

NX3. Nexus Third Generation Review

by Ara Nazarian, DDS

In the past, it was not uncommon to see your satisfied veneer patients return for hygiene recall months later questioning the color of their porcelain veneer restorations. “These teeth appear as though they are getting darker”, many clinicians have heard throughout the years from their cosmetic patients. Like many, I would explain that porcelain veneers do not change color. “Porcelain does not stain or change color”, I would say. In order to prove my point, I would take out a shade guide tab and compare the porcelain veneers to the shade the patient had selected when these restorations were first delivered. To my surprise, I would see a very subtle change. In fact, it appeared that there was a slight darkening of these restorations. Because of this, I would inspect the margins for any microleakage that would contribute to a change in color. Upon examination, I found no open margins or leakage of any sort. A little confused, I began researching articles, journals and periodicals. I found that it was not the porcelain that was changing in color, but in fact the resin cement. In a study by Nathanson, “the aged dual-cured resin cement samples tested revealed significantly higher changes in color compared to light-cured luting resins. Even with light-cured luting resins there has been some variation in the color change over time”. I realized that the literature concluded that the amine reaction of some resin cements caused a noticeable yellowing with time.

Today, manufacturers of resin cements are addressing these concerns in color change. In fact, Kerr Corporation (Orange, CA.) has recently introduced resin cement (NX3 Nexus® Third Generation) that addresses these concerns and more. According to Kerr Product Manager, “Kerr’s proprietary amine-free initiator system and optimized resin matrix make this product the first truly color-stable adhesive resin cement on the market”.

Universally indicated for all indirect applications (including veneers), NX3 is a permanent resin cement system with an innovative chemistry for esthetics, adhesion and great versatility. Delivery system choices include an auto-mix syringe for dual-cure indications and light-cure cement for multiple units where unlimited work time is needed. I really appreciate the light-cure delivery system because there is no need to change tips, and the size of the syringe is very adaptable. Whether light-cured or dual-cured, the material has a very nice consistency that is not messy or sticky. Radiographically, there is no question in distinguishing discrepancies in margins, due to the high radiopacity of this material.

According to the manufacturer, NX3 is compatible with self-etch and total-etch adhesives, and obtains high bond strength whether the cement is light-cured or dual-cured. A dual-cure activator for the adhesive is no longer needed. And while light-curing is always recommended, even when there is limited light accessibility (i.e., PFM crowns); good adhesion is achieved in self-cure situations. NX3 adheres to all substrates — dentin, enamel, CAD/CAM blocks, ceramic, porcelain and metal.

The try-in gels match both dual-cure and light-cure cements and I have found no color shifting, a huge advantage when it comes to esthetic restorations. Having leaned towards a more conservative preparation for veneers, it is essential to be able to lighten the final restoration. With minimal preparation veneers, NX3 has allowed me to create a very predictable result in a fast and easy way. The intro kit contains three colors; yellow, clear, and white, however, other shades are also available. In my practice I use clear, white, and opaque white the most. I haven’t found much use for the yellow.

Some of the features of NX3 include the following;

- Simplified delivery. Dual-cure auto-mix syringe eliminates hand mixing.
- Light-cure applications. Cement for veneers and indications requiring unlimited work time.
- Bonds to all substrates. Excellent adhesion to dentin, enamel, CAD/CAM blocks, ceramic, porcelain, resin and metal.
- Self-etch or total-etch. Bonding protocol compatibility. No dual-cure activator required.
- Superior color stability. Long-term esthetics for both dual-cure and light-cure cements.
- Optimal handling. Easy clean-up in gel state.

Case Presentation

A patient in her mid forties presented dissatisfied with her existing teeth and edentulous areas in her dentition (**Figure 1**). She desired a more youthful smile with straight, white teeth and no missing dentition. All risks, benefits and alternatives were reviewed with the patient. She decided she would like to have six anterior veneers from teeth #6-11 (11-13; 21-23), a four unit bridge from #2-5 (14-17) and a crown on #12 (24). When she returned for treatment, we anesthetized the patient and prepared her teeth for Empress (Ivoclar Vivadent) restorations for #6-11 (11-13; 21-23), #12 (24) and a porcelain fused-to-metal bridge (IPS D-Sign, Ivoclar Vivadent) for #2-5 (14-17). Before taking an impression, the tissue was controlled using Expasyl™ paste (**Figure 2**). Impressions were taken using a polyvinyl siloxane material and temporaries placed. Impressions, diagnostic models, a bite registration and photos were forwarded to the lab to aid in the fabrication of the final restorations (**Figure 3**). Upon her return for the delivery, the temporaries were removed and the preparations cleaned. The restorations were tried in for fit and approved by the patient for esthetics. Initially the porcelain-fused-to-metal bridge from teeth #2-5 (14-17) was seated with Maxcem™ cement (Kerr) and allowed to set. Clean-up was quickly achieved during the gel stage with a scaler by peeling away any access cement. Next, the restorations for teeth #6-11 (11-13; 21-23) and tooth #12 (24) were cleaned, etched, and treated with a silanator while their corresponding preparations were treated with Optibond® All-In-One (Kerr) self-etch adhesive, according to the manufactures' instructions, and cured for 15 seconds. The porcelain veneers were loaded with Opaque White NX3 (Kerr) resin cement (**Figure 4**) and placed on the prepared teeth, starting from the midline going outwards, followed by the crown restoration for tooth #12 (24). The restorations were spot cured and any excess cement was removed. Once



Figure 1



Figure 2



Figure 3



Figure 4

complete clean-up was achieved, the restorations were cured from both facial and lingual surfaces for another 10 seconds each. As seen in the postoperative photos immediately after seating, the restorations exhibited a nice aesthetic look and the patient was extremely happy (**Figure 5**).



Figure 5

Conclusion

In society, everyone is looking for things that work faster and better. Dentistry is no exception—we look for ways to perform our procedures quickly and efficiently. Kerr Corporation has just released a new resin cement system called NX3 that fulfills these requirements and more. Using the NX3 system, clinicians have everything they need for cementing crowns, veneers, inlays, onlays, CAD/CAM restorations and more...

Images

Figure 1; Retracted pre-operative view

Figure 2; Prepared teeth with Expasyl™

Figure 3; Final restorations

Figure 4; Nexus cement with corresponding try-in gel

Figure 5; Retracted post-operative view



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