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Manual | Form Cure



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Installation and Usage Instructions

Form Cure

Desktop Stereolithography Post-Cure Chamber

Original English instructions and translations
Please read this manual carefully and keep it for future reference.
November 2019
REV 01
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WARNING

Read and understand this manual and its safety instructions before using the Form Cure. Failure to do so can result in serious injury or death.

DISCLAIMER

Formlabs has made every effort to ensure these instructions are as clear, complete, and correct as possible. The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for, and is not to be used for, determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation, and testing of the products with respect to the relevant specific application or use thereof. Neither Formlabs nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information that is contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

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DOCUMENT REVISIONS

Date	Version	Document Changes
Oct 2015	REV 00	Initial publication of Quick Start Guide and Safety pamphlet
Nov 2019	REV 01	Initial publication

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1. Preface

Congratulations on purchasing the Form Cure. On behalf of the employees who create and support Formlabs technology, we thank you for your purchase.

The instructions in this manual provide information for skilled persons to understand safety, setup and installation, operation, and maintenance of the Form Cure. These instructions are intended for anyone who is installing, operating, maintaining, or otherwise interacting with the Form Cure. Supervise young or inexperienced users to ensure an enjoyable and safe operation.

1.1 Read and Retain Instructions

Read and understand this manual and its safety instructions before using the Form Cure. Failure to do so can result in serious injury or death. Keep all safety information and instructions for future reference and provide them to subsequent users of the product.

Follow all the instructions. This will avoid fire, explosions, electric shocks, or other hazards that may result in damage to property and/or severe or fatal injuries.

The Form Cure shall only be used by persons who have fully read and understood the contents of this usage manual. Ensure that each person who uses the Form Cure has read these warnings and instructions and follows them. Formlabs is not liable for cases of material damage or personal injury caused by incorrect handling or non-compliance with the safety instructions. In such cases, the warranty will be voided.

1.2 Obtaining Documentation and Information

Visit support.formlabs.com to:

- Access the latest version of all Formlabs product documentation.
- Contact Formlabs to request documentation, usage instructions, and technical information.
- Submit any comments or feedback regarding what is good and what can be improved.
- Request additional training.

1.2.1 Support and service

Retain a record of the original purchase to request warranty services. Service options depend on the status of the specific product's warranty. Include the serial name of the product when contacting Formlabs for product support.

Instead of a serial number, all Formlabs machines have a serial name, which is a unique identifier to track the history of manufacturing, sales, and repair, and to distinguish usage when connected to a network. The serial name is on the back panel of the machine in this format: "AdjectiveAnimal."

Service providers of Formlabs products also provide support and service. To the extent that Formlabs or a certified service provider offers other or extended warranties, the terms of the separate offer may apply. For products purchased from certified service providers, contact the original service provider for assistance before contacting Formlabs.

For any support or service requests, including product information, technical assistance, or assistance with instructions, contact Formlabs Services or a certified service provider:

support.formlabs.com

USA
Formlabs, Inc.
35 Medford St.
Somerville, MA, USA, 02143

Germany
Formlabs GmbH
Nalepastrasse 18-50
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1.2.2 Returns

Formlabs accepts returns for unopened, unused, undamaged products within 30 days of the shipment date. Returns must be authorized by Formlabs. Visit Formlabs.com for more detailed information about returning your purchase.

1.2.3 Warranty

This product is protected under warranty. Formlabs offers a warranty for all Formlabs-branded hardware. Unless otherwise expressly stated, the Terms of Service, including the Warranty, constitute the entire agreement between you and Formlabs with respect to the Service and any product you purchase from Formlabs and supersedes all prior or contemporaneous communications, proposals and agreements, whether electronic, oral or written, between you and Formlabs. Read the warranty for more details on the Formlabs warranty for your region:

US	**formlabs.com/support/terms-of-service/#Warranty**
EU (EN)	**formlabs.com/support/terms-of-service/eu/**
EU (DE)	**formlabs.com/de/support/terms-of-service/eu/**
EU (FR)	**formlabs.com/fr/support/terms-of-service/eu/**

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2. Introduction

2.1 Intended Use

The Form Cure provides the light and heat necessary to post-cure 3D printed parts to their optimal properties. The final performance characteristics of cured photopolymer resin may vary according to your compliance with the instructions for use, application, operating conditions, material combined with, end use, or other factors.

NOTICE

In some cases, the additive manufacturing process may inherently result in variable performance characteristics between manufacturing runs or within a specific part. Such variances may not be apparent and may result in unexpected defects in additively fabricated parts.

WARNING

You must independently verify the suitability of additive manufacturing, stereolithography, Form Cure, and any specific designs or materials employed for the application and intended purpose before use. In no event shall Formlabs be liable for any loss, death, or bodily injury that you suffer, or that you cause to any third party, in connection with your use of Formlabs products. To the fullest extent legally permitted Formlabs EXPRESSLY DISCLAIMS ANY IMPLIED OR EXPLICIT WARRANTY OF FITNESS for a particular usage, the particular nature and circumstances of said usage being unforeseen and unforeseeable to Formlabs.

