Resinify TempCrown™

Application Guide — 3D Printing Temporary Crowns and Bridges

Resinify TempCrown™ Resin is a tooth-colored resin designed for 3D printing temporary crown and bridge restorations, inlays, onlays, and veneers. Indicated for up to seven-unit bridges and available in multiple shades, this highly filled material provides excellent marginal adaptation, strength, and aesthetics. Use traditional temporary cements to attach restorations produced with Resinify TempCrown™ Resin for up to 12 months.

This application guide demonstrates each step for making 3D printed temporary crown and bridge restorations on Resinify Technology LLC 3D printers. Use the following workflow to ensure precise results.

Essentials

Needed from the dentist:

- A physical or digital impression of the patient's dentition

Required hardware and materials:

- DLP or mSLA 3D printer
- Resin tank
- Resinify TempCrown™ Resin
- Wash unit
- Cure unit
- Stainless steel build platform
- Finishing kit or secondary wash station
- Desktop scanner (if physical impression or model)
- Low-speed dental handpiece with cutting and finishing wheels
- Sandblaster
- Polishing or glazing equipment and materials
- Glass bead blasting material (recommended brand)
- Isopropyl alcohol (IPA) ≥99%

Required software:

- Dental design software, or outsourcing to a dental design provider

> **NOTE:** For full compliance and biocompatibility, Resinify TempCrown™ Resin requires a dedicated resin tank, stainless steel build platform, Resinify Wash Unit, and finishing kit, which should not be mixed with any other resins.

1. Scan

Dental design software requires a digital impression of the patient's anatomy to design a temporary prosthetic. Scan the patient directly with a 3D intraoral scanner, or scan a physical impression or poured model with a desktop

3D scanner.

2. Design

2.1 Design the Appliance

Several dental software options exist for digitally designing temporary crown and bridge restorations. This guide outlines parameters for 3Shape Dental System and ExoCAD. Outsourced dental CAD providers can also accept a digitized impression for design.

General Construction Requirements	Recommended Values
Minimum thickness (crowns, inlays, onlays, veneers)	1.0 mm
Minimum thickness (bridges)	1.0 mm (anterior) – 1.5 mm (posterior)

3Shape settings:

Parameter	Value
Cement gap	0.01 mm
Extra cement gap	0.04 mm
Margin line offset (overlay)	0.15 mm
Drill compensation	Off

ExoCAD settings:

Parameter	Value
No cement gap zero from margin	1 mm
Gap	0.07 mm
Border, horizontal	0.15 mm
Anticipate milling (undercuts)	Off

2.2 Export the STL File

Once the case has been designed to specification, manufacturing can begin. Most dental design software generates a manufacturing file in .stl format. Locate the file and move it into the print preparation software.

3. Print

> **NOTE:** Use the latest version of software and firmware for optimal results.

3.1 Import the file(s). Import or open the design file(s) by dragging them into the software or using the "File" menu.

3.2 Material selection. Select the material for printing by clicking the printer box in the "Job Info" menu on the right-hand side.

3.3 Orientation. Proper part orientation is critical to ensure part accuracy and fitment. Always position the restoration(s) horizontally to the build platform with the occlusal plane facing the build platform. To rotate a restoration, click the part and drag the sphere.

3.4 Generate supports.

- *Automatic support generation:* Click "Supports" on the left side of the software, then "Auto Generate Selected" or "Auto Generate All." The default support settings are optimized for complex, large-span bridges; for less elaborate cases, support density and touchpoint sizes may be lowered if needed.
- *Manual support editing:* If a support point is not ideally located, move it after automatic generation via the "Edit…" button in the Supports menu. Always properly support the anatomy closest to the build platform — the software will indicate in red where additional support may be required. Confirm "Printability" shows a green thumbs-up under "Job Info."

3.5 Printing layout.

- *Standard printing:* For most jobs, place parts toward the middle of the build platform. Tip: when printing multiple cases, overlapping rafts can optimize build volume and save material.
- *Fastest printing on Resinify printers:* Move parts toward the wiper/mixer side of the build platform as indicated in the software.

