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How to successfully match a single central

How to handle challenging shade matching cases involving teeth that are transparent in nature.

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Our patient, a woman in her mid-30s, was unhappy with an old restoration her dentist had placed on her No. 9 central many years ago. She was interested in a more esthetic appearance and a color match with her adjacent teeth.

The patient came into the laboratory for a custom shading appointment, and was matched with ceramic shade tabs, taking into consideration her incisal and body color. It was not an easy color to match. The technician discovered the gingival to the mid-line was A1, with an overlay of light enamel. In addition, 10% of her

body and incisal 1/3 were transparent, with a grey line in between her teeth. Her teeth also had noticeable mamelon and an orange line throughout, but were translucent in nature. There were obviously many characteristics to consider with her teeth coloration.

A zirconia coping in A1 shading was a good beginning, using the in-house Amann Girschbach Milling Machine to produce the coping. After that was accomplished, further steps were taken to complete the restoration using a behind-the-scenes porcelain formula I created for her case.

CASE STUDY

01 Fig. 1 illustrates use of porcelain shade tabs, already fabricated using 1/3 incisal mamelon for comparison. The colors involved are from GC: IN 44 (light brown or sand) and for the incisal 1/3 I used an orange translucency color. Upon checking, I noted I needed to add CT 25 to match with her complicated coloration.

02 Next, I used TM05, grey in color, with CF on the incisal tip but TM01, blue, for the incisal edge. I arrived at this particular com-

SHADE MATCHING TRANSPARENT TEETH

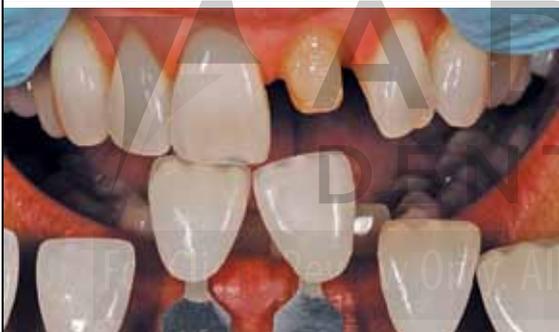


Fig. 1 Porcelain shade tabs for custom shading appointment



Fig. 2 Amann Girschbach Milling coping, pre-stained



Fig. 3 A1 shade and then cut back



Fig. 4 Enamel color variations



Fig. 5 Before color application



Fig. 6 Silver painting



Fig. 7 Body area, horizontal lines



Fig. 8 Black line paint



Fig. 9 E04 Incisal area



Fig. 10 and 11 TN and TO for blue line effect



Fig. 12 Create halo effect



Fig. 13 Red line application



Fig. 14 Apply TN



Figs. 15 White color, crack line



Fig. 16 After grinding, see internal color



Fig. 17 Before glazing



Fig. 18 Immediate insertion



Fig. 19 In porcelain oven



Figs. 20 Immediate smile shot



Fig. 21 Smile view



Fig. 22 Close up view of tooth Nos. 8 and 9

back—with carvings into the porcelain (Fig. 2), then used a multi-layering technique to apply the enamel, cervical translucency and translucency neutral. A1 has high value but no translucency so the incisal area had to be cut heavily to produce the correct results. However, I knew if we cut back too much, we would have too much translucency. If we cut back too little we would not have enough. We will instead see more dentin color. The carvings made were zig-zag in nature, and deeper horizontal lines were created to produce a crooked, curvature effect.

In Fig. 4, we see the GC Color Wheel 58, 59 and 60 enamel color variations. Inside the dentin, there is less opacity and 2 mm thickness, which changes everything. 5/10 mm thickness will tell us the correct color application that we should use.

04 Before the mamelon application, green, orange and pink colors were layered in between the teeth. The CT 25 color was used for the mamelon, with TM05 orange color as well (Fig. 5). Silver paint TM01, a bluish color, was next applied (Fig. 6).

combination after comparing and using the colors to try and match with the adjacent tooth No. 8. This was when I noticed I wanted more CL porcelain added to the formula to perfect the harmony between the two teeth. These three components were applied for a good result with the restoration color. In Fig. 2, the Amann Girschbach A1 coping was pre-stained with LA (light orange) stain, and then fired.

03 Before adding the 3 or 4 components, I cut back on the dentin (Fig. 3), then applied TM01, TM05, CT25 and TN. This is an extremely important stage. I built up the dentin with A1 entirely, then cut it

05 For the body area, I placed a horizontal line (Fig. 7). A black line added a dimension for the EOP4 application (Fig. 8). E04 was applied to the incisal area (Fig. 9).

06 TN and TO were next layered together for a blue line effect (Figs. 10, 11). To create a halo effect, B1 and EN 59 were mixed together (Fig. 12). For high effectiveness, I painted a red line, E114, in the areas shown (Fig. 13).

07 I next applied TN (Fig. 14) then a white color to create a crack line (Fig. 15).

08 After grinding, I applied glaze (Fig. 16). Note the internal color in the image shown here.

09 After glazing, I placed the restoration in the porcelain oven to bake (Fig. 17).

This view is directly after insertion in the mouth (Fig. 18). Two more immediate shots of her smile follow (Figs. 19, 20) and a close-up view of the No. 8 and 9 centrals to check the color match (Fig. 21).

CONCLUSION

As technicians, we have to be honest with ourselves about a patient who presents for a shade match but has a color that is transparent in nature. It must be carefully written down, and we must also note what tools we will use, what kind of colors we will mix, and how. If we cannot write down what we expect to do with the person's restoration when we begin working on it, we won't be able to match it when we head to the laboratory to create it. We have to figure out the adjacent tooth color and the incisal, body, gingival and depth of layering between the teeth. If we can narrow down all of these components during our custom shade appointment, we will have a very happy patient when she receives her final restoration. **lab**