WARNING

Formlabs is not a manufacturer of medical devices. Formlabs provides tools and materials that may be used in many applications, but makes no claims as to the safety or effectiveness of any specific devices made using Formlabs products. Certain Formlabs products, such as those commonly known in the industry as “biocompatible” resins, have been engineered to comply with relevant industry standards. The specific standards and most relevant technical specifications may be identified within the technical data sheets and have been tested according to relevant testing protocols for those standards and specifications. Biocompatible resins are a speciality product, developed for use by medical professionals, and should be used in accordance with their instructions for use.

WARNING

Do not modify. The Form Cure is intended for use as-is. Modifying the unit without explicit approval and directions from Formlabs will invalidate your warranty, and could potentially ruin the machine and cause you bodily harm.
Never remove the bottom panel of the unit.

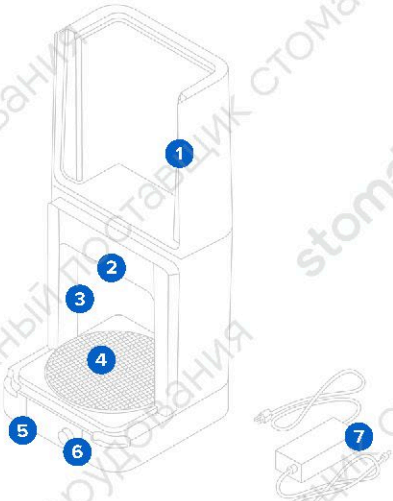
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2.2 Technical Specifications

Shipping Weight	7.3 kg (16.1 lb)
Product Weight	5.6 kg (12.4 lb)
Shipping Dimensions	35.4 × 35.4 × 45.6 cm (14 × 14 × 18 in)
Product Dimensions	26.2 × 26.2 × 34.0 cm (10.3 × 10.3 × 13.4 in)
Minimum Space Requirement	26.2 × 26.2 × 64.0 cm (10.3 × 10.3 × 25.4 in)
Power Requirements	100–240 V ~ 6.0 A 50/60 Hz 144 W
Electrical Safety Standard	60950-1:2005+A1:2009+A2:2013 (and applicable national deviations)
Sound Emission	Does not exceed 70 dB(A).
Turntable Diameter	19.3 cm (7.6 in)
Maximum Part Height	18.5 cm (7.28 in)
Operating Temperature	Suggested 18—28 °C (64—82 °F)
Maximum Cure Chamber Temperature	80 °C (176 °F)
Light Source	13 multi-directional LEDs
LED Power	39 W
LED Radiant Power	9.1 W
LED Wavelength	405 nm

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2.3 Product Elements



1. **Cover** Double walls insulate the cure chamber and internal surfaces reflect light.
2. **Heater** 100 W heating module can heat the chamber up to 80 °C / 176 °F.
3. **LEDs** An array of thirteen (13) 405 nm LEDs help to post-cure parts. Secondary lights illuminate the turntable when the cover is open and during heating.
4. **Turntable** Rotating plate ensures balanced post-curing across all exposed surfaces.
5. **Display** Shows status, time, temperature, and options for configuring the Form Cure.
6. **Knob** Turn or press to adjust time and temperature settings and to start, pause, or stop post-curing.
7. **Power Supply** Provides power to the Form Cure. Specifications: 24 V, 6 A.

See ***10 Glossary*** for full product terminology.

2.4 Form Cure Controls

When connected to power, use the knob to program and operate the Form Cure:

- Rotate the knob counterclockwise or clockwise to move between items in the menu.
- Press the knob to select an option on the display.

The following options are available from the main menu on the Form Cure display:

- **Start:** Initiate post-curing by activating the heater and internal LED lights. The 405 nm lights begin post-curing once the heater reaches the target temperature.
- **Time:** Press the knob to select and adjust the time, indicated in minutes.
- **Temperature:** Press the knob to select and adjust the temperature indicated in degrees Celsius.

Check each material's recommended post-curing temperature before beginning a cycle. While preheating, the display shows the preheating status, including the current and the target temperature. After beginning a post-cure cycle, the display shows the remaining time and additional menu options. Select **Pause** to turn off the heater and LEDs, while preserving the remaining time in the cure cycle. Opening the cover automatically pauses the cure cycle. Select **End** to cancel the remaining time in the cure cycle while also stopping the heater and LEDs.

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3. Safety Warnings



Read and understand this manual and its safety instructions before using the Form Cure. Failure to do so can result in serious injury or death.

Supervise young or inexperienced users to ensure safe operation.
The instructions contain warnings and safety information, as explained below:



Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.



Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.



Notice indicates information considered important, but not hazard-related.



HOT SURFACES: Do not touch hot surfaces.

3.1 Component and Subsystem Safety

3.1.1 Electronic Components

The Form Cure is a professional appliance that includes electronic components. As with any such appliance:



- Do not operate the Form Cure with a damaged cord or plug.
- Always disconnect power before cleaning.
- Only use well-maintained equipment.
- Operate on a clear and level surface.

