	Not Tested	28%	ASTM D2632
Thermal Properties	METRIC ¹		IMPERIAL ¹		METHOD
Glass transition temperature (Tg)	Not Tested	27 °C	Not Tested	27 °C	DMA

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%	0.9	Isooctane (aka gasoline)	1.6
Acetone	37.4	Mineral oil (light)	0.1
Isopropyl Alcohol	11.7	Mineral oil (Heavy)	< 0.1
Bleach ~5% NaOCl	0.6	Salt Water (3.5% NaCl)	0.5
Butyl Acetate	51.4	Sodium Hydroxide solution (0.025% PH 10)	0.6
Diesel Fuel	2.3	Water	0.7
Diethyl Glycol Monomethyl Ether	19.3	Xylene	64.1
Hydraulic Oil	1.0	Strong Acid (HCl conc)	28.6
Skydrol 5	10.7	Tripropylene Glycol Methyl Ether (TPM)	13.6
Hydrogen peroxide (3%)	0.7		

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

² Data was obtained from parts printed using Form 3, 100 µm, Flexible 80A settings, washed in Form Wash for 10 minutes and post-cured with Form Cure at 60 °C for 10 minutes.

³ Tensile testing was performed after 3+ hours at 23 °C, using a Die C specimen cut from sheets.

⁴ Tear testing was performed after 3+ hours at 23 °C, using a Die C tear specimen directly printed.