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 polymethylmethacrylate 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-canned with a wax try-in already set up.

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...
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.

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! … Even more options than ever are available!