

Precision Model Resin

Formlabs' most accurate material for printing high quality restorative models

Precision Model Resin is a high-accuracy material for creating restorative models with >99% of printed surface area within 100 μm of the digital model. Create beautiful models with crisp margin lines thanks to high opacity, beige color, and a smooth, matte finish to capture fine details.

Precision Model Resin is a new material that leverages the Form 4 ecosystem to print three times as fast as previous formulations of Model Resin.

Restorative models

Implant models

Crown fit test models

Removable die models



FLPMBE01

* 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

Precision Model Resin

| | METRIC ¹ | | IMPERIAL ¹ | | METHOD |
|-------------------------------------|---------------------|-------------------------|-----------------------|-------------------------|---------------|
| | Green ² | Post-Cured ³ | Green ² | Post-Cured ³ | |
| Tensile Properties | | | | | |
| Ultimate Tensile Strength | 44 MPa | 50 MPa | 6390 psi | 7190 psi | ASTM D638-14 |
| Tensile Modulus | 2.0 GPa | 2.2 GPa | 293 ksi | 326 ksi | ASTM D638-14 |
| Elongation at Break | 11% | 8.60% | 11 % | 8.60% | ASTM D638-14 |
| Flexural Properties | | | | | |
| Flexural Strength | 68 MPa | 87 MPa | 9863 psi | 12618 psi | ASTM D790-15 |
| Flexural Modulus | 1.7 GPa | 2.3 GPa | 247 ksi | 334 ksi | ASTM D790-15 |
| Impact Properties | | | | | |
| Notched Izod | 28 J/m | 32 J/m | 0.52 ft-lbs/in | 0.59 ft-lbs/in | ASTM D256-10 |
| Unnotched Izod | 440 J/m | 262 J/m | 8.3 ft-lbs/in | 4.9 ft-lbs/in | ASTM D4812-11 |
| Thermal Properties | | | | | |
| Heat Deflection Temp. @ 1.8 MPa | 45.1 °C | 46.3 °C | 113.2 °F | 115.3 °F | ASTM D648-16 |
| Heat Deflection Temp. @ 0.45 MPa | 51.7 °C | 53.5 °C | 125.1 °F | 128.3 °F | ASTM D648-16 |
| Thermal Expansion | 80.2 µm/m/°C | 81.1 µm/m/°C | 44.6 µin/in/°F | 45.1 µin/in/°F | ASTM E813-13 |

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% | 1.0 | Mineral oil (Heavy) | 0.2 |
| Acetone | 10.3 | Mineral oil (Light) | 0.3 |
| Bleach ~5% NaOCl | 0.8 | Salt Water (3.5% NaCl) | 0.9 |
| Butyl Acetate | 0.6 | Skydrol 5 | 0.3 |
| Diesel Fuel | 0.2 | Sodium Hydroxide solution (0.025% PH 10) | 0.9 |
| Diethyl glycol Monomethyl Ether | 2.1 | Strong Acid (HCl conc) | 0.5 |
| Hydraulic Oil | 0.2 | Tripropylene glycol monomethyl ether | 0.3 |
| Hydrogen peroxide (3%) | 1.01 | Water | 0.9 |
| Isooctane (aka gasoline) | -0.03 | Xylene | < 0.1 |
| Isopropyl Alcohol | 0.6 | | |

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 green parts printed on a Form 4 printer with 50 µm Precision Model Resin settings, washed in a Form Wash for 5 minutes in ≥99% Isopropyl Alcohol, and air dried without post cure.

³ Data for post-cured samples were measured on Type I tensile bars printed on a Form 4 printer with 50 µm Precision Model settings, washed in a Form Wash for 5 minutes in ≥99% Isopropyl Alcohol, and post-cured at 35°C for 5 minutes in a Form Cure.