

formlabs Model Resin Capable of Printing User Guide

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FormLabs Model Resin Capable of Printing



Product Information

Specifications

Product Name: Fast Model Resin
Printing Speed: Up to 100mm/hr

• Settings: 200 micron for fastest print speeds, 100 micron for more detailed models

• Applications: Initial prototypes, rapid design iterations, dental models for thermoforming aligners

Product Usage Instructions

Printing Guidelines

- Fast Model Resin is designed for fast and accurate printing.
- Follow these guidelines for optimal results.
- Use recommended print settings for desired speed and detail level.
- Ensure proper calibration of the printer before starting the print job.
- Handle the resin cartridge with care to avoid spills or leaks.

Post-Processing

- After printing, follow these steps for post-processing.
- Remove the printed model from the build platform carefully.
- Clean the model using isopropyl alcohol or a similar cleaning solution.
- If necessary, post-cure the model according to the recommended time and method.

Safety Precautions

- When handling Fast Model Resin, remember the following safety precautions.
- Wear appropriate personal protective equipment, such as gloves and safety glasses.

- · Avoid direct skin contact with the resin.
- Work in a well-ventilated area to minimize exposure to fumes.

INTRODUCTION

Formlabs' fastest resin, capable of printing at speeds up to 100mm/hr

- Fast Model Resin is capable of printing dental models in less than 10 minutes or large prototypes in less than 2 hours.
- This highly accurate resin leverages the Form 4 ecosystem to print three times faster than previous formulations of Draft Resin.
- Use 200 micron settings for fastest print speeds, or use 100 micron settings for more detailed models.

PRODUCT OVERVIEW

- · Initial prototypes
- · Dental models for thermoforming aligners
- Rapid design iterations



Specifications

Material Properti es	METRIC 1			IMPERIAL 1			METHOD
	Gree n	Post-Cured f or 5 min at a mbient temp erature 2	Post-Cu red for 15 min at 60 °C 3	Green	Post-Cured f or 5 min at a mbient temp erature 2	Post-Cu red for 15 min at 140 ° F 3	
Tensile Propertie	METRIC 1			IMPERIAL 1			METHOD
Ultimate Tensile S trength	46 M Pa	55 MPa	62 MPa	6670 ps	7980 psi	8990 psi	ASTM D638-14
Tensile Modulus	2.18 GPa	2.48 GPa	2.67 GP a	320 ksi	360 ksi	390 ksi	ASTM D638-14
Elongation at Break	22%	15%	11%	22%	15%	11%	ASTM D638-14
Flexural Properti es	METRIC 1			IMPERIAL 1			METHOD
Flexural Strength	74 M Pa	98 MPa	106 MP a	10700 psi	14200 psi	15400 p si	ASTM D790-15
Flexural Modulus	1.96 GPa	2.60 GPa	2.74 GP a	280 ksi	380 ksi	400 ksi	ASTM D790-15
Impact Propertie s	METRIC 1			IMPERIAL 1			METHOD
Notched Izod	34 J/ m	30 J/m	37 J/m	0.64 ft-l b/in	0.56 ft-lb/in	0.69 ft-lb /in	ASTM D4812-11
Thermal Properti	METRIC 1			IMPERIAL 1			METHOD
Heat Deflection Te mp. @ 1.8 MPa	47 °C	49 °C	61 °C	117 °F	120 °F	142 °F	ASTM D648-16
Heat Deflection Te mp. @ 0.45 MPa	55 °C	58 °C	76 °C	131 °F	136 °F	167 °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%	0.6	Mineral oil (Heavy)	0.2
Acetone	8.9	Mineral oil (Light)	0.1
Bleach ~5% NaOCI	0.7	Salt Water (3.5% NaCl)	0.8
Butyl Acetate	0.5	Skydrol 5	1.0
Diesel Fuel	< 0.1	Sodium Hydroxide solution (0.025% PH 10)	0.8
Diethyl glycol Monomethyl Ether	3.1	Strong Acid (HCl conc)	0.5
Hydraulic Oil	0.2	Tripropylene glycol monomethyl ether	0.7
Hydrogen peroxide (3%)	0.9	Water	0.8
Isooctane (aka gasoline)	< 0.1	Xylene	0.2
Isopropyl Alcohol	0.8		

- 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 100 µm Fast Model Resin settings, washed in a Form Wash for 5 minutes in ≥99% Isopropyl Alcohol, and air dried without post-cure.
- 3. Data was obtained from parts printed on a Form 4 printer with 100 µm Fast Model Resin 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.
- 4. Data was obtained from parts printed on a Form 4 printer with 100 μm Fast Model Resin 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.
- 5. Fast Model Resin was tested at NAMSA World Headquarters, OH, USA.
 - Prepared 20/03/2024
 - Rev. 01 20/03/2024
 - 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 there of.

Frequently Asked Questions

- Q: What is the recommended cleaning solution for post-processing?
 - A: Isopropyl alcohol or a similar cleaning solution is recommended for cleaning the printed models.
- Q: Can Fast Model Resin be used for dental applications?
 - A: Yes, Fast Model Resin is suitable for printing dental models for thermoforming aligners.
- Q: How should I store unused Fast Model Resin?
 - A: Store the resin in a cool, dry place away from direct sunlight and heat sources to maintain its quality.



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References

• User Manual

Manuals+, Privacy Policy

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