

VIDENT™

VITA®

Dental Technology Update



Fall 2007 • Volume 2



**Monitor Tooth Whitening with the
VITA Bleachedguide 3D-Master®**

Expand your CAD/CAM with VITABLOCS® TriLuxe forte

A NEW Press-to-Zirconia All-Ceramic System

Combination Prosthesis using a New Indirect Resin

Lingualized Occlusion with VITA Lingoform®

VIDENT™

3150 E. Birch Street
Brea, CA 92821



NEW PRODUCT

VITA Bleachedguide 3D-Master®

Setting A New Gold Standard For Clinical Tooth Whitening Evaluation

The NEW VITA Bleachedguide 3D-Master® is an extension of the VITA 3D-Master® shade system, designed primarily for the initial shade examination and ongoing monitoring of the patient's tooth whitening regimen.

The Bleachedguide was developed jointly with VITA Zahnfabrik and Rade D. Paravina, DDS, MS, PhD, of the University of Texas Dental Branch at Houston.

"Inclusion of realistic bleaching shades complement contemporary aesthetic dentistry," Said Paravina.