3.1.2 Hot Surfaces



The Form Cure contains a 100 W heater to help ensure parts are strong after post-curing. While the heater and fan designs limit overheating and the heater is insulated to contain heat, surfaces of the Form Cure and printed parts may be hot during and after use.



Do not touch hot surfaces.

Take care when removing parts from the Form Cure. The metal turntable can remain hot during and after a cure cycle. Always allow the turntable to cool completely before touching or cleaning.

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Like any heating appliance, a fire may occur if the Form Cure maintains extended contact with flammable materials, such as walls or curtains. Keep the Form Cure away from walls and curtains. Keep the area surrounding the turntable clean, and only post-cure parts that have been completely dried. Accumulation of cured material creates the possibility of malfunction.

3.1.3 Light and Heat

The Form Cure uses heat and 405 nm light to post-cure 3D printed parts. The cover includes an interlock system that is designed to automatically pause heating and extinguish the cure lights when the cover is open.

NOTICE

For best results, avoid opening the cover while the Form Cure is operating.

3.1.4 Resin

Respect Formlabs resin like any household chemical. Follow standard chemical safety procedures and Formlabs resin handling instructions.

In general, Formlabs resin is not approved for use with food, drink, or medical applications on the human body. However, biocompatible resins, such as Dental SG, are biologically safe for specific types and lengths of exposure to the human body. Refer to information about each specific resin for more detail.

WARNING

Wear gloves whenever handling liquid resin or isopropyl alcohol.

WARNING

Never ingest resin in liquid or solid form. If swallowed, immediately call a poison center or medical professional.

NOTICE

Always consult the SDS (Safety Data Sheet) as the primary source of information to understand safety and handling of Formlabs materials. Combinations of resin and solvents should be handled according to the restrictions of both. For questions, consult the appropriate SDS(s).

3.1.5 Radio Interference

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to CFR Title 47, Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Changes or modifications to this product not authorized by Formlabs could void the electromagnetic compatibility (EMC) and negate your authority to operate the product.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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3.2 Personal Protective Equipment (PPE)



Resin may cause skin irritation or an allergic skin reaction. Wear gloves when handling liquid resin or resin-coated surfaces. Wash skin with plenty of soap and water.



Some methods of support removal may cause small pieces of supports to break away. Beware of flying debris. Wear eye protection and gloves to protect the skin and eyes.

3.3 Specifications of Tools to be Used

The Form Cure shall only be used with supplied accessories and additional tools recommended by Formlabs. Third-party accessories and materials may cause damage.

Purchase additional supplies:

- Powder-free, chemical-resistant, disposable gloves (nitrile or neoprene)
- Sandpaper
- Mineral oil
- Primer and paints

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4. Preparation and Setup

NOTICE

Consider the weight and dimension of the product for installation.

4.1 Arranging the Workspace

For best results:

1. Choose a stable, level workspace to install and operate the Form Cure.
2. Reserve the following minimum dimensions for the most convenient access:
   - Width: 36 cm (14 in)
   - Depth: 36 cm (14 in)
   - Height: 64 cm (25.2 in)
   - The cover opens upward from the front to allow inserting and removing printed parts from the turntable. To fully open, the Form Cure requires an additional clearance of 30 cm (12 in) above the unit for a total clearance height of 64 cm (25.2 in). The Form Cure unit weighs 5.6 kg (12.4 lb).
3. Allow additional space for accessories, such as the Formlabs SLA printer, Finish Kit, and Form Wash.
4. Ensure either the wall outlet or power supply for the Form Cure is easily accessible. To disconnect the equipment from mains electricity and power off the unit, unplug the power cable from the wall outlet, or the power supply.

4.2 Unboxing the Form Cure

The Form Cure ships in a cardboard carton, protected by foam inserts above and below the machine. The upper foam insert also contains the accessories. During unboxing, inspect the Form Cure for any damage or missing items. In the case of damage or missing items, contact Formlabs or the certified service provider.

To unbox the Form Cure:

1. Open the box from the top.
2. Lift and remove the foam insert containing the power supply.
3. Lift the Form Cure out of the box.
4. Remove the turntable, located at the bottom of the box.

NOTICE

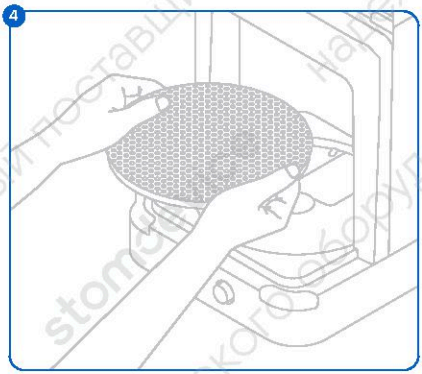
Remove all packaging material before connecting power. Retain all packaging and inserts for warranty service.

