

CastPro Resin Material Best Practice

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How to Use This Guide

This document serves as a comprehensive guide to prepare parts, post-process, and finish using **CastPro Resin**.

About CastPro Resin

Identification: **CastPro Resin** is a wax-filled photopolymer material for the production of full anatomical crowns and bridges with extreme dimensional accuracy in X, Y, and Z, as well as an exceptional surface finish. It can also be used to print partial frameworks.

The burnout for parts 3D printed in **CastPro Resin** is rapid, clean, and ash-free, resulting in accurate, quality castings. With a moderate wax content, **CastPro Resin** also delivers low thermal expansion during burnout.

Parts 3D printed in **CastPro Resin** can be pressed into full contour ceramics.

Applicable Printers: This material is tested and approved for the following printers:

- **DLP and mSLA Printer**

Getting Started

Primary Supplies: The following supplies are required to print **CastPro Resin** material:

- 99% isopropyl alcohol (IPA)
- Air compressor
- Cone-shaped paint filter, Starter Kit item
- Curing unit
- Dual Motion Bottle Roller
- Nitrile gloves
- Material mixing cards
- Paint scraper, Starter Kit item
- Paint brush
- Paper towels
- Plastic funnel
- Rubber spatula, Starter Kit item
- Spray bottle with 99% IPA
- Snips, precision blade, or similar tool
- Storage container for material, sealable and opaque
- Washing unit

Capture Patient Data

A digital impression can be accomplished with a handheld intraoral scanner and CBCT scan, or with a traditional impression and a desktop box scanner.

Software is compatible with the universal **.STL** file format and is thus compatible with almost all dental CAD and model design software as well as digital design services. Models may be designed in-house or outsourced to a design partner.

Design Models for CastPro Resin

Models printed in **CastPro Resin** must have a minimum wall thickness of 0.5 mm.

Important: The brackets must be thick enough not to break when removing the supports.

Software

Orient Models in Software Parts must be built horizontally oriented to the platform, with supports connecting only to the occlusal or incisal surface, to avoid manual post-processing of the sides in direct contact with the mating surface.

- **Spacing:** Place models a minimum of 1.5 mm apart.
- **Level at build platform:** Place supported models 4 mm from the build platform.
- **Resolution:** 50 µm Z resolution.

Support Models in Software All approved applications require supports. Always use the support file for supports:

- **Minimum support base:** 1.0 mm
- **Minimum contact tip:** 0.45 mm
- **Minimum support beam height:** 4.0 mm

Print Preparation

Mix Material CastPro Resin material must be mixed in the material bottle prior to use:

1. Place the sealed material bottle on the Dual Motion Bottle Roller for a minimum of 60 minutes.
2. Wait for bubbles to subside before filling the material tray.
3. Mix the material in the material tray gently with the rubber spatula from the Starter Kit before each print. The material should be a uniform color.
4. Preheat the material to de-crystallize the wax component of the **CastPro Resin** material, if needed.

Ensure there are no small cured particles in the material tray. If found, then the material must be filtered using the plastic funnel, cone-shaped paint filter, and a spare material bottle.

Fill Material Tray Do not overfill the material tray. Overfilling can cause the material to overflow when the build platform moves down at the start of the print job.

To add more material to the printer, carefully pour material into the material tray between prints. Adding material while the print is paused, or during a print, will cause a small shift line in the model

Print with CastPro Resin Material To start the print, follow the instructions in the printer's Operations and Maintenance Guide.

To remove the models from the build platform after the print is complete, follow the instructions in the printer's Operations and Maintenance Guide.

Material Storage Follow these instructions:

- Store the material in a dark environment when not using it.
- Preheat the material before each print for better printing results and cool the material down after the print is finished.
- Mix the material with a material mixing card before starting a new job.
- Remove the material from the material tray and carefully pour it into the spare dark bottle.

Post-Processing

Materials Safety Safety data sheets (SDS) for materials used in the printing process are available either from **Resinify Technology LLC** or directly from suppliers. Read and understand the information provided in these documents prior to attempting to operate the printer or handle any media.

Warning! Fire hazard: Some materials used for washing may be flammable.

- Do not wash parts in proximity to any potential ignition source.
- Washing or drying equipment must be approved for use with flammable solvents. Read SDS and contact EHS Representative.

Clean Printed Models Always wear gloves when handling uncured material and alcohol.

Important: Do not expose **CastPro Resin** to alcohol for longer than 5 minutes. Excess exposure to alcohol may cause casting issues.

Getting started:

1. Open the washing compartment lid.
2. Lift the handle to raise the interior grate to the highest position.
3. Pour the 99% IPA into the washing compartment to just below the grate while it is in the lifted position.
4. Place the model on the grate and gently lower the handle to submerge the model in 99% IPA.
5. Close the washing compartment lid and lock in place.
6. Plug in the power cable to turn on the wash unit.

Clean models:

1. Select the High washing program. Set the timer to 00:03:00, or 3 minutes. Press Start.
2. Remove the model as soon as the program is complete.
3. Spray the models with the spray bottle filled with 99% IPA.
4. Use compressed air to remove all IPA from the surface of the model as soon as possible

Post-Processing

Dry Models, Models must be completely dry before post-curing:

1. Place the models on a clean paper towel-lined surface.
2. Air dry in ambient room temperature/humidity for 10 minutes.

Post-Cure Printed Models Cure the models using curing unit

- 2 cycles for 50 flashes, flip models between cycles

Place models into the curing unit with as much space between models as possible. Models should never touch one another while curing. Let models cool completely before handling them or starting the next cycle. Flip models between cycles for an even cure.

Important: For casting steps, follow instructions from the investment manufacturer.

Manufacturer

Resinify Technology LLC

Detroit, Michigan USA.

support@resinifytechnology.com www.ResinifyTechnology.com +1-810-888 7373