



Utilizing an Efficient and Predictable Direct Core Material

Written by Jack Ringer, DDS, FAACD, FIADFE | February 2019

Placing direct cores for compromised teeth that have significant tooth structure missing or have been previously endodontically treated can sometimes be challenging. Factors such as handling, radiopacity, strength and esthetics all come into play in deciding what product to use. This author has tried several products over the years, but could not find the ideal core material due to each of them not meeting all my requirements. Fortunately, for me, I finally found LuxaCore Z Dual (DMG), the one that has it all!

The material comes in a syringe, which can utilize various tips (e.g. regular or needle type). Though the material flows, it does not slump, allowing the operator to accurately place, sculpt and shape the material. Being a dual cure material provides the flexibility to use with direct curing lights or where curing lights are not optimally effective (e.g., post placements or when increased working time is required). Working time in the dual cure mode is up to 1.5 minutes with a final cure time of 5 minutes. When utilizing a curing light, this material cures in 20 seconds at depths of up to 2mm and 40 seconds for depths up to 4mm. LuxaCore Z Dual has very high filler content (72%), which results in high compressive strength (300mpa), and when cutting and shaping the material, it feels similar to dentin.

This material comes in three shades, two of which allow the dentist to blend the core material with the surrounding dentinal tissue (Shades A3 or White). This is important when one is using relatively translucent ceramic restorations whose final optical appearance will be influenced by the underlying tooth structure. This is a huge plus due to the fact that many patients today want the esthetics of the final restoration to be as natural as possible, and having restorations looking too opaque or grey due to a poorly matched core is unacceptable. There are some cases where the final esthetics will not be influenced by the core (e.g., under a metal reinforced restoration) and the operator needs or wants to have a radical contrast in color for the core to distinguish it from the surrounding tissue, so there is a Blue shade.

Lastly, as the cherry on top, LuxaCore Z Dual is radiopaque which, for me, is a must as it allows the practitioner the ability to easily distinguish it radiographically from surrounding tooth material!

Case Example

The case example shown addresses a patient whose 2 lower incisors (#s 24 & 25) required post and core build-up before the final restorations could be fabricated. Creating an optimal esthetic outcome in the anterior region (i.e., natural translucency) while still utilizing the optics of the underlying tooth structure can be challenging, particularly the lower anterior teeth as they are so much thinner. For this case example, teeth #s 24 & 25 had posts (Rely X Fiber Posts; 3M) bonded in the pre-prepared post spaces with a universal self-etching resin cement (Unicem; 3M). Following this step, a universal adhesive (Universal; 3M) was scrubbed on the tooth and post followed by light curing. Lastly, the core build-up material (LuxaCore Z Dual; DMG) was



easily and accurately injected on the tooth and post, light cured and then shape-refined with carbide burs prior to the final impression being taken. Figure 1 shows the teeth prepared for the post and core and Figure 2 shows the finished prepared teeth with the post and cores placed. As one can see in Figure 3, LuxaCore Z Dual worked perfectly, as its physical properties do not negatively impact the optics of the final restoration, which results in a beautiful blend with the adjacent teeth!



Figure 1: Preparation of teeth



Figure 2: Finished preparation with post and core placed



Figure 3: Final restoration using LuxaCore Z Dual