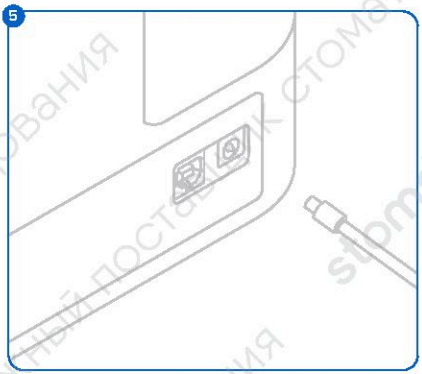
4.3 Installing the Form Cure

To install the Form Cure:

1. Find a clean, level surface with a nearby power source.
2. Remove the thin plastic wrapper from the Form Cure exterior.
3. Lift the cover.
4. Insert the turntable on the circular wheel mount at the base of the cure chamber.
5. Connect the power cable and external supply to the Form Cure and a power source.

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The Form Cure is ready to use once the turntable is installed and the power is connected. Each cycle requires time to preheat before the 405 nm lights begin post-curing. The preheating time depends on the current temperature and the target post-cure temperature.

4.4 Transporting Form Cure

Refer to ***2.2 Technical Specifications*** for product weight and dimensions. Keep the packaging for transportation or shipping.

The Form Cure complete packaging kit consists of:

- 1 outer cardboard carton
- 1 foam bottom insert
- 1 foam upper insert, which holds the small accessory boxes
- Plastic wrap

NOTICE

Original packaging is required for warranty service. Do not ship with uncured resin inside the device. Resin left inside can damage the product in transit, which may lead to additional fees or void the warranty.

To prepare to transport the Form Cure:

1. Remove the turntable.
2. Wipe residual resin from all surfaces.
3. Close the cover.
4. Wrap the Form Cure with plastic wrap to secure the cover.
5. Reassemble the box.
6. Place the bottom foam insert in the box.
7. Place the Form Cure on top of the bottom foam insert.
8. Place the upper foam insert on top of the Form Cure.
9. Seal the box with tape.

NOTICE

When shipping a machine to Formlabs for service, do not ship the accessory tools or the power supply. Accessories will not be returned after service. The product's original packaging is required for warranty service. Contact other authorized resellers for unique guidance on shipping requirements.

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5. Using the Form Cure

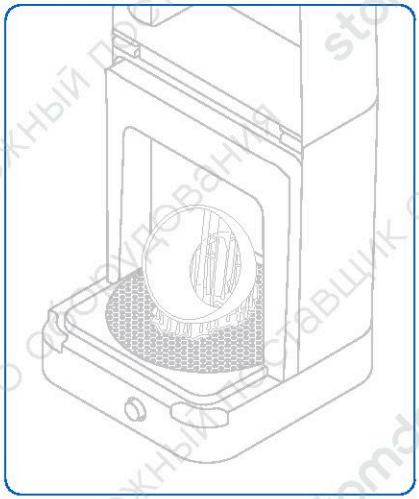
5.1 Operational Environment

Operate the Form Cure in a well-ventilated room with a temperature of 18–28 °C (64–82 °F). For optimal performance, do not exceed this range.

5.2 Post-Curing

5.2.1 Insert Washed and Dried Prints

Fully dry all solvent off of printed parts after washing. Check all surfaces, because curing non-dried parts may trap solvent inside the part, prevent parts from strengthening, and affect quality. Once parts are dry, lift the cover, then distribute parts on the round turntable. Place parts with the most even spacing possible to allow light and heat to reach all areas. Gently close the cover.



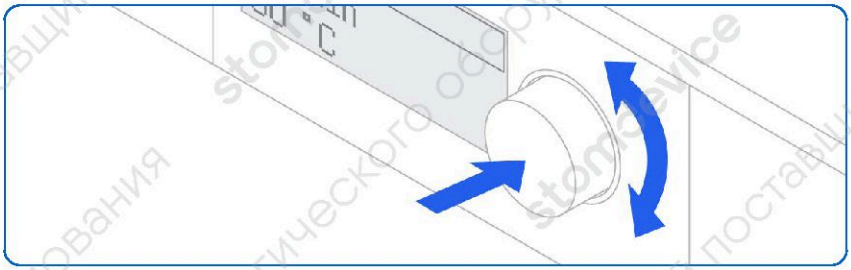
WARNING

The Form Cure contains a heater to enable post-curing. Take care when inserting and removing parts from the Form Cure, because the metal turntable may be hot.

5.2.2 Set Post-Cure Time and Temperature

Turn the knob to navigate the display menu. Press the knob to select a feature or setting. Select the time and temperature, and then select **Start.** The LEDs will activate and the timer will start once the heater has reached the target temperature. Once a cure cycle has started, use the display or open the cover to pause post-curing.

See support.formlabs.com or ***5.4 Time and Temperature Settings*** for specific post-cure settings for each resin type.



NOTICE

The printed part must be in the Form Cure while it heats. If the part is not placed in the Form Cure until preheating is complete, it may cause cracking.

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5.2.3 **Collect Prints**

When the cure cycle completes, the LEDs and heater will turn off. Lift the cover and remove parts. Use caution; the metal turntable may be hot.

