



# Clear

Photopolymer Resin for Form 1+ and Form 2

## **FLGPCL02 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.

Formlabs Clear Resin produces strong plastic parts ideal for a wide variety of applications and is specifically designed to work with your Form 2 or Form 1+ 3D Printer. This material can be easily painted, and when the surface is finished or coated, produces a highly clear part. Upon post-cure, tensile strength and stiffness exceeds that of injection-molded or 3D-printed ABS.

The following material properties are comparable for all our Standard Resins, White, Grey, and Black.

|                                 | METRIC <sup>1</sup> |                        | IMPERIAL <sup>1</sup> |                        | METHOD        |
|---------------------------------|---------------------|------------------------|-----------------------|------------------------|---------------|
|                                 | Green <sup>2</sup>  | Postcured <sup>3</sup> | Green <sup>2</sup>    | Postcured <sup>3</sup> |               |
| <b>Tensile Properties</b>       |                     |                        |                       |                        |               |
| Tensile Strength at yield       | 38 MPa              | 65 MPa                 | 5510 psi              | 9380 psi               | ASTM D 638-10 |
| Young's 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 |
| <b>Flexural Properties</b>      |                     |                        |                       |                        |               |
| Flexural Modulus                | 1.25 GPa            | 2.2 GPa                | 181 ksi               | 320 ksi                | ASTM C 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 |

**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, Clear settings, without additional treatments.

<sup>3</sup>Data refers to post-cured properties obtained after exposing green parts to 1.25 mW/cm<sup>2</sup> of 405 nm light at 60 °C for 1 hour.

## SOLVENT COMPATIBILITY

### G = Good resistance.

Parts exposed to this solvent should not experience a decrease in mechanical properties.  
( $\leq$  1% weight gain,  $\leq$  1% width increase over 24 hours for a 1 x 1 x 1 cm cube)

### A = Acceptable resistance.

Parts exposed to this solvent may experience a small decrease in mechanical properties.  
(1 – 2% weight gain, 1 – 2% width increase over 24 hours for a 1 x 1 x 1 cm cube)

### X = Unacceptable resistance.

Parts exposed to this solvent will experience a significant decrease in mechanical properties as well as visible degradation. (> 2% weight gain, > 2% width increase over 24 hours for a 1 x 1 x 1 cm cube)

|                                     | CLEAR RESIN<br>FLGPCL02 |            |
|-------------------------------------|-------------------------|------------|
|                                     | GREEN                   | POST CURED |
| Acetic Acid, 5%                     | G                       | G          |
| Acetone                             | X                       | X          |
| Bleach (~5% NaOCl)                  | G                       | G          |
| Butyl Acetate                       | X                       | G          |
| Diethyl glycol monomethyl ether     | X                       | G          |
| Hydrogen Peroxide (3%)              | G                       | G          |
| Isooctane                           | G                       | G          |
| Isopropyl alcohol                   | X                       | G          |
| Sodium hydroxide (0.025%, pH = ~10) | G                       | G          |
| Salt Water (3.5% NaCl)              | G                       | G          |
| Water                               | G                       | G          |
| Xylene                              | X                       | G          |