



HYBRID CERAMIC BUILD-UP ON ZIRCONIA

A COMPLEX APPROACH

By DT Dumitru Leahu

INTRODUCTION

Complex anterior rehabilitations require careful control of shape, colour and optical properties. In this implant-supported restoration, a KATANA™ Zirconia YML framework was combined with CERABIEN™ ZR and CERABIEN™ MiLai (all Kuraray Noritake Dental Inc.) to achieve the desired aesthetic outcome.





FRAMEWORK DESIGN

A 1mm vestibular cut-back and a free zirconia incisal third were incorporated into the framework design to provide sufficient space for the ceramic layers. KATANA™ Zirconia YML was used for the implant-supported restoration (Fig. 1). The sintering temperature was 1,550 °C.

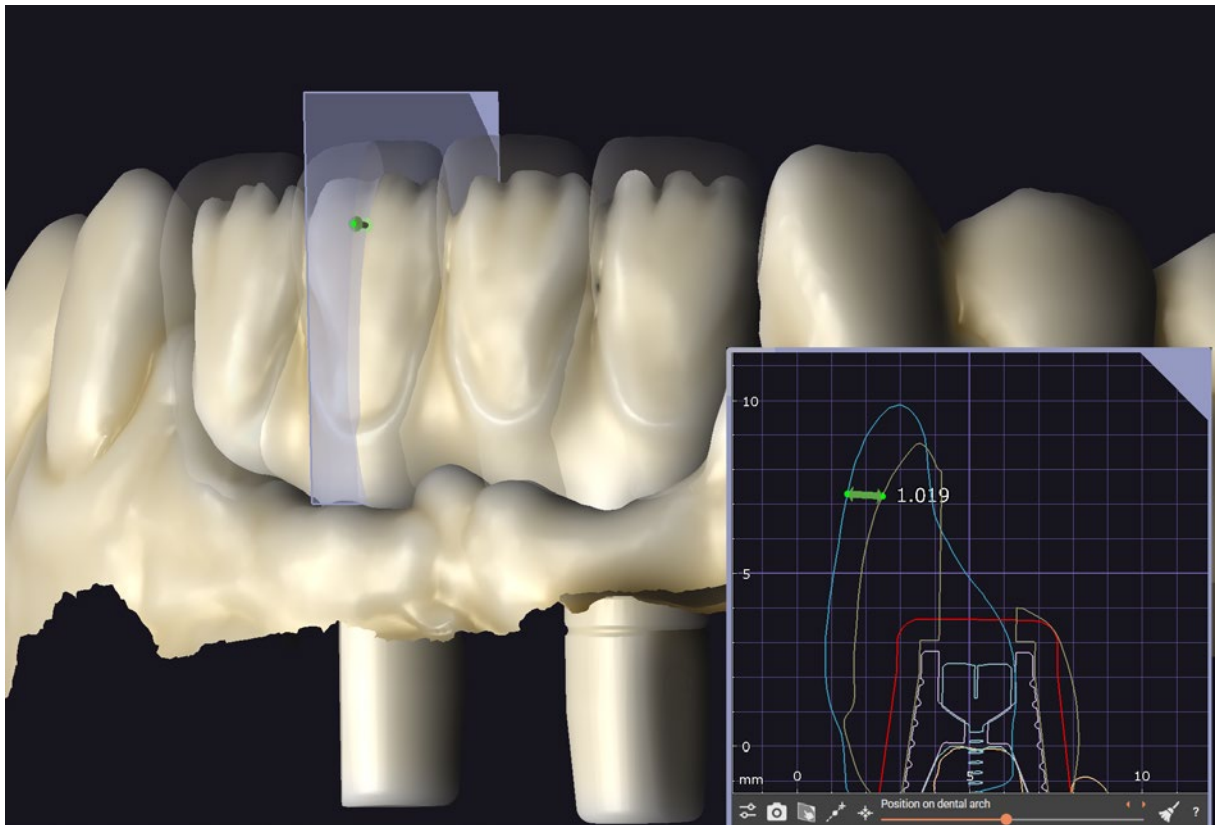


Fig. 1: Framework design with a 1mm vestibular cut-back and a free zirconia incisal third.

MATERIAL:

KATANA™ Zirconia YML

CERABIEN™ ZR BASE BUILD-UP

The first ceramic firing with high-fusing CERABIEN™ ZR porcelain was used to create well-defined and stable concavities with sufficient value and brightness (Fig. 2). The materials used were 0.5 NW Body, Enamel 1, LTx, Tissue 3 and Tissue 4. The firing temperature was 940 °C.