5.2.4 **Part Finishing**

Once parts are post-cured, use the flush cutters that come in your Finish Kit or Form Wash to carefully cut the supports attached to the part(s). Supports can also be removed before post-curing, but parts may warp under exposure to light and heat without structural support.



Wear safety glasses to protect eyes from dislodged fragments of supports.

In addition to removing supports, use sanding, polishing, priming, or painting to improve presentation, or use other equipment to create molds from printed parts.

5.3 Considerations for Specific Geometries

Consider the specific geometry of each part when starting the post-cure cycle. Modify the post-cure process for parts that are large or long, have dense support structures, or have thick or thin features.

5.3.1 **Remove Dense Supports**

Some parts require more dense or thicker support structures. These can inadvertently block light from reaching some part surfaces during post-curing. The Form Cure helps ensure even post-curing by rotating the part during the cure cycle and exposing the part to light from all directions, including underneath the turntable. Remove some supports, only as needed, to ensure that light can easily reach all part surfaces. Leave some supports in place whenever possible to prevent features from warping during post-curing.

5.3.2 **Plan for Large or Long Parts**

The Form Cure turntable has a diameter of 19.3 cm (7.6 in), and the maximum part height that can be post-cured in the Form Cure is 18.5 cm (7.3 in). Most parts should be post-cured before removing support structures to preserve their shape and prevent warping. While some parts may fit on the turntable more easily without supports, long or tall prints may require special arrangements to stand on the turntable without support. Consider the part dimensions when designing the support structures or planning the post-cure steps.

5.3.3 **Add Time for Thick Parts**

Large or thick parts may require a longer post-curing time or higher temperatures because the part takes longer to heat. Light alone cannot post-cure beyond the surface of the part, which is one advantage of the Form Cure heating functionality. When post-curing thick geometries, warm the part before post-curing and allow extra time for the Form Cure to preheat to the target temperature before starting the post-cure lights and timer.

5.3.4 **Add Supports for Thin Features**

Warping during post-curing may occur if a part is especially thin, inadequately supported, or unevenly exposed to light. The Form Cure helps prevent warping by rotating the part during the cure cycle and by exposing the part to light from all directions, including underneath the turntable. Use support settings or manual editing to design sufficient supports so that thin features do not warp during post-curing. In the case of a thin, flat, sheet-like object, placing the part directly on the turntable may offer the best support during post-curing.

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5.4 Time and Temperature Settings

For the best results, use the recommended time and temperature settings tested specifically for use with the Form Cure.

Each material's print settings are designed and refined to print parts successfully at optimal speeds. Additional post-curing further improves the functional properties of the materials. Post-curing exposes parts to light and heat and strengthens crosslinks in the polymer structure, improving the parts' strength, stiffness, and temperature resistance. Due to the increased number of bonds the material becomes more tightly packed and will shrink slightly. Each material's print settings are designed to account for the expected shrinkage during printing and post-curing. Although using a higher temperature for post-curing results in a faster post-cure, a higher temperature setting may also cause some materials to warp, depending on the part geometry and features. When choosing to modify the recommended post-cure settings, the material must be able to withstand the temperature and maintain a stable material structure.

Formlabs resins are designed for printing and post-curing with 405 nm light.

RESIN TYPE	CURE	TIME (MIN)	TEMPERATURE (°C)
STANDARD RESINS			
Clear Resin	Recommended[1]	15	60
	Full Cure	30	60
Black Resin White Resin Grey Resin	Recommended[1]	30	60
	Full Cure	60	60
Color Resin	Recommended[1]	30	60
	Full Cure	60	60
Draft Resin	Better elongation	5	No heat
	Better UTS	5	60
ENGINEERING RESINS			
Tough Resin	Recommended[1]	60	60
	Full Cure	120	60
Durable Resin	Full Cure[2]	60	60
Flexible Resin	Recommended[1]	15	60
	Full Cure	60	60
High Temp Resin v1	Recommended[1]	30	60
	Full Cure	60	60
High Temp Resin v2	Recommended[3]	120	80
Rigid Resin	Full Cure[4]	15	80
Grey Pro Resin	Full Cure[4]	15	80
Elastic Resin	Full Cure	20	60
Ceramic Resin	N/A[5]	N/A	N/A

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RESIN TYPE	CURE	TIME (MIN)	TEMPERATURE (°C)
DENTAL RESINS			
Dental SG Resin	Full Cure [6]	30	60
Dental LT Clear Resin	Full Cure [6]	20	80
Model Resin	Recommended [1]	30	60
	Full Cure	60	60
Denture Resins	Full Cure [7]	30 + 30	80
Surgical Guide Resin	Full Cure [6]	30	60
Castable Wax Resin	N/A [5]	N/A	N/A
JEWELRY RESINS			
Castable Resin	Full Cure [8]	240	60
Castable Wax Resin	N/A [5]	N/A	N/A

1 The recommended post-cure settings achieve close-to-maximum mechanical performance and minimize the post-cure time. The full post-cure settings achieve the maximum mechanical properties and require significantly more time. Use full post-cure settings when using materials for functional applications.

