

Black Resin V5

An optimally-balanced Black Resin for versatile applications

Black Resin V5 is an exceptionally rich, deep black General Purpose Resin, offering an optimal balance of fast print speed, high accuracy, presentation-ready appearance, strong mechanical properties, and an easy, reliable workflow.

Create parts that are stiff and strong with a surface finish that rivals injection molding. Black Resin V5 has a rich, matte color that captures fine features accurately.

Black Resin V5 is a new material formulation that leverages the Form 4 ecosystem to print three times faster than the previous version.

Form and fit prototyping

Presentation-ready models with fine features and intricate details

Enclosures and housings

Jigs and fixtures



FLGPBK05

* 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 DATA

Black Resin V5

	METRIC ¹			IMPERIAL ¹			METHOD
	Green	Post-Cured 5 min (Ambient) ²	Post-Cured 15 min at 60 °C ³	Green	Post-Cured 5 min (Ambient) ²	Post-Cured 15 min at 140 °F ³	
Tensile Properties							
Ultimate Tensile Strength	48 MPa	57 MPa	61 MPa	6962 psi	8267 psi	8847 psi	ASTM D638-14
Tensile Modulus	2200 MPa	2450 MPa	2700 MPa	319 ksi	363 ksi	388 ksi	ASTM D638-14
Elongation at Break	19%	14%	10%	19%	14%	10%	ASTM D638-14
Flexural Properties							
Flexural Strength	82 MPa	91 MPa	103 MPa	11893 psi	13198 psi	14938 psi	ASTM D790-15
Flexural Modulus	2000 MPa	2450 MPa	2750 MPa	290 ksi	355 ksi	399 ksi	ASTM D790-15
Impact Properties							
Notched Izod	31 J/m	29 J/m	29 J/m	0.580 ft-lbs/in	0.542 ft-lbs/in	0.542 ft-lbs/in	ASTM D4812-11
Thermal Properties							
Heat Deflection Temp. @ 1.8 MPa	54 °C	54 °C	57°C	129 °F	129 °F	135 °F	ASTM D648-16
Heat Deflection Temp. @ 0.45 MPa	61 °C	61 °C	69°C	142 °F	142 °F	156 °F	ASTM D648-16

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	Mineral oil (Heavy)	0.2
Acetone	4.9	Mineral oil (Light)	0.2
Bleach ~5% NaOCl	0.7	Salt Water (3.5% NaCl)	0.8
Butyl Acetate	0.3	Skydrol 5	0.5
Diesel Fuel	0.1	Sodium Hydroxide solution (0.025% PH 10)	0.8
Diethyl glycol Monomethyl Ether	1.0	Strong Acid (HCl conc)	0.5
Hydraulic Oil	0.2	Tripropylene glycol monomethyl ether	0.3
Hydrogen peroxide (3%)	0.9	Water	0.8
Isooctane (aka gasoline)	< 0.1	Xylene	< 0.1
Isopropyl Alcohol	0.3		

¹ Material properties may vary based on part geometry, print orientation, print settings, temperature, and disinfection or sterilization methods used.

² Data was obtained from parts printed on a Form 4 printer with 100 µm Black Resin V5 settings, washed in a Form Wash for 5 minutes in ≥99% Isopropyl Alcohol, and post-cured at room temperature for 5 minutes in a Form Cure.

³ Data was obtained from parts printed on a Form 4 printer with 100 µm Black Resin V5 settings, washed in a Form Wash for 5 minutes in ≥99% Isopropyl Alcohol, and post-cured at 60°C for 15 minutes in a Form Cure.