How to Custom Shade Match a Single Anterior Tooth

Luke Kahng, CDT, explains his technique for matching a custom shade for a female patient in her mid-30s who needed a new crown for tooth #8 and was specifically concerned with the esthetics and color of her smile.

Step 1
At a custom-shade appointment, I checked the color and facial thickness of tooth #9. I used my Custom Shade Chart* to record the contour and a bright reflection in the convex area of the tooth, as well as the texture, shape, and horizontal and vertical lines. I also took into consideration the surface texture between the lobe and the final external stain. I drew a color map of the tooth, dividing it into five segments: gingival, middle, incisal third and mesial/distal corners.

I used three custom porcelain shade tabs—Y13, Y7 and Y1—from the LSK121 Chairside Shade Guide* to check the translucency, white calcification, warm tone of the gingival and interproximal area, and the incisal third color.

Step 2
After the tooth was prepped, I checked the prep color. To cover the dark stump shade, I decided to use a B1-base zirconia coping. Also, the gingival third had a high value and would require more dentin color. In the occlusal view, you can see the 1.2-mm facial area with proper lingual reduction.

The impression was scanned using a Freedom Scanner from DOF and a zirconia coping was milled in-house using the Amann Girrbach Ceramill Motion 2.

Step 3
I used food coloring to highlight my GC Initial ZR porcelain applications: blue is where I used TMO5, ENO Blue and TM5; orange is CT 24; white denotes the white modifier TMO2; and green is EOP 3.

* To download the Custom Shade Chart or for more information on the LSK121 Chairside Shade Guide, visit LMTmag.com/articles/how-to-maximize-custom-shade-matching-results.
Step 4
I then added a final incisal halo application (the effect you see in the incisal third area to the top edge) and fired the restoration. After firing, I stained, glazed and polished.

Step 5
During the try-in appointment, I added white calcification while the restoration was in the patient’s mouth. I used GC Initial Lustre paste because it’s white but not too opaque and then baked the restoration in an IBEX furnace at 750°C.

Step 6
After baking and cooling for one hour, you can see the horizontal line, surface texture, subtle translucency and warm tone I noted in the custom shade appointment, as well as the shape, dentin, enamel, translucency and external staining that was applied.

Step 7
The crown was tried in the mouth again, and the subtle tones of beige and white were a match. Note the texture, lobe design, white calcification, roughness and natural esthetics.

Final Result
I was pleased with the final texture and reflection of the light on the restoration. The custom ceramic shade tabs were essential in achieving an accurate color match with the patient’s natural dentition. You can also see the excellent tissue management by the clinician, Dr. Cary Goldberg. The final restoration met the patient’s esthetic expectations and she was very pleased with her smile.

Luke Kahng, CDT, is the Owner of LSK121 Oral Prosthetics in Naperville, IL. In addition to being a board member for several dental publications, he has published more than 100 articles in major dental and laboratory journals. Kahng also lectures internationally, offering hands-on seminars to dental technicians and clinicians alike.