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# Fabricating temporaries with PMMA material

An evolution from mainly acrylic use to new materials and machining.

We used to fabricate our temporaries with acrylic by hand, and, for higher end long-term bridges, we would often use composite. This particular case study will explain what PMMA (defined by webopedia.com as "short for polymethyl-methacrylate or, more correctly, Poly (methyl methacrylate), PMMA is a clear plastic acrylic material that can be used as a replacement for glass") is and how we can successfully use the material in the dental world.

We can utilize the technology, especially for implants, to create long-term temporaries through the use of a CAD/CAM machine. A good example of what we can use the material for is with a full-mouth implant case scanned and then copy-

The exact material used in this patient's case is called PREMIOtemp (www.primotecusa.com) and defined as multilayered PMMA CAD/CAM milling disks used for long-term temporary

restorations, short-term provisionals and as a prototype for implant restorations.

### CASE STUDY

**01** We can follow the denture wax try-in and add more pink color to create more elaborate provisionals. We can copy scan the scan and follow the incisal length, cut the gum line and make it deeper with composite then

### USING PMMA IN A LONG-TERM TEMPORARY RESTORATION CASE

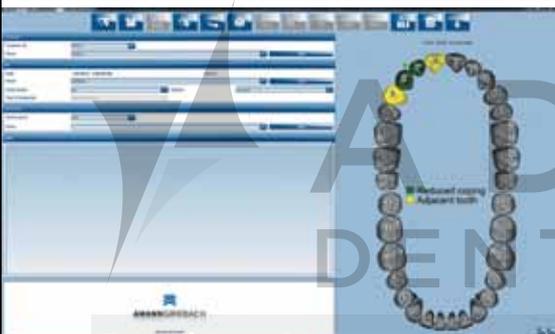


Fig. 1 Using the data from Amann Girschbach MAP 400 scanner



Fig. 2 Using Amann Girschbach Motion Mill machine



Fig. 3 Long-term Hoissen implant provisional



Fig. 4 Cut the sprue and put on the model



Fig. 5-6 Gradia ceramic composite applications



Figs. 7-8 OPTIGLAZE application

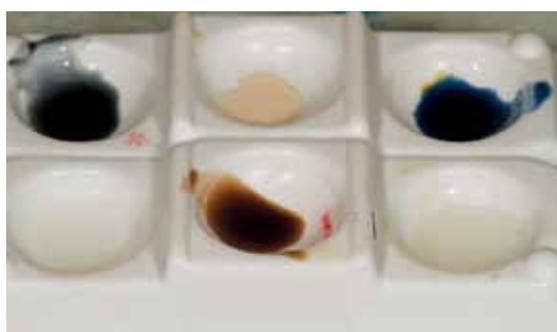


Fig. 9 Opal effect application



Fig. 10 Overlay with blue, ivory and white stain



Fig. 11 Occlusion stain



Fig. 12 Create white horizontal line and interproximal color



Fig. 13 Light curing stage



Fig. 14 Occlusion view



Fig. 15 Verification jig, seven implants



Fig. 16 Occlusion view, left



Fig. 17 Occlusion view, right



Fig. 18 Final restoration, wax try-in and copy scan

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applied over the top of the gingival area. Hiossen implants had been placed in the patient's mouth and the dentist requested that the lab fabricate very nice long-term temporaries in a screw-retained bridge restoration (Fig. 1).

**02** The author milled PREMIOtemp material for the temporary restoration, using a Motion Mill Amann Girrbach machine (Fig. 2). The restoration is shown here on the model, created with PMMA, with implants in place (Fig. 3). The sprue was cut and placed on the model to ensure fit (Fig. 4). We don't have to apply a gum tissue layer at this point if the dentist does not require it. The cost is less that way, but some dentists do prescribe this aspect of the restoration.

**03** The author next applied ceramic composite, GC America Gradia #24 first (Fig. 5), and then overlaid it with Gradia #23 (Fig. 6). The application was intended to imitate natural gum tissue for the patient in the mouth. The author next contoured and shaped the gum area.

**04** He then applied OPTIGLAZE from GC America in four colors with maximum color to create natural appearance in the gums (Figs. 7 & 8). He next applied Opal Effect to the incisal 1/3 for a more natural-looking restoration, as shown in this image (Fig. 9) after which he overlaid the restorations with blue and ivory white stain (Fig. 10). He then applied occlusion stain (Fig. 11) after which he created a white horizontal line and in between the teeth applied a warm orange stain effect. With an A1 base application, he was able to maximize the natural-looking effect all dental technicians hope to achieve in their restorations (Fig. 12).

**05** Next, we see the results of the light curing stage (Fig. 13) and the occlusion view (Fig. 14). We can note the difference between the three colors and the maximizing and mimicking of the natural tooth colors, white, blue, ochre and ivory stains, which appear to be different in each application.

The provisional was placed on the model over the seven implants for placement to be verified with the verification jig (Fig. 15). Underneath the implants is a titanium base,

which required correct torquing to be fit on the model in the most precise manner.

**06** Finally, the author took an occlusion view shot, left-side view (Fig. 16) and a right-side view (Fig. 17) before photographing the final restoration, wax try-in and copy scan seen here from top to bottom (Fig. 18). The case was sent to the dentist for placement.

### CONCLUSION

It is simply amazing the changes and developments there have been in the dental lab industry even recently! We used to work mostly with acrylics but now have developed an even more sophisticated design, especially with CAD/CAM digital design technology by our own hand.

Even more options than ever are available. The good news for technicians is that machines can't do everything! We still need our hands for our final artistic and natural touches to maximize our final product, which also increases our profit and value! [lab](#)