One color porcelain with esthetics

Incorporating new strategies to create the most esthetically pleasing restorations.

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All dental technicians know technology is developing at a faster speed than most of us can keep up with. But most of the advances allow us to cut down on the time we need to accomplish our work.

In this case study, I will review the two centrals that were restored, with a dark underlying stump shade that was a sensitive issue when it came to choosing the correct color. The concern was matching the adjacent teeth while masking the dark color underneath, with special attention paid to the necessary lifelike color and esthetics.

Often technicians are not sure how to begin a process like this because they think they must approach any esthetic work with a time-consuming and specialized multi-layering technique. But we can try different approaches. We simply have to realize and incorporate new strategies in our method of creating the restorations.

CASE STUDY

In Figs. 1 and 2 we see the custom shade-taking process as I check the opacity of the patient’s dentition. The body area is 50 percent opacity with enamel and the base is A1 mixed together. The incisal 1/3 is a little more difficult to determine, as it is lighter in color with a translucency and halo effect. There also is subtle white calcification between the teeth.

Fig. 1 Custom shade taking.
Fig. 2 Check gingival area opacity and halo effect.
Fig. 3 Check stump shade.
Fig. 4 Made by Amann Girrbach Motion Mill 2.
Fig. 5 GC IQ Opaque liner used.
Fig. 6 Start to build up one color makes for simple esthetic application.
Fig. 7 Create lobe design.
Fig. 8 GC Lustre Paste application.
Fig. 9 Mirrored image with applied L3 lustre paste.
creating three different components to check while using custom made shade tabs during the patient's appointed time.

02 The stump shade is noted (Fig. 3) as being severely dark, which will cause difficulty with masking if I am not careful with the technique. The shade tabs helped to determine his charting path.

03 An Amann Girrbach Milling Machine mills and cuts the zirconia copings with rubber before the pre-shading and pre-sintering stage. The work has not yet been done in this image (Fig. 4).

04 To create deep dentin color, I used opaque liner by GC, then fired completely at 8100C (Fig. 5).

05 After baking, the liner was applied in a simple manner, in A color (Fig. 6). The 50% dentin and 50% enamel were already pre-mixed so one color could be applied as a group. With one color application, esthetics is simple. One powder porcelain application is all that is required and after application the restoration can be baked (Fig. 7).

06 I then concentrated on line angulations and three dimensional contouring.

07 Artistry was called into action as I worked with GC Lustre Paste applications in brown-orange coloring to fabricate the gingival area in a slightly darker color and the incisal 1/3 with more depth and translucency (Fig. 8).

08 In the mirrored image, after first and second bakes, Lustre Paste was applied for the second time (Fig. 9).

09 After baking, the restorations were placed on the model with Renfert Gold Die Spacer painted on to the model for a more textured surface (Fig. 10). Back on the cast model, I examined the restorations in an upside down position (Fig. 11).

10 No. 8 was tried in the mouth and checked for contact, how the teeth lined up and their incisal edge position (Fig. 12). In the final smile images, as the restorations were tried in the mouth (Figs. 13, 14, 15) we can see the results are similar with or without hydration. Opacity, translucency and texture were all created and esthetically correct when I examined the effect in the mouth.

CONCLUSION
As you can see, various components were used within this custom shade matching session and restoration fabrication. Opacity and translucency were a heavy consideration and can sometimes cause a technician difficulty as he works to match the adjacent dentition. But with the pre-mixed powder I have demonstrated, it can be easy to duplicate the adjacent teeth’s appearance and bake appropriately to create a life-like appearance within the restoration. This method will save you time and money—two things we can all use more of!

Custom shading will provide the best esthetic results for the patient. But there is an immense amount of time involved when we work with the patient, and later when we actually fabricate the restoration. It can be difficult to train a technician about the many nuances involved with custom shade matching and how to achieve the best possible results. With multi-layering, the process can involve as many as 10 steps to fabricate a life-like restoration. The process outlined in this article will cut five steps from this process and help the technician concentrate his efforts on the final esthetics. All the steps that take focus and concentration away from the final results are eliminated, leading to a pleasing, natural looking restoration that the dentist, patient and technician can all be proud of.