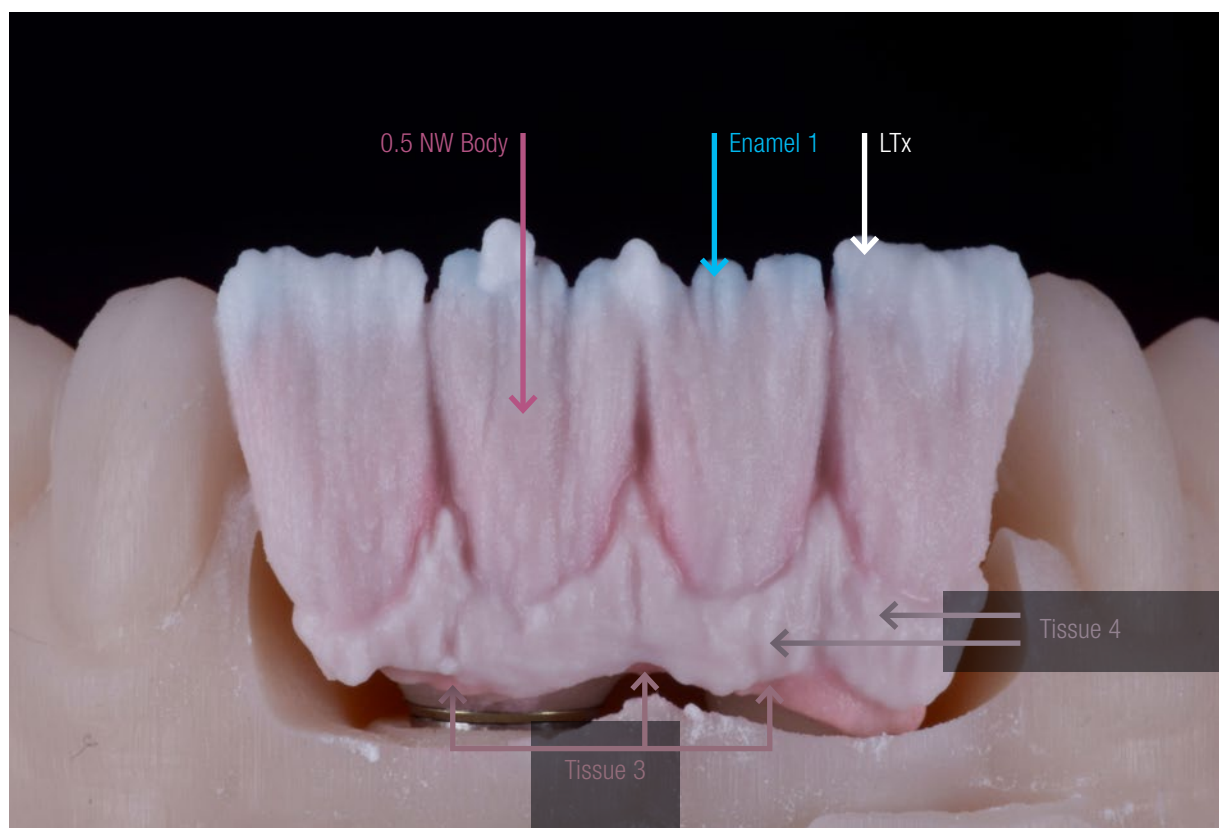


Fig. 2: Base build-up with CERABIEN™ ZR using 0.5 NW Body, Enamel 1, LTx, Tissue 3 and Tissue 4.

MATERIAL:
CERABIEN™ ZR

INTERNAL CHARACTERISATION

Internal characterisation was performed with CERABIEN™ MiLai internal stains (Fig. 3). Cervical 2 + Bright (mixed in a ratio of 40/60), White + (A+) + Bright (50/10/40), and Tissue Red + Bright (60/40) were applied as indicated. The firing temperature was 700 °C. The internal stains were used to reproduce the internal anatomy and characterisation of the restoration and to support the colour match with the natural teeth (Figs. 4 to 6).

