**MATERIAL DATA SHEET** 

# 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 Form 2 printer have the polish and finish of a final product.



CLEAR FLGPCL04

WHITE FLGPWH04

GREY FLGPGR04 BLACK FLGPBL04 COLOR FLGPCBO

**Prepared** 04 . 19 . 2016 **Rev** 01 04 . 18 . 2017

### Material Properties Data

The following material properties are comparable for all Formlabs Standard Resins.

	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>	
Tensile Properties					
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 %	6.2 %	12 %	6.2 %	ASTM D 638-10
Flexural Properties					
Flexural Modulus	1.25 GPa	2.2 GPa	181 ksi	320 ksi	ASTM C 790-10
Impact Properties					
Notched IZOD	16 J/m	25 J/m	0.3 ft-lbf/in	0.46 ft-lbf/in	ASTM D 256-10
Temperature Properties					
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>&</sup>lt;sup>1</sup>Material properties can vary with part geometry, print orientation, print settings, and temperature.

## Solvent Compatibility

Percent weight gain over 24 hours for a printed and post-cured  $1 \times 1 \times 1$  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 % NaOCI	<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
Hydrolic Oil	<1	Xylene	<1
Skydrol 5	1	Strong Acid (HCl Conc)	distorted

<sup>&</sup>lt;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  $\mu m$ , Clear settings, and post-cured with 1.25  $mW/cm^2$  of 405 nm LED light for 60 minutes at 60 °C.

#### **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 the Form 2 printer have the polish and finish of a final product.



Our Clear Resin polishes to near optical transparency, making it ideal for showcasing internal features. Our White Resin emphasizes fine details and has a matte finish with a warm, slightly ivory color. Our Grey Resin has a smooth, matte finish and shows details beautifully without primer.

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



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