Everyone in the dental field knows that the single central is the most difficult to match. The case premise will always revolve around color and design as well as material selection. If we select the right materials, we will be able to successfully create an esthetically pleasing case for our patient. The amount of room we are allowed for our porcelain build-up will have a great deal to do with the final outcome of the case, as well. Allowance must be made for translucency and opacity as well as the facial thickness of the porcelain.

Most clinicians will prefer a metal-free material, such as zirconia, for their best results but the technician ultimately has to decide which material will work the best for the case with the information and the impression he is given.

For our case study, there was one major factor that had to be considered to achieve the desired effect. The stump shade of the tooth to be crowned, No. 8, was very dark in comparison to the surrounding teeth. To achieve the desired effect, Red Renfert wax was used to distinguish the margins from the rest of the wax-up. GC Low Fusing porcelain was used for the dentin, while White enamel and Translucency application were used for the facial thickness check. Clear Florescence with enamel application was used to achieve the final effect for this case study.

Fig. A Incisal color check.
Fig. B Incisal color check.
Fig. C Red Renfert wax distinguishes the margins from the rest of the wax-up.
Fig. D Weight check.
Fig. E Fit check.
Fig. F Facial thickness check.
Fig. G GC Low Fusing porcelain.
Fig. H Dentin, White enamel and Translucency application.
Fig. I Clear Florescence with enamel application.
to the adjacent teeth. No. 9 was especially bright white in color, which could prove to be difficult to match, but there was enough room for 1 mm of thickness facially. This was helpful when I was planning the case design. I chose a GC PC ingot in B-00 color with a light bleaching mask and planned to create subtle translucency color.

Our patient was a 40-year-old female who presented with an old crown, fractured, on tooth No. 8. A custom shade with the provisional removed was needed to successfully match her color.

CASE STUDY

01 The first step I took when I saw the patient was to check her shade with hydration. After removing the temporary, I checked the incisal 1/3 enamel color and the incisal halo with a subtle white translucency (Fig. A). This would require an application of white subtle calcification to create a successful match. The most difficult thing to re-create in a restoration is the incisal area because we can match the color of the gingival and body using an ingot but not the incisal (Fig. B). It has to be created with porcelain, dentin with a variety of enamel modifications used.

02 Proper wax contour was created using Renfert wax for the margins—the red wax we see in Fig. C distinguishes the margins from the rest of the wax-up.

03 The ingot was measured and weighed, along with the wax-up and sprue (Fig. D). However, the weights were recorded separately.

04 After pressing, the fit to the die was checked on the solid cast model (Fig. E). Facial thickness was accurate for this type of restoration design, with smaller amounts of porcelain allowed for the gingival and body areas (Fig. F). The porcelain of choice for this restoration was GC Low Fusing, 780°C for the layer of dentin firing (Fig. G).

05 I applied regular dentin and white enamel dentin as well as translucency (Fig. H).

06 Clear florescence with enamel was the next application layered (Fig. I) after which I applied calcification EO 17 White to the distal to create blending with tooth No. 9 (Fig. J). In creating the build-up, I created the restoration to be slightly bigger than the adjacent teeth (Fig. K).

07 After adjusting the contacts, the restoration was seated on the solid cast model (Fig. L). During the try-in stage, I checked for the color matching, especially in the incisal 1/3 and the body area of the mesial (Fig. M). In Fig. N the side view provides a clear picture of the blending of the color saturation. Final smile view with a happy patient is the last image (Fig. O).

CONCLUSION

To choose the right materials for a case, we must first know the preparation color and the amount of thickness we will be allowed in our porcelain build-up. With the right tool, we can easily build the right amount of enamel color and surface texture even with dehydration. We can give the patient maximum satisfaction and still make our living on producing anterior crowns!

ABOUT THE AUTHOR

An accomplished dental technician with more than 20 years of experience, Luke S. Kahng, CDT, is the founder and owner of LSK121 Oral Prosthetics, a dental laboratory in Naperville, Ill. He has published more than 60 articles in dental journals, and his lectures have taken him across the United States and internationally. He is the creator of the Chair Side Shade Selection Guide to facilitate effective communication regarding color between doctors, patients and technicians.