VITAPAN EXCELL: For predictable, aesthetic and functional results

By VITA Zahnfabrik

For predictable and functional aesthetic results in restorations, in addition to dental technology experience, we need a denture tooth designed on the basis of the aesthetic and functional standards set by nature. VITAPAN EXCELL (VITA Zahnfabrik, Bad Säckingen, Germany) is an example of this kind of anterior tooth, which is characterized by vibrant shapes with “golden proportions.” Tooth axes, the length/width ratio and angle characteristics are consistently patterned after nature. In addition, its special layered structure enables a natural play of shade. In the following case report, Darius Northey, Dental Technician (Buderim, Australia) shows how he was able to successfully use the new denture tooth for an implant-supported restoration.

Fig. 1: Initial situation: The insufficient restorations showed a midline displacement and functional disharmonies

Fig. 2: Two implants were inserted in the incisal region to functionally stabilize the restoration in the mandibular

Fig. 3: A custom-made tray was used in the mandibular for a mucodynamic fixation impression

Fig. 4: A simple bar construction was poured and fixed with synthetic material to the abutments

Fig. 5: The centric and temporomandibular movements were recorded with the gothic arch

Fig. 6: First, the aesthetic zone of the maxillary duplicate was reduced, then replaced with VITAPAN EXCELL, and finally tried in

Fig. 7: The final wax setup in the articulator with molded gingival anatomy before the try-in

Fig. 8: After the try-in, a mucodynamic impression with setup was taken in the maxilla

Fig. 9: The final occlusion-adjusted, mucodynamic impression in the duplicated denture base

Fig. 10: Based on the bite registration of the setups, the maxilla could be accurately rearticulated

Fig. 11: VITAPAN EXCELL and LINGOFORM were conditioned with VITACOLL to ensure good adhesion to the base

Fig. 12: The vestibular plate was customized with several synthetic material layers in different gingival shades

Fig. 13: The bridge and attachments were integrated by polymerization of the synthetic material base

Fig. 14: The finished restorations after elaboration and polishing in static occlusion

Fig. 15: Result: The patient was very happy with the naturalness of the new restoration
All-ceramics for every need

By Denitply Siroma

Zirconia and Zirconia-Reinforced Lithium Silicate (ZLS) complement each other when it comes to all-ceramic oral rehabilitation with excellent performance. The aesthetic appearance is further perfected either by using the staining technique or applying a uniform type of veneer with a single ceramic material. This material, along with the potential benefits to the dental laboratory in terms of added business opportunities, makes the selection of the best material for a given case more difficult. This article aims to compare Zirconia and Zirconia-Reinforced Lithium Silicate (ZLS) and provide insights into their applications and advantages.

Example 1: Extra-translucent zirconia, monolithic

The goal was to reproduce an A2 shade on a monolithic crown made of extra-translucent zirconia. The crown body is first customized by use of extra-translucent zirconia, and the incisal area is created with the monoclay technique. The finish line is then refined with Crème (Fig. 4 and 5).

Example 2: Extra-translucent zirconia, pressable

The goal was to reproduce a shade on a monolithic crown made of extratranslucent zirconia. The crown body is first customized by use of pressable ZLS (Celtra® Press), three-unit anterior bridges whose distal abutment can be any tooth between the lateral incisor and the second premolar. The three clinical cases shown here present three examples of aesthetic restorative designs (Fig. 6).

Example 3: Hybrid zirconia, pressable

The goal was to reproduce a shade on a monolithic crown made of hybrid zirconia. The crown body is first customized by use of pressable ZLS (Celtra® Press), three-unit anterior bridges whose distal abutment can be any tooth between the lateral incisor and the second premolar. The three clinical cases shown here present three examples of aesthetic restorative designs (Fig. 7).

Example 4: Hybrid zirconia, Monolithic

The goal was to reproduce a shade on a monolithic crown made of hybrid zirconia. The crown body is first customized by use of pressable ZLS (Celtra® Press), three-unit anterior bridges whose distal abutment can be any tooth between the lateral incisor and the second premolar. The three clinical cases shown here present three examples of aesthetic restorative designs (Fig. 8).

Fig. 1: The labial and palatal aspects of the enamel are built up with Enamel.

Fig. 2: The labial and palatal aspects of the enamel are built up with Enamel.

Fig. 3: Checking the shade - A perfect A2 shade match.