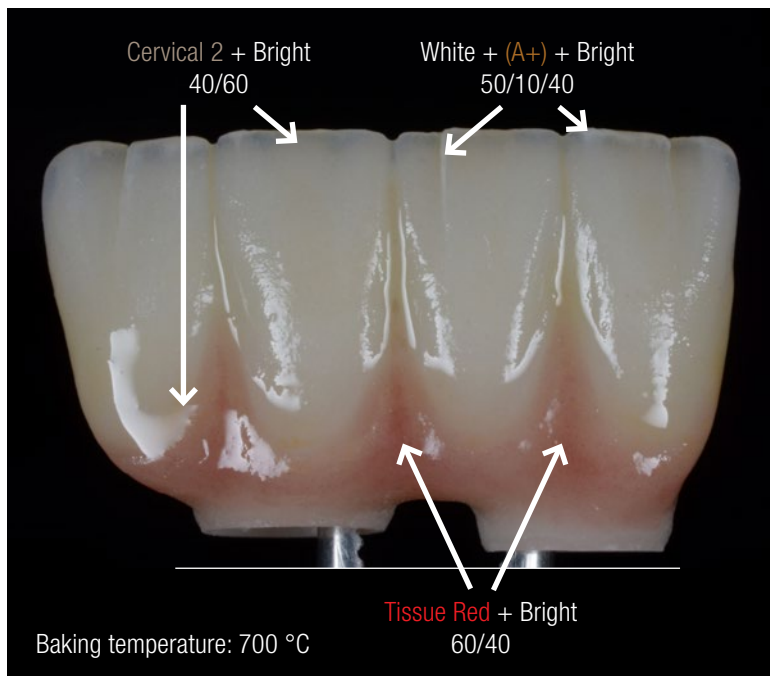


Fig. 3: Internal characterisation with CERABIEN™ MiLai internal stains.



Fig. 4: Detail of the incisal characterisation.



Fig. 5: Detail of the cervical characterisation.



Fig. 6: Intraoral reference for matching the restoration to the natural teeth.

FINAL BUILD-UP WITH CERABIEN™ MiLai

The bridge was finished with low-temperature CERABIEN™ MiLai porcelain. LT₁, LT_x and ELT₁ were used for the final build-up (Fig. 7). The firing temperature was 780 °C. Tissue 1 was subsequently applied to create the final gingival shape (Fig. 8). This time, the firing temperature was 740 °C. Figures 9, 10 and 11 show the finished restoration extraorally, at intraoral try-in and after definitive placement on the implants.

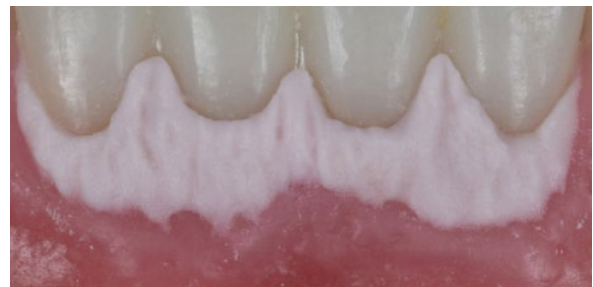
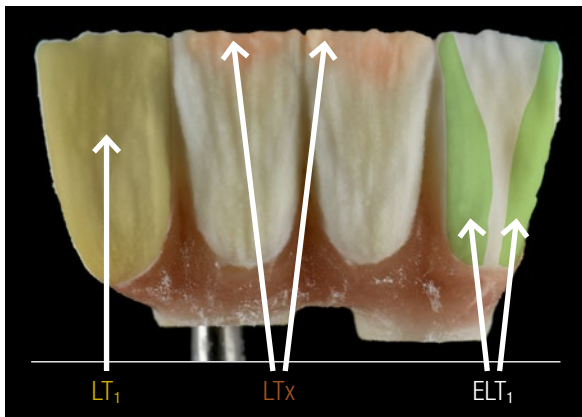


Fig. 8: Gingival build-up with Tissue 1.

Fig. 7: Final ceramic build-up with LT₁, LT_x and ELT₁.



Fig. 9: Finished implant-supported bridge.



Fig. 10: Final restoration at try-in.



Fig. 11: Final intraoral result.

CONCLUSION

The presented hybrid approach combines the advantages of high- and low-fusing porcelains for the aesthetic individualisation of anterior zirconia restorations. The high-fusing CERABIEN™ ZR porcelain can be used to establish the basic morphology and optical foundation before proceeding with lower-temperature characterisation and final layering. As the previously fired CERABIEN™ ZR layers remain stable during the subsequent CERABIEN™ MiLai firings, the restoration can be further individualised while maintaining the structures already established.



About the author

Dumitru Leahu is the founder of the project TRUEDENTALSTORIES, an active dental technician based in Paris, France, and a recognized Key Opinion Leader for Kuraray Noritake and MPF Brush Company.

Dumitru specializes in high-end ceramic work, particularly veneers on refractory dies, and extensively utilizes Kuraray Noritake materials while adhering to a biomimetic philosophy. In addition to his clinical and technical expertise, he is an active educator and published author, contributing articles to Quintessence France, Labline, and DTG Magazine on aesthetic ceramic restorations.

Originally from the Republic of Moldova and now residing in France, Dumitru brings an international perspective to his work and lectures fluently in English, French, Russian, and Romanian.





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