2 For parts printed with Durable Resin, the tensile modulus continues to increase steadily throughout the first hour of post-curing. There is only one proposed post-curing setting.

3 There are several post-curing options for High Temp v2. To achieve the highest HDT, also post-cure the parts in a non-food oven. Refer also to the technical data sheet to understand how different options affect mechanical properties, and choose the post-cure option that is best suited to the intended application.

4 There is no significant gain in properties after 15 minutes. There is only one recommended post-curing time.

5 Does not require post-curing. After washing, allow parts to fully dry before firing/casting.

6 This cure setting ensures that parts achieve both biocompatibility and optimum mechanical properties.

7 Fill a glass container with glycerin. Preheat the glycerin to 80 °C in the Form Cure. Use heat resistant silicone tongs to fully submerge the assembled denture in the glycerin, leaving the container inside the Form Cure. Cure for 30 minutes. After the first 30 minute post-cure, flip the denture to the opposite side. Post-cure again for 30 minutes.



The glycerin and denture at 80 °C are hot. Use heat resistant silicone tongs to insert and remove the denture from the curing chamber.

8 Cure for 4 hours to increase the part strength. After curing, follow the Castable Resin: Jewelry Pattern Burnout Process found on support.formlabs.com. Increasing the cure time may improve casting results, particularly for thicker parts, though casting success depends more on the part geometry and casting process. Testing results show no disadvantages for increasing cure time.

These settings will be updated periodically. Always refer to formlabs.com/cure-support for the most updated information about post-curing printed parts with the Form Cure.

5.5 Device Management

5.5.1 Powering Off the Form Cure

Turn off the Form Cure completely when moving or storing the device and to conserve power. To turn off the Form Cure completely, disconnect the power cord from the power source. Ensure either the wall outlet or power supply is easily accessible.

The Form Cure display will automatically power off after a period of inactivity.

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5.5.2 Updating the Firmware

The Form Cure includes a USB port for the possibility of future firmware updates. See ***6.5.1 Updating the Form Cure Firmware.***

5.5.3 Accessing the Serial Name

The serial name is on the back panel of the machine in the format "AdjectiveAnimal." The serial name is also available on the display. To access the serial name or firmware version on the display:

1. Disconnect the power cable.
2. Reconnect the power cable.
3. When the display shows **Formlabs,** press and hold the knob immediately. The display shows the serial name (preceded by **Cure-**) and firmware version.

5.6 Emergency and Exceptional Situations

Formlabs has made every effort to provide updated safety data sheets (SDS) for every resin product, in accordance with the latest government guidelines. Always consult the SDS as the primary source of information to understand safety and handling of Formlabs materials.



In an emergency involving resin, always refer to the safety data sheet and/or seek help from a medical professional.

When handling solvents, always consult the safety data sheet (SDS) from the solvent supplier as the primary source of information. Handle solvents with gloves in a well-ventilated area. Keep flammable solvents away from heat, sparks, and open flame. Some solvents, such as isopropyl alcohol (IPA) evaporate rapidly, so keep bottles closed whenever possible.

Promptly clean and inspect the Form Cure if any liquid resin spills on or in it to minimize any cosmetic or functional damage to the device. If you have experienced an accidental resin spill, document the problem with photos and clean the unit as best as possible. Contact Formlabs or a certified service provider as soon as possible.

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6. Maintenance



- Formlabs provides instructions to advise skilled and non-skilled persons in installing, operating, and maintaining the Form Cure. The Form Cure shall only be maintained by a qualified and trained person.
- Do not open the Form Cure and/or investigate internal components unless under the guidance of Formlabs or an authorized reseller. Contact Formlabs or an authorized reseller for any additional guidance.
- Unauthorized disassembly or repair procedures may damage the Form Cure and void the warranty.
- Wear personal protective equipment when performing maintenance tasks. Use tools only as described.
- Disconnect the power cable before maintenance.

Isopropyl alcohol (IPA) is suitable to clean most surfaces, including cured and uncured resin. When wiping the cover surfaces, use a non-abrasive cloth. Other materials may scratch the cover.

6.1 Inspecting the Product

6.1.1 Before Each Post-Cure Cycle

INSPECT	REFER TO	SECTION
Installation Environment	Operational Environment	5.1
Turntable	Turntable Maintenance	6.2.1
Parts to be post-cured	Dry Parts and Keep Equipment Clean	6.2.2

6.1.2 Monthly

INSPECT	REFER TO	SECTION
Interior surfaces	Interior Surface Maintenance	6.3.1
Light diffusers	Light Diffuser Maintenance	6.3.2

6.1.3 Every 3 Months

INSPECT	REFER TO	SECTION
Cover	Inspect the Cover	6.4.1
Display	Inspect the Display	6.4.2

6.2 Inspection Tasks Between Post-Cure Cycles

6.2.1 Turntable Maintenance

The Form Cure relies on the turntable's rotation to expose part surfaces to even amounts of light and heat. The turntable must have sufficient clearance to continue rotating.

