Noritake CZR Press-to-Zirconia Solves the Combination Case Dilemma

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[**QA. Please review order or figures. Several were removed because of space.**]

Darby Dental Laboratory Supply Company, Inc has introduced North America's first and only Press-to-Zirconia. CZR Press-to-Zirconia technology (Figure 1) consists of 2 time-proven technologies—oxide (polycrystalline) ceramics and pressable (leucite-reinforced feldspathic) ceramics. This synergy combines the strength, fracture toughness, and cementability of pure yttria-stabilized zirconium oxide copings with the marginal integrity, versatility, and beauty of pressable ceramics.

The CZR Press-to-Zirconia technique was a collaborative effort between Noritake Dental and Darby Dental Laboratory Supply Company, Inc. Brian Lindke, CDT, and Yuichi Ikenaga, RDT, (Noritake/Darby Dental instructors), were an integral part of CZR Press-to-Zirconia's development, both contributing their extensive experience with the development of the press-to-metal technique and their many years of experience with pressable ceramics.

CZR Press-to-Zirconia came to fruition as a result of the need for a more esthetic alternative to the increasingly popular press-to-metal technique. The goal was to substitute a more esthetic, tooth-colored, semitranslucent frame in place of a traditional opaque metal frame.

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The obvious alternatives were either alumina or yttria-zirconia frames. After extensive research and testing by Noritake, it was decided that because of its material properties, tetragonal structure, and incredible fracture toughness, yttria-stabilized, pure zirconium was the frame of choice. Additionally, unlike traditional metal frameworks, zirconium-oxide frameworks used in CZR Press-to-Zirconia facilitate light transmission into the whole tooth, as well as the root and papillae areas, thus creating a natural, vital-looking smile.

Zirconium-oxide frames used in CZR Press-to-Zirconia restorations exhibit exceptional fracture toughness (ie, the ease by which a crack may be driven through a restorative material) and boast a flexural strength in excess of 1,000 MPa (depending on which zirconia manufacturer's product is chosen, the range for mean biaxial flexural strength is between 900 and 1350 MPa). [**QA: The following sentence was deleted.**]

Because of Noritake's experience in handcrafting the finest ceramic bone China, its understanding of not only the material science of porcelain but also light dynamics and color facilitated the creation of a new nanotechnology in pressable ceramic. CZR Press ingots feature the critical fluorescence observed in natural teeth as well as an original opalescent effect (Figure 2), which exhibits an exceptional vitality and luster similar to natural dentition. Theses ingots are available in 20 different shades (16 Vita classic shades, 2 Noritake bleach shades, and 2 Noritake pink shades) each in 2 different opacities. The H-Ingot ('H' standing for high translucency) is indicated primarily for the staining method (Figures 3 through 6), and the L-Ingot ('L' standing for low translucency) is primarily indicated for the layering method.

What is CRZ Press For?

CZR Press is indicated for CZR Press-to-Zirconia full crowns,

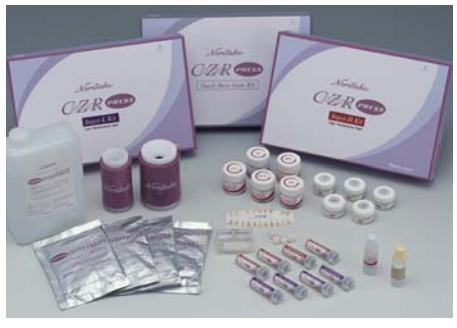

Figure 1—Noritake CZR Press-to-Zirconia kit.

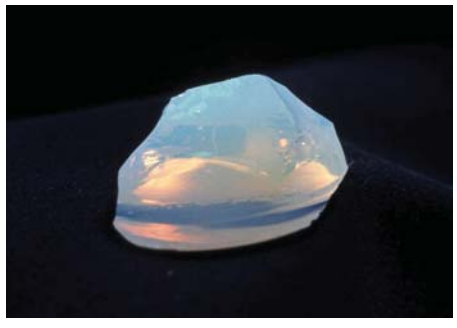

Figure 2—Raw opal material contained in Noritake ceramics.

Figure 3—Full anatomic wax-up for staining method.

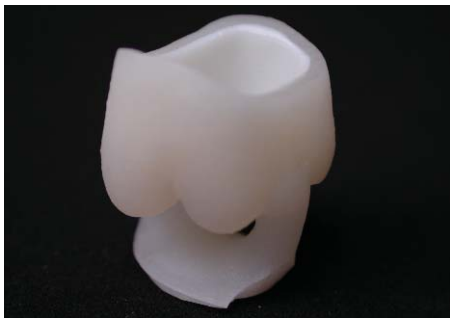

Figure 4—Press-to-Zirconia restoration after pressing and divesting.

