



# Durable

Photopolymer Resin for Form 2

**FLDUCL01 MATERIAL PROPERTIES**

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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.

Durable was designed to simulate polypropylene (PP) plastic, with comparable low modulus and high-impact strength. Use this wear-resistant, ductile material when parts require deformation and a smooth, glossy finish. For best mechanical properties, we recommend post-curing prints.

	METRIC <sup>1</sup>		IMPERIAL <sup>1</sup>		METHOD
	Green <sup>2</sup>	Post-Cured <sup>3</sup>	Green <sup>2</sup>	Post-Cured <sup>3</sup>	
<b>Tensile Properties</b>					
Tensile Strength at Yield	18.6 MPa	31.8 MPa	2.7 ksi	4.61 ksi	ASTM D 638-10
Tensile Modulus	0.45 GPa	1.26 GPa	65.7 ksi	183 ksi	ASTM D 638-10
Elongation	67 %	49 %	67 %	49 %	ASTM D 638-10
<b>Flexural Properties</b>					
Flexural Stress at 5% Strain	4.06 MPa	27.2 MPa	0.59 ksi	3.95 ksi	ASTM D 790-10, Procedure A
Flexural Modulus	0.16 GPa	0.82 GPa	23.4 ksi	119 ksi	ASTM D 790-10, Procedure A
<b>Impact Properties</b>					
IZOD Impact Strength	130.8 J/m	109 J/m	2.46 ft-lbf/in	2.05 ft-lbf/in	ASTM D 256-10, Test Method A
<b>Temperature Properties</b>					
Heat Deflection Temp. @ 0.45 MPa	< 30 °C	43.3 °C	< 86 °F	110 °F	ASTM D 648-07, Method B
Thermal Expansion from 23 to 50°C	117.0 µm/m/°C	145.1 µm/m/°C	65.0 µin/in/°F	80.6 µin/in/°F	ASTM E831-14

**NOTES:**

<sup>1</sup>Material properties can vary with part geometry, print orientation, print settings, and temperature.

<sup>2</sup>Data was obtained from green parts, printed using Form 2, 100 µm, Durable settings, without additional treatments.

<sup>3</sup>Data refers to post-cured properties obtained after exposing green parts with 2.5 mW/cm<sup>2</sup> of 405 nm LED light for 120 minutes at 60°C.

## SOLVENT COMPATIBILITY

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 WEIGHT GAIN (%)
Acetic Acid, 5 %	1.3
Acetone	sample cracked
Isopropyl Alcohol	5.1
Bleach, ~5 % NaOCl	<1
Butyl Acetate	7.9
Diesel Fuel	<1
Diethyl glycol monomethyl ether	7.8
Hydraulic Oil	<1
Skydrol 5	1.3
Hydrogen Peroxide (3 %)	1
Isooctane	<1
Mineral Oil, light	<1
Mineral Oil, heavy	<1
Salt Water (3.5 % NaCl)	<1
Sodium hydroxide (0.025 %, pH = 10)	<1
Water	<1
Xylene	6.5
Strong Acid (HCl conc)	sample distorted