Fig. 4: The enamel ridges of the occlusal surfaces are highlighted with New Stain.

Fig. 5: In the incisal region, the mamelon structures are refined with the Universal Stain Crème.

Fig. 6: The goal was to reproduce an A2 shade on a monolithic crown made of extra-translucent zirconia. The correct selection of the most suitable ingot is a good start. The framework material is available in all VITA® classical shades. To achieve pleasing basic aesthetics, a final individualisation is performed with three universal stains and glaze. The crown body is first customised with a bit of Crème (Fig. 3). The enamel ridges are highlighted with incisal Stain, while the incisal area with its mamelon structures is refined with a bit of Crème (Figs. 4 and 5). After the stain firing, a single glaze (Universal Stain & High Flu Glaze) is applied, covering the monolithic restoration (Fig. 6). The final shade check using shade tabs confirms the quick and easy shade reproduction and great aesthetics (Fig. 7).

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Graduated as a Dental Technician after working in the family business for many years. 1997 Established his own dental laboratory in Sydney, Australia. 2006-2006 Completed the Advanced Diploma of Dental Prosthetics.
Lab Tribune

Example 2: Extra-translucent zirconia, cut-back technique

Pressable ZLS can be individualised in a very similar manner. The light-optical properties of the framework material (Celtra® Press) already ensure a high level of aesthetics — close to that of veneering ceramics.

To reproduce an A2 shade on a crown framework made of extra-translucent zirconia, the most closely matching ingot is again chosen (as in the first example; Figs. 8 and 9). Mamelon structures are included at the time of designing the framework. The labial and palatal aspects of the enamel layer are built up with Celtra® Ceram Enamel (Fig. 10) while at the same time giving the restoration its final shape in a finishing step that includes creating desired surface texture after ceramic firing (Fig. 11).

The restoration is finalised with stain and glaze in a single step. A fine line of Enamel is painted onto the incisal edges (Fig. 12). The final step is the application of Universal Stain in the incisal region (Fig. 13).

The desired shade has been achieved, and the restoration looks “live” with just one enamel material and some stain (Fig. 14). A ZLS framework (Celtra® Press) can be customised in a similar way. Achieving the desired result requires only a single incisal space to be closed, along with the areas between the mamelons and on the incisal ridges strips are emphasised with Enamel Opal Transparent in the process (Fig. 17). The incisal edge and the areas between the mamelons and on the incisal ridges strips are emphasised with Enamel Opal Transparent (Figs. 18 and 19). Enamel E1 completes the build-up (Fig. 20).

After the ceramic firing, the restoration is finished and prepared for the second layer. The interdental spaces are closed both labially and palatally with Dentin D3a (Fig. 21). A mixture of Effect Enamel Sunset E1g and Enamel Opal Transparent E04 is used on the cervical aspect (Fig. 22). The mesial and distal ridges are supported with Celtra® Ceram Enamel Effect E1g. A thin layer of the neutral Enamel Opal Extra Light E03 is added in the central labial area (Fig. 23). The incisal edges are finalised with Enamel Effect Ivory E66. The ceramic firing, the shape is finalised and the desired surface texture is created. This is followed by applying the glaze (High Flu), with some Universal Stain Crème applied in the incisal area for the most delicate individual features (Figs. 24 and 25).

The target shade has been matched exactly, with the opalescence of the incisal edge supporting the natural appearance of the restoration. In addition, an excellent depth effect is achieved between the mamelons and on the incisal ridges, thanks to the Universal Stain Cremona used (Fig. 26).

High-translucency zirconia frameworks can be veneered in a similar manner, yielding highly aesthetic restorations with a perfectly match-
due to its higher strength, this framework material is also suitable for posterior bridges.

Outcomes for the dental laboratory ZLS frameworks and also zirconia frameworks (with different translucencies) can be aesthetically refined in several ways. One method includes finalisation by staining — achieving pleasing basic aesthetics safely and easily with a monolithic restoration.

At a higher level of aesthetic sophistication, the framework can be veneered with ceramics. The innovative Celtra® Ceram material presented here provides an aesthetic link between ZLS and zirconia. This veneering ceramic allows the dental technician to individualise frameworks made of both materials using the same standardised technique. This is possible using the cut-back technique or by full veneering for premium aesthetics without limitations. This variability gives dental technicians a comprehensive all-ceramic treatment and performance concept.

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