

The Value ZONE

Here's a technique designed to help you more truly replicate nature.

By Joe Weisz, BS, CDT

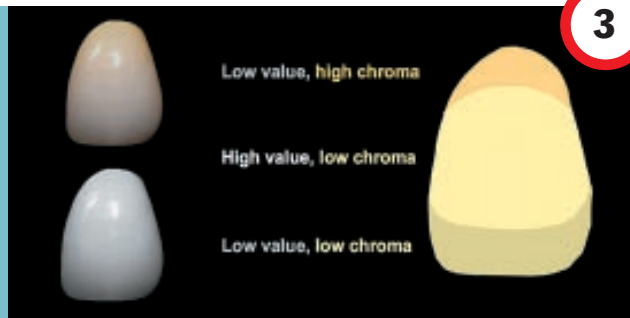
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Contrast zones within a single tooth (intra-tooth zones) are created by juxtaposed areas within the tooth that differ in value (brightness). Intra-tooth contrast between zones of dissimilar value is often found in nature and can be replicated in restorations, giving them a more realistic appearance.

Value zones can be independent of hue (a specific color) or chroma (a hue's intensity). Natural teeth typically have three major contrast zones that are arranged horizontally: Low value in the gingival one-third; higher value in the middle one-third; and low value again in the incisal one-third. Further zones of contrasting value are sometimes found in the incisal one-third, or in the mamelons (Figs. 1 and 2). Shade tabs exhibit the three major value zones but without the mamelon effects (Fig. 3).



Beyond the three major contrast zones, further zones of contrast can be found in the incisal one-third, or in the mamelons.



Shade tabs have three major value zones but without the secondary zones caused by mamelon effects.

When attempting to match a single natural tooth, we have to replicate these contrast zones within the adjacent restoration. When not matching a specific tooth, such as when fabricating a 6-unit anterior case, we should still create these zones within each unit, but with an apparent sense of “randomness” (Fig. 4). Doing so creates life-like effects in multiple-unit anterior restorations through intra-tooth value contrast and virtually no chroma, particularly if the patient wants the “bleached look.” Even though we cannot use chroma in a bleached shade, we can still create contrast zones (mamelon effects) in the incisal one-third (Figs. 5 and 6). Patients rarely, if ever, complain about contrast. They merely want less chroma.

CREATING CONTRAST ZONES

Creating contrast zones, fine-tuning chroma levels, and mimicking internal effects can be achieved externally during the glaze bake, using the new Shofu Vintage Art® stains. This system of fluorescent colorants comes packaged in jars as pre-mixed pastes with an extremely fine particle size (Fig. 7). Using these stains we can take intricate effects that appear internally and create them externally (Figs. 8, 9). Furthermore, with well-contoured and textured restorations, ceramists can achieve natural esthetics with as little as a two-powder build-up or a full-contour pressed-to-metal or pressed-to-zirconia crown or bridge.

It is essential that the final contours and surface texture have already been established (see the article “5-Step to Esthetic Contouring Technique” in the May 2007 issue of *Dental Lab Products* or visit www.dlpmagazine.com). These stains are CTE independent and can be applied on any porcelain. The fluorescent quality lends itself to create internal and external effects on any ceramic ranging from alumina, zirconia porcelain to PFM porcelain.

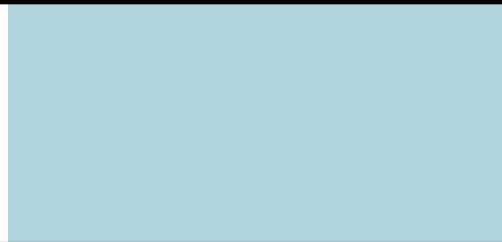
The AS, BS, CS, and DS stains make it easy to intensify chroma within the respective A, B, C, and D shade groups in order to adjust a restoration toward the correct shade. The stains, including special foundation shades for shade groups A through D, can also be applied directly to any substructure such as a zirconia or alumina



When not matching a specific tooth, varying contrast zones in the incisal areas should still be created within each unit.



Even though we cannot use chroma in a bleached shade, contrast zones can still be created in the incisal one-third.



Shofu Art Stains are fluorescent colorants that come in jars of pre-mixed pastes with an extremely small particle size.



Using Art Stains pastes, intricate effects that appear internally can be replicated externally.

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Three-dimensional effects are achieved from deep within a restoration by applying Art Stains directly onto an alumina or zirconia core.

core, creating three-dimensional effects coming from deep within the restoration for a realistic, natural appearance (Fig. 10).

The low fusing temperature (850–870°C) allows the technician to work with 360° margins for a convenient press technique in addition to adjusting the colors for pressed all-ceramic restorations like Empress. You also can modify and individualize denture teeth at 1000°C. **lab**

Acknowledgements:

Shofu Dental Corp., ZR porcelain, Vintage Art
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