VITA

VITABLOCS® TriLuxe forte

The perfect smile made of polychrome, bleach-colored VITABLOCS

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Men and women with bright smiles are commonplace in the media today. Bleach-colored restorations of the esthetic zone are very much in vogue, a trend that is becoming increasingly apparent in practices and laboratories. In the past, manually creating this cosmetic restoration treatment layer by layer on refractory stumps or platinum foils was time consuming and cost intensive. Today, workflows with innovative technologies and toothlike blanks are becoming increasingly widespread, allowing these kinds of restorations to be carried out more quickly and cost effectively. Dentist and Assistant Professor Dr Julian Conejo (University of Pennsylvania, School of Dental Medicine, Philadelphia, USA) demonstrates together with the Dental Technician Sergio Losas (Santo Tomé, Corrientes, Argentina) how one such case was success-fully implemented in the digital workflow using polychrome and bleach-colored VITABLOCS TriLuxe forte (VITA Zahnfabrik, Bad Säckingen, Germany).

Initial situation vs. final result

Initial situation with the severely abraded teeth 11 and 21.

Lateral view of the bright, film-worthy smile.

Initial situation and planning

A 35-year-old patient was one of those people who wanted a bright, film-worthy smile. It became clear during the initial examination why he was not satisfied with his current situation. The central incisors of the esthetic zone tended to be in end-to-end occlusion, which is why significant abrasion and chipping were also visible. This had repeatedly been treated unsuccessfully with direct composite fillings.

Lateral incisor 12 was also clearly abraded. The opposing tooth 22 was outside the dynamic occlusion, due to a vestibular tilt and was not affected. The buccal corridor proved to be too large due to the narrow course of the dental arch. Veneers were planned from 14 to 24 to level the dental arch, harmonize the incisal edges, and establish a physiological bite situation at the same time.

Fig. 1: Initial situation with the severely abraded teeth 11 and 21.

Fig. 2: Several attempts had already been made to build up the two central incisors with composite.

Fig. 3: Teeth 11 and 21 tended to be in end-to-end occlusion.

Fig. 4: The dynamic occlusion in protrusion in the lateral view.

Natural product: Feldspar ceramics

VITABLOCS TriLuxe forte feldspar ceramic was chosen as the material for the eight planned veneers. The feldspar ceramic blocks are the world's first blanks for subtractive fabrication in the digital workflow, which have been used to successfully fabricate millions of restorations over the past 35 years. Feldspar is a natural product that exhibits the same optical properties as dental tooth structure.[1] It can be fabricated precisely[2] and with dimensional accuracy[3] and is also proven to bond adhesively to non-retentive preparations.[4] In clinical studies, veneers made of VITABLOCS have repeatedly demonstrated a high success rate.[5 6] During the nesting process in the polychrome block, a natural shade gradient can be adjusted to suit the patient.[7]

Digital Workflow

A virtual mock-up was created based on an intraoral scan (Primescan, Dentsply Sirona, Bensheim, Germany) and transferred to the patient's mouth using an additively manufactured model. A guided mock-up preparation was then carried out in order to limit the removed tooth structure to only the required amount. The treatment session was concluded with a new intraoral scan and the temporary restoration. The eight restorations were designed in the exocad software and stored virtually in the blocks. Six blanks were then produced simultaneously in the block holder with CAD/CAM support in the CORiTEC 150i PRO milling unit (imes icore, Eiterfeld, Germany). After preparation and finishing, the restorations were successively integrated with full adhesion.

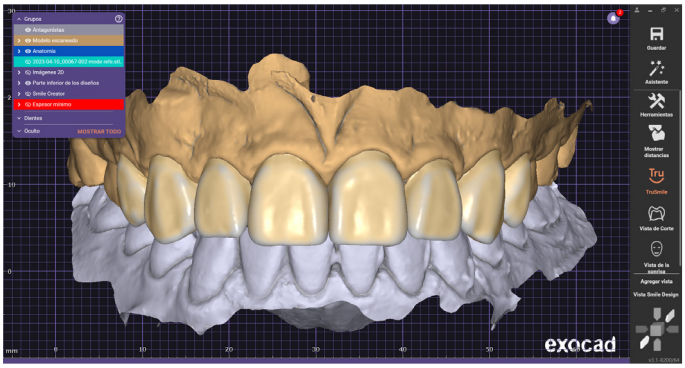

Fig. 5: The virtual mock-up was designed in the exocad software.