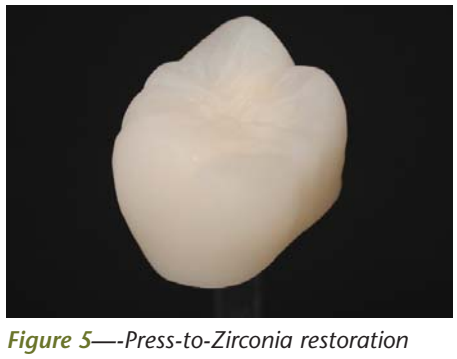

Figure 5—-Press-to-Zirconia restoration before the stain and glaze application.

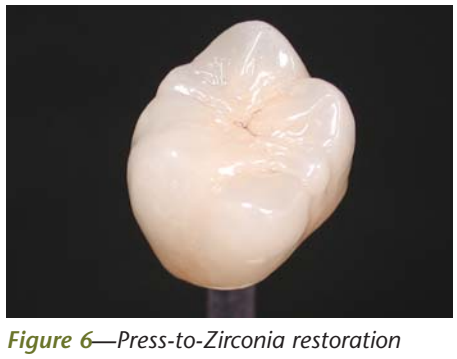

Figure 6—Press-to-Zirconia restoration ready for cementation.

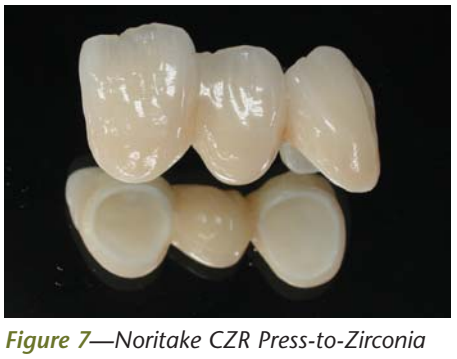

Figure 7—Noritake CZR Press-to-Zirconia bridge restoration.

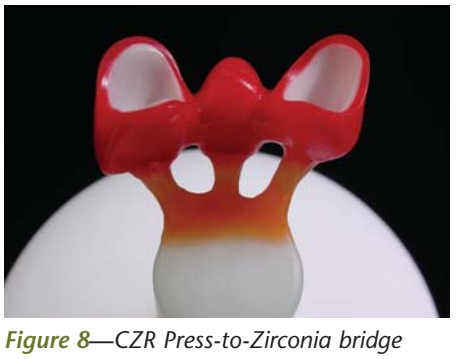

Figure 8—CZR Press-to-Zirconia bridge before pressing.

Figure 9—Pressable inlays/onlays, veneers and full crowns are indicated with CZR Press.

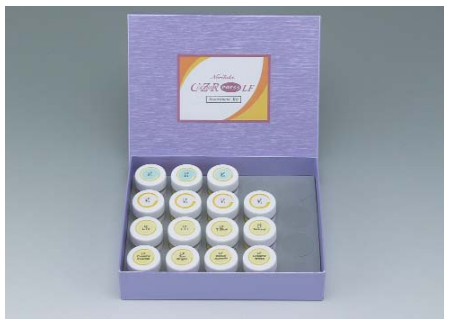

Figure 10—Noritake CZR Press LF.

bridges, and inlay bridges (Figures 7 through 9), and CZR Press for all-ceramic pressable crowns, veneers, inlays, and onlays. Thanks to the recent introduction of CZR Press 5-g ingots, larger 4-, 5-, 6-unit CZR Press-to-Zirconia bridges are now possible, and the only known limitation to the maximum size of a Press-to-Zirconia bridge is the maximum length of the yttria-zirconium block produced by each specific zirconium manufacturer.

One of the most exciting developments in the CZR Press-to-Zirconia system is the CZR Press LF, a low-fusing enamel assortment kit (Figure 10). This kit enables the technician to use CZR Press-to-Zirconia as a stand-alone, all-ceramic pressable material. Now, the technician can fabricate a pressable ceramic veneer, inlay, onlay, or full crown, cut back the pressed restoration to create dentinal projections or mamelons, incorporate the internal live stain technique, and then proceed with layering using the LF translucent and opalescent enamels. Having this additional restorative option makes the challenging combination case situation more predictable; moreover, it allows the ceramist to focus on his craft, rather than having to struggle to disguise the use of different restorative materials.

Conclusion

The ultimate benefit for the dentist is naturally harmonized, vital-looking restorations with extraordinary esthetic appeal. Happy patients provide more new-patient referrals, which translates to more win/win discretionary dentistry. ■

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Acknowledgment

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