Periodically lift the turntable to inspect underneath it for small pieces of cured resin. Remove particles of cured resin from above and below the turntable to ensure the turntable can rotate without interruption. Clean the turntable and the surface underneath as needed. Use IPA to clean the turntable or the base if necessary, and allow IPA to fully evaporate before starting a post-cure cycle.

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6.2.2 Dry Parts and Keep Equipment Clean

Completely wash and dry all parts before post-curing in the Form Cure. Do not operate the Form Cure with uncured resin, partially cured resin, or other liquids on the turntable.

6.3 Monthly Inspection and Maintenance Tasks

6.3.1 Interior Surface Maintenance

The internal surfaces of the Form Cure are covered in a reflective coating that reflects the light from the 405 nm LEDs and ensures that parts post-cure evenly. If the reflective coating is damaged or covered, parts may not post-cure properly.

Visually inspect the internal surfaces of the Form Cure for traces of resin, cracks, or other damage. Resin will harden during the cure cycle. Cured resin blocks light and must be removed.

If parts are washed but not fully dry before post-curing, certain washing solvents, such as tripropylene monomethyl ether (TPM), may evaporate and form deposits on the interior surfaces of the Form Cure. These deposits will cloud the reflective coating and prevent parts from post-curing properly. Clean the reflective coating as needed. Use IPA to clean the reflective coating and allow IPA to fully evaporate before starting a post-cure cycle.

6.3.2 Light Diffuser Maintenance

The 405 nm and white secondary LEDs in the Form Cure are covered by frosted light diffusing panels. These light diffusers spread the light from the LEDs and ensure that parts post-cure evenly. If the light diffusers are damaged or covered, parts may not post-cure properly.

Visually inspect the light diffusers for traces of resin, cracks, or other damage. Resin will harden during the cure cycle. Cured resin blocks light and must be removed. If parts are washed but not fully dry before post-curing, certain part washing solvents, such as tripropylene monomethyl ether (TPM), may evaporate and form deposits on the interior surfaces of the Form Cure. These deposits will coat the light diffusers and prevent parts from post-curing properly. Clean the light diffusers as needed. Use IPA to clean the light diffusers and allow IPA to fully evaporate before starting a post-cure cycle.

6.4 Periodic Inspection and Maintenance Tasks

6.4.1 Inspect the Cover

Visually inspect the cover for traces of resin, cracks, or other damage. Clean the cover with a non-abrasive microfiber cloth and soapy water or a general purpose cleaner, such as glass cleaner.

6.4.2 Inspect the Display

Visually inspect the display for any traces of resin. Check that the knob turns easily and that the display responds to inputs. Clean the display with a non-abrasive microfiber cloth and general purpose cleaner, such as glass cleaner.

6.5 Planned Maintenance Procedures

For detailed guidance and visual assistance, search on support.formlabs.com.

Maintenance tasks shall be done according to the following plan:

TASK	FREQUENCY	SECTION
Update the firmware	When indicated by Formlabs.	6.5.1

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6.5.1 Updating the Form Cure Firmware

Formlabs regularly releases updated firmware to fix bugs and improve functionality. Review the PreForm and firmware release notes to learn more about the improvements that come with each version's release.

To update the firmware:

1. Connect the Form Cure with a USB cable to a computer running the latest version of PreForm.
2. Locate and run the Form Wash/Cure Updater tool in the PreForm installation folder to check for firmware updates and to update the firmware.
3. When the updater tool detects the unit, select **Update Firmware.**
4. The tool uploads the new firmware and restarts the unit to complete the update. The update should take approximately 20 seconds. The turntable may rotate during firmware updates.



Do not disconnect the USB or power cables during the update.

5. **Firmware Up To Date** appears next to the connected unit in the main updater window. Select **Done** once the update is complete.
6. Repeat steps 1–5 to update firmware on additional Form Cure units.
7. Select **Quit** to close the updater.

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7. Troubleshooting and Repair

For detailed guidance and visual assistance, search on support.formlabs.com.

7.1 Restarting with a Power Cycle

If the display freezes during or after the firmware update, power cycle the Form Cure unit:

1. Unplug the unit.
2. Wait at least 10 seconds to ensure a complete power cycle.
3. Reconnect the power cable to restart the unit.

7.2 Troubleshooting

In the case of an error or abnormal activity with the Form Cure, reference the following errors, causes, and proposed solutions. Complete the initial troubleshooting steps and carefully document all results. Contact Formlabs or an authorized reseller for additional assistance.

