When we initially see a custom shade, we must consider many factors: hue, value, translucency, transparency, opacity, mamelon, stump shade, surface texture, symmetry and the patient’s adjacent teeth. Clinicians and technicians will not often have to match a restoration with an adjacent natural tooth that has a direct interproximal composite. If they do, however, the direct composite on the natural tooth is not always evident to the technician’s eye until that tooth and area of the mouth are fully dehydrated. If the technician is not informed about this difference in texture, either ahead of time or during the custom shading process, the finished restorative product will not match the various surfaces of the natural dentition. A direct composite presents as dull, white, and opacious. It dehydrates very quickly, unlike natural enamel or ceramic material, which calls for an innovative approach when fabricating the final restoration.

**ANALYZING THE SHADE**

When looking at a patient, the question I ask myself is: Am I seeing enamel, composite or porcelain? In this case it became obvious I was looking at a difference in surfaces when the patient’s tooth became dehydrated (Fig. A). The mesial, gingival, and incisal corner of tooth #8 showed a direct composite. The problem then became how to match the mesial corner of tooth #8 with the restoration planned for tooth #9. In my experience, the only way to achieve the desired effect is through the technician’s personal polishing techniques. But in order to be certain of my finished results, I experimented with a natural tooth (Fig. B) that I applied with a composite material for comparison.

**CHARTING THE OUTCOME**

When the hand-drawn custom shade diagram of the patient’s custom color is hand drawn, it is helpful to then chart the results on the computer (Fig. C), always keeping in mind that texture as well as shade will need to be matched. This issue, however, is something which will have to be addressed separately.

For this case, a zirconia-based restoration was planned. Shade and design planning were completed through the use of Straumann Ektan CAD/CAM scanning software (Fig. D). Once the zirconia coping was milled and the modifier applied, the coping had a rough external appearance (Fig. E). Internal colors were used to help mask the stark white tone of the coping.

I then applied an A1 dentin with modified enamel to create a bumpy texture (Fig. F) and the translucency modifier and cervical translucency application produced the multi-faceted color I was trying to reach by reproducing the patient’s custom color (Fig. G).

After the enamel upper and translucency enamel was...
applied (Fig. H) and baked for the first time, the crown is tried in the patient’s mouth (Fig. I). The second bake try-in on the model looked very promising (Fig. J) and the occlusal view demonstrated a perfect marginal fit (Fig. K). A final application of GC America’s Translucent Neutral (TN) powder was applied right before the final bake (Figs. L, M).

**MIRRING A SINGLE CENTRAL**

In trying to achieve central symmetry for this case, I strived to create a mirror image of tooth #8 when fabricating #9. Therefore, line angles had to be checked (Fig. N). Upon measurement, there was a slight difference between the two teeth in width and angulation due to available tooth space. However, I was able to create the illusion of symmetry by adding porcelain to the distal edge of #9 thereby directing the eye toward the narrow reflection illusion in the final texture check. I was able to successfully mimic the dull, white, and opaous composite texture and polished the mesial, gingival and incisal corner of the restoration to match with tooth #8.

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Specializing in fixed restorations, Kahng provides custom cosmetic work. He stresses education, communication, and a team approach to patient care.
Technicians can always benefit from studying the internal color of natural teeth by performing a sectioning experiment to see what type of color blending is inside (Fig. O). The more hands-on education a technician can acquire, the better his work will become.

The post-op view of the restoration in the mouth are always rewarding for the clinician and the technician when the concern is the matching of the two centrals (Fig. P). It is rewarding to know that the hard work which went into the making of an anterior restoration paid off and that the colors and textures match perfectly!