

# Standard

## Materials for High-Resolution Rapid Prototyping

**High Resolution.** For demanding applications, our carefully-engineered resins capture the finest features in your model.

**Strength and Precision.** Our resins create accurate and robust parts, ideal for rapid prototyping and product development.

**Surface Finish.** Perfectly smooth right out of the printer, parts printed on the Formlabs stereolithography printers have the polish and finish of a final product.



V4 CLEAR  
FLGPCLO4

V4 WHITE  
FLGPWH04

V4 GREY  
FLGPGR04

V4 BLACK  
FLGPBL04

V4 COLOR  
FLGPCB01

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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

The following material properties are comparable for Clear Resin, White Resin, Grey Resin, Black Resin, and Color Kit.

	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>					
Ultimate Tensile Strength	38 MPa	65 MPa	5510 psi	9380 psi	ASTM D 638-10
Tensile Modulus	1.6 GPa	2.8 GPa	234 ksi	402 ksi	ASTM D 638-10
Elongation at Failure	12 %	6 %	12 %	6 %	ASTM D 638-10
<b>Flexural Properties</b>					
Flexural Modulus	1.3 GPa	2.2 GPa	181 ksi	0.5 ksi	ASTM D 790-10
<b>Impact Properties</b>					
Notched IZOD	16 J/m	25 J/m	0.3 ft-lbf/in	0.46 ft-lbf/in	ASTM D 256-10
<b>Temperature Properties</b>					
Heat Deflection Temp. @ 264 psi	42.7 °C	58.4 °C	108.9 °F	137.1 °F	ASTM D 648-07
Heat Deflection Temp. @ 66 psi	49.7 °C	73.1 °C	121.5 °F	163.6 °F	ASTM D 648-07

<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, Clear settings, washed and air dried without post cure.

<sup>3</sup>Data was obtained from parts printed using Form 2, 100 µm, Clear settings, and post-cured with 1.25 mW/cm<sup>2</sup> of 405 nm LED light for 60 minutes at 60 °C.

## 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 Hour Weight Gain (%)	Solvent	24 Hour Weight Gain (%)
Acetic Acid, 5 %	< 1	Hydrogen Peroxide (3 %)	< 1
Acetone	sample cracked	Isooctane	< 1
Isopropyl Alcohol	< 1	Mineral Oil, light	< 1
Bleach, ~5 % NaOCl	< 1	Mineral Oil, heavy	< 1
Butyl Acetate	< 1	Salt Water (3.5 % NaCl)	< 1
Diesel	< 1	Sodium hydroxide (0.025 %, pH = 10)	< 1
Diethyl glycol monomethyl ether	1.7	Water	< 1
Hydraulic Oil	< 1	Xylene	< 1
Skydrol 5	1	Strong Acid (HCl Conc)	distorted

### HIGH RESOLUTION

For demanding applications, our carefully-engineered resins capture the finest features in your model.

### STRENGTH AND PRECISION

Our resins create accurate and robust parts, ideal for our rapid prototyping and product development.

### SURFACE FINISH

Perfectly smooth right out of the printer, parts printed on Formlabs printers have the polish and finish of a final product.



#### CLEAR

Our Clear Resin polishes to near optical transparency, making it ideal for showcasing internal features.

#### WHITE

Our White Resin emphasizes fine details and has a matte finish with a warm, slightly ivory color.

#### GREY

Our Grey Resin has a smooth, matte finish and shows details beautifully without primer.

#### BLACK

Our Black Resin's opaque matte finish rivals the look of injection-molded plastics, capable of producing incredible looks-like prototypes.



#### COLOR KIT

Color Kit contains a Color Base cartridge and five Color Pigments. Use Color Kit to mix and print matte, opaque parts in a range of colors without the manual work of finishing and painting.