ERROR	CAUSE	SOLUTION
The display does not turn on.	Power failure or a faulty electrical connection	Check that the power supply indicator light is illuminated. Try another outlet. Disconnect and reconnect the power.
The display does not turn off or sleep.	Firmware bug	Disconnect and reconnect the power. Update the firmware. See ***6.5.1 Updating the Form Cure Firmware.***
The display indicates that the cover is open when the cover is closed.	Interlock magnets are missing or misaligned	Wiggle the cover from side to side. Check that the interlock magnets are installed in the bottom edge of the cover.
The 405 nm LEDs and secondary white LEDs do not turn on.	Power failure or a faulty electrical connection	Check that the power supply indicator light is illuminated. Try another outlet. Disconnect and reconnect the power.
The 405 nm LEDs do not turn on.	The Form Cure has not reached its target temperature Power failure or a faulty electrical connection	Wait for the Form Cure to reach its target temperature. See ***5.2.2 Set Post-Cure Time and Temperature.*** Check that the power supply indicator light is illuminated. Try another outlet. Disconnect and reconnect the power.
The heater does not reach the target temperature.	Abnormal display behavior Environmental conditions Poor airflow around power supply	Disconnect and reconnect the power. Ensure that the operating environment is in the recommended temperature range. See ***5.1 Operational Environment.*** Ensure that there is adequate airflow around the Form Cure power supply and that it is not placed in an enclosed space.
The turntable does not turn.	Turntable is obstructed Turntable is not fully seated Faulty or damaged motor assembly	Ensure that no cured resin or printed parts are blocking the turntable. Reorient large prints as necessary. See ***5.3.2 Plan for Large or Long Parts.*** Reseat the turntable on on the circular wheel mount. See ***4.3 Installing the Form Cure.*** Replace the Form Cure motor assembly. See ***7.3 Disassembly and Repair.***

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ERROR	CAUSE	SOLUTION
Parts are undercured or do not have desired mechanical properties.	Expired resin Part was washed but not fully dried before post-curing	Check the expected lifetime of the resin used for the print. Fully dry all solvent off of parts before post-curing.
Post-cured parts have tacky or sticky surfaces.	Part was not washed before post-curing Part was washed but not fully dried before post-curing	Wash liquid resin off of printed parts before post-curing. Fully dry all solvent off of parts before post-curing.

7.3 Disassembly and Repair

NOTICE

All steps that involve opening the Form Cure and/or investigating internal components should be done by skilled persons under the guidance of Formlabs or a certified service provider.

Contact Formlabs or a certified service provider to receive repair instructions and authorization. The following tools, equipment, and materials are needed for reparation tasks:

TASK	REQUIRED SUPPLIES	CAUSE
Replacing the display assembly	2.5 mm hex wrench, replacement part(s)	The Form Cure display or knob has stopped functioning.
Replacing the motor assembly	2.0 mm hex wrench, 2.5 mm hex wrench, replacement part(s)	The turntable has stopped functioning or behaves erratically.
Reseating the ribbon cable	2.5 mm hex wrench	The Form Cure display or knob has stopped functioning.

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8. Disposal

8.1 Guidance for Recycling and Disposal

8.1.1 Disposal of electronic components



The symbol on the product, accessories, or packaging indicates that this device must not be treated as nor disposed of with household waste. When you decide to dispose of this product, do so in accordance with local environmental laws and guidelines. Dispose of the device via a collection point for the recycling of waste electrical and electronic equipment. By disposing of the device in the proper manner, you help to avoid possible hazards for the environment and public health that could otherwise be caused by improper treatment of waste equipment. The recycling of materials contributes to the conservation of natural resources. Therefore do not dispose of your old electrical and electronic equipment with the unsorted municipal waste.

8.1.2 Disposal of packaging waste

Keep the packaging for transporting your Form Cure. Form Cure packaging materials are designed to be kept and reused for transportation or shipping.

The packaging is made of cardboard and plastic-based materials. Dispose of packaging through your local waste and recycling facilities. By disposing of the packaging waste in the proper manner, you help to avoid possible hazards for the environment and public health.

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10. Glossary

TERM	MEANING
Circular wheel mount	The turntable sits on the circular wheel mount, which is driven by the motor assembly.
Cover	The hinged cover allows access to the Form Cure turntable. Double walls insulate the cure chamber and internal surfaces reflect light.
Display	The display shows status, time, temperature, and options for configuring the Form Cure.
Display ribbon cable	A flat, flexible cable connects the display assembly to the motherboard.
Heater	A 100 W heating module that can heat the chamber up to 80 °C / 176 °F .
Interlock magnets	The interlock sensor detects these magnets to determine when the cover is closed. This safety mechanism disables the heater, 405 nm LEDs, and turntable when the cover is open.
Knob	The knob is the primary interface device for the Form Cure. Turn the knob to navigate the display menu. Press the knob to select a feature or setting.
LEDs	An array of thirteen (13) 405 nm LEDs help to post-cure parts. Secondary lights illuminate the turntable when the cover is open and during heating.
Motherboard	The motherboard is the main circuitry through which all systems in the Form Cure communicate.
Motor assembly	The motor assembly rotates the turntable during the post-cure cycle.
Power supply	Provides power to the Form Cure. Specifications: 24 V, 6 A
Turntable	A rotating plate ensures balanced post-curing across all exposed part surfaces. The turntable is perforated to allow light to reach all surfaces of printed parts in the Form Cure.
USB port	The Form Cure can connect to a computer via USB. The port is connected to the motherboard and can be accessed from the back of the machine.

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