3.6 Transferring the job to the printer. Click the orange printer icon on the left to open the Print dialog and select the printer, then click "Upload Job" to begin the transfer.

3.7 Set up the printer. Shake the Resinify TempCrown™ Resin bottle and load the stainless steel build platform. Begin printing by selecting the print job from the printer's touch screen and following any on-screen prompts; the printer will complete the print automatically.

> **NOTE:** To confirm the correct build platform is in use, check the top of the build platform — the stainless steel build platform is marked for compatibility with Resinify TempCrown™ Resin. Deviating from recommended instructions may adversely affect performance, biocompatibility, and aesthetics of the printed provisionals.
> **ATTENTION:** For full compliance and biocompatibility, Resinify TempCrown™ Resin requires a dedicated resin tank and stainless steel build platform. Only use the Resinify Wash Unit with other Resinify biocompatible resins.

4. Post-Processing

> **NOTE:** Always use gloves when handling uncured resin and parts.

4.1 Part removal. Remove printed parts from the build platform by wedging the part removal or scraping tool under the part raft and rotating the tool.

4.2 Washing

CAUTION: When washing the printed part with solvent, work in a properly ventilated environment with proper protective masks and gloves. Expired or unused Resinify TempCrown™ Resin, and used IPA, must be disposed of in accordance with local regulations.

Place printed parts in the Resinify Wash Unit filled with isopropyl alcohol (IPA, ≥99%) and wash for the time established in the product IFU. Ensure parts are fully submerged in IPA while washing — exceeding wash duration may affect dimensional accuracy and performance of printed parts over time. Use a brush or pipe cleaner to remove excess resin and reduce post-processing needed later.

4.3 Drying. Leave parts to air dry for at least 30 minutes in a well-ventilated area; compressed air can also be used. Dried parts will show a white, powdery coating on print surfaces. If wet, uncured resin remains after drying, use a squeeze bottle with fresh IPA to remove it, then air dry again.

4.4 Post-curing and support removal. To maintain dimensional accuracy and biocompatibility, post-curing must be done in two steps.

- *Step one:* With the raft and supports still intact, place printed parts in the cure unit raft-side down. Post-cure using settings established in the product IFU.
- *Support removal:* Remove parts from the cure unit and use a handpiece with a cutting disc to separate supports and the raft from printed parts. Carefully sandblast printed part surfaces to remove the white, powdery coating, using glass bead blasting material at a maximum pressure of 1.5 bar. Check part fit and finish, and contour as needed with a dental handpiece and carbide rotary burs.
- *Step two:* Place finished parts in the cure unit with the occlusal plane facing upward. Post-cure again using settings established in the product IFU.

ATTENTION: For best results and full compliance, printed parts must be post-cured twice as recommended. Deviating from this protocol may lead to unsatisfactory fit and affect biocompatibility. Inspect the restoration; discard and reprint if any cracks or damage are detected.

4.5 Finishing and polishing. Post-cured parts must be polished using pumice stone and polishing compound prior to use. If rough marks remain after support removal, use a carbide or other rotary tool before polishing to improve patient comfort. A high-gloss shine can be achieved with traditional polishing tools and materials used for acrylics and composites.

NOTE: Robinson brushes and rubberized spiral wheels work well for polishing occlusal anatomy; Refert Opal-L is an effective polishing material. Avoid overheating parts during polishing.

Inspect the restoration again; discard and reprint if any cracks or damage are detected. Light-cured glaze and characterization materials (such as GC OPTIGLAZE™) can also be used — follow the material manufacturer's instructions.

5. Delivery and Treatment

The finished restoration can be attached to a patient's tooth using conventional temporary cements such as Temp Bond NE. If the subsequent permanent restoration will be attached with methacrylate-based composite cement,

eugenol-free temporary cements are recommended. Follow the instructions for use provided by the luting agent manufacturer.

Reporting Undesirable Effects

In the event of adverse effects, reactions, or similar occurrences from the use of these products, report immediately by contacting Resinify Technology LLC via the website or through your local distributor.

Manufacturer

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