Fig. 6: Lateral view of the additive mock-up model.

[1] Masek R. Reproducing natural color effects on milled ceramic restorations. Int J Comput Dent 1999 Jul; 2(3): 209-17.

[2] Demir N, Ozturk AN, Malkoc MA. Evaluation of the marginal fit of full ceramic crowns by the microcomputed tomography (micro-CT) technique. Eur J Dent 2014 Oct; 8(4): 437-444.

[3] Al Hamad KQ, Al-Rashdan RB, Al-Rashdan BA, Baba NZ. Effect of Milling Protocols on Trueness and Precision of Ceramic Crowns. J Prosthodont 2021 Feb; 30(2): 171-176.

[4] Straface A, Rupp L, Gintaute A, Fischer J, Zitzmann NU, Rohr N. HF etching of CAD/CAM materials: influence of HF concentration and etching time on shear bond strength. Head Face Med 2019 Aug 8;15(1): 21.

[5] Wiedhahn K, CEREC Veneers: Esthetics and Longevity. In Mörmann WH (ed.) State of the Art of CAD/CAM Restorations, 20 Years of CEREC, Berlin: Quintessence, 2006: 101–112.

[6] Morimoto S, Albanesi RB, Sesma N, Agra CM, Braga MM. Main Clinical Outcomes of Feldspathic Porcelain and Glass-Ceramic Laminate Veneers: A Systematic Review and Meta-Analysis of Survival and Complication Rates. Int J Prosthodont 2016 Jan-Feb; 29(1): 38-49.

[7] Kurbad A. Three-dimensionally layered ceramic blocks. Int J Comput Dent. 2010;13(4):351-65. English, German. Erratum in: Int J Comput Dent 2011;14(1): 54.

Fig. 7: A silicone key was fabricated on the mock-up to transfer the target situation intraorally using composite.

Fig. 8: Situation after guided preparation, intraoral scan and additive fabrication of a control model.

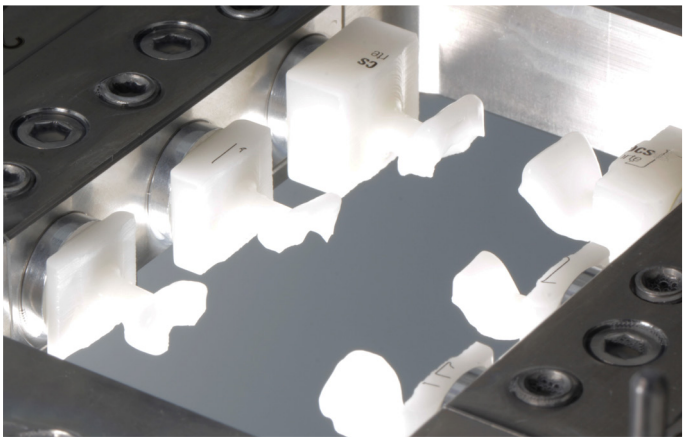

Fig. 9: Six ground VITABLOCS TriLuxe forte blanks in a block holder.

Fig. 10: The eight finished and polished feldspar ceramic veneers on the control model.

Fig. 11: After phosphoric acid etching, the prepared teeth 11 and 21 were rinsed with water.

Fig. 12: The etched preparations before application of the adhesive.

Integration and conclusion

The patient got the film-worthy smile he had always hoped for. The slight shade discrepancy with the lower teeth – which could still be adjusted with bleaching – did not bother him at that point. The digital workflow resulted in an esthetic and functional restoration with feldspar ceramic veneers in a very short time. VITABLOCS TriLuxe forte proved to be a genuine economical alternative to layering on refractory casts or platinum foils, which means that these kinds of cosmetic procedures can now be offered to an even wider range of patients.

Fig. 13: The highly esthetic restoration results from VITABLOCS TriLuxe forte.

Fig. 14: Lateral view of the bright, film-worthy smile.

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https://hs.vita-zahnfabrik.com/en/vitablocs

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