Formlabs Form 3B-3B Bio Med Flex 80A Resin Installation Guide

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Formlabs Form 3B-3B Bio Med Flex 80A Resin

Specifications

- **Product:** BioMed Flex 80A Resin
- **Manufacturing** Date: 02/29/2024
- **Model Number:** PRNT-0111 Rev 01

Product Usage Instructions

A. Printing

1. **Shake Cartridge:** Shake the cartridge before every print job to prevent color deviations and print failures.
2. **Set-Up:**
    - Insert the resin cartridge into a compatible Formlabs 3D printer.
    - Insert the resin tank and attach the mixer to the tank.
3. **Printing Steps:**
    1. Prepare a print job using PreForm software by importing the desired part STL file.
    2. Orient and generate support if needed.
    3. Send the print job to the printer.
    4. Optional: Pre-fill an empty resin tank manually by pouring in resin directly from the cartridge.
    5. Select the print job from the menu on the printer and follow any prompts shown on the screen for the printer to complete the print automatically.

B. Part Removal

Remove the build platform from the printer. Use the part removal tool to wedge under the printed part raft, then rotate to remove. Refer to support.formlabs.com for detailed techniques.

C. Washing

Place printed parts in a Formlabs-validated wash unit with 99% Isopropyl Alcohol (IPA). For Form Wash or Form Wash (2nd Generation), wash for 20 minutes, then rinse or soak parts in fresh IPA if needed.

D. Drying

1. Remove parts from Isopropyl Alcohol and air dry at room temperature for at least 30 minutes. Drying longer may improve the surface feel.
2. Inspect parts to ensure cleanliness before proceeding.

E. Post-Curing

Place printed parts in a Formlabs-validated post-curing unit (Form Cure or Form Cure L) and cure for the required time.

Frequently Asked Questions

Q: How should I clean resin residue from printed parts?

A: If resin residue is still visible, rewash parts until clean and dry. Ensure no residual solvent or excess liquid resin remains on the surface before proceeding.

- BioMed Flex 80A Resin is a USP Class VI certified, light-curable polymer-based material designed for the additive manufacturing of medical grade, biocompatible, flexible parts for long-term skin contact (more than 30 days) as well as short-term (less than 24 hours) mucosal membrane contact. Users should independently verify the suitability of the printed materials for their particular application and intended purpose.
- This Manufacturing Guide will give equipment, printing, and post-processing recommendations and requirements to ensure the correct and safe usage of this material.

Specific Manufacturing Considerations

- BioMed Flex 80A Resin specifications have been validated using the hardware and parameters indicated below.
- For biocompatibility compliance, validation used a dedicated resin tank and mixer, build platform, wash unit, and post-processing equipment that were not mixed with any other resins.

1. **Hardware:**
    - **a**. **Formlabs 3D Printer:** Form 3B/3B+, Form 3BL, Form 4B

      b. **Print Accessories:** Formlabs Build Platforms, Formlabs Resin Tanks
2. **Software:**

   a. Formlabs Preform
3. **Printing Parameters:**
    - **a. Layer Thickness:**
    - **Form 3B/3B+:** 50 µm, 100 µm
    - **Form 3BL:** 100 µm
    - **Form 4B:** 100 µm
4. **Recommended Post-Processing Equipment and Accessories:**
    - **a. Formlabs Processing Accessories:** Resin Pumping System
    - **b. Formlabs Validated Wash Unit:** Form Wash, Form Wash (2nd Generation), Form Wash L

- **c. Formlabs Validated Cure Unit:** Form Cure, Form Cure L, Fast Cure

PRINTING

- **Shake cartridge:** Shake the cartridge before every print job. Color deviations and print failures may occur if the cartridge is shaken insufficiently.
- **Set up:** Insert resin cartridge into a compatible Formlabs 3D printer. Insert the resin tank and attach a mixer to the tank.

Printing

- **a.** Prepare a print job using PreForm software. Import desired part STL file.
- **b.** Orient and generate support if needed.
- **c.** Send the print job to the printer.
- **d. Optional:** If starting with an empty resin tank, save time by manually pre-filling the tank by pouring in resin directly from the cartridge.
- **e.** Begin print by selecting a print job from the print menu. Follow any prompts or dialogs shown on the printer screen. The printer will automatically complete the print.

PART REMOVAL

- Remove the build platform from the printer. To remove parts from the build platform, wedge the part removal tool under the printed part raft, and rotate the tool. For detailed techniques visit support. formlabs.com.

WASHING

- Place the printed parts in a Formlabs-validated wash unit with 99% Isopropyl Alcohol (IPA).
- Form Wash, Form Wash (2nd Generation) – High speed*, or Form Wash L:
- **a.** Wash for 20 minutes in the wash unit, then either rinse down parts completely with fresh IPA from a spray bottle or soak parts in fresh IPA for 10 minutes.
- **b**. If parts do not appear clean after washing, consider replacing used Isopropyl Alcohol in the wash unit with fresh solvent.
- For Form Wash (2nd Gen), High-speed settings are validated for use.

DRYING

1. Remove parts from Isopropyl Alcohol and leave to air dry at room temperature for at least 30 minutes. Drying for an additional hour may improve the surface feel.
    - **NOTE:** Dry times can vary depending on the design of parts and ambient conditions. Do not let parts sit in Isopropyl Alcohol for longer than needed.
2. Inspect printed parts to ensure that parts are clean and dry. No residual solvent, excess liquid resin or residue particles should remain on the surface before proceeding to subsequent steps.
3. If the residual solvent is still present, dry parts longer. If resin residue is still visible, rewash parts until clean and dry.

POST-CURING

- Place the printed parts in a Formlabs-validated post-curing unit and cure for the required time.

Form Cure or Form Cure L:

- **a**. Submerge parts in a transparent, water-filled container. Place the container inside the cure unit, and cure for 30 minutes at 70 °C.
- **b**. Allow the curing unit to cool down to room temperature between cure cycles.

SUPPORT REMOVAL & POLISHING

1. Remove supports, with the assistance of cutting pliers or other appropriate finishing tools as needed.
2. Inspect the parts for any cracks. Discard if any damage or cracks are detected.

CLEANING & DISINFECTION

1. Parts may be cleaned, disinfected, and/or sterilized according to facility protocols. Tested disinfection method: soaking the finished part in fresh 70% IPA for 5 minutes.
    - The manufacturer is responsible for the validation of part performance depending on the application requirements post-cleaning, disinfection, and/or sterilization.
    - **NOTE:** If alcohol-based disinfectants are used, do not leave parts in the alcohol solution for an extended time.
2. After cleaning, disinfection, and/or sterilization, inspect the parts for damage or cracks to ensure that the integrity of the designed parts meets performance requirements. Discard if any damage or cracks are detected.

HAZARDS, STORAGE & DISPOSAL

1. Cured resin is non-hazardous and may be disposed of as regular waste.
2. See SDS for more information at **support.formlabs.com.**

Documents / Resources

	Formlabs Form 3B-3B Bio Med Flex 80A Resin [pdf] Installation Guide Form 3B-3B Bio Med Flex 80A Resin, Form 3B-3B, Bio Med Flex 80A Resin, Flex 80A Resin, 80A Resin, Resin

References

- High Resolution SLA and SLS 3D Printers for Professionals | Formlabs
- customer_v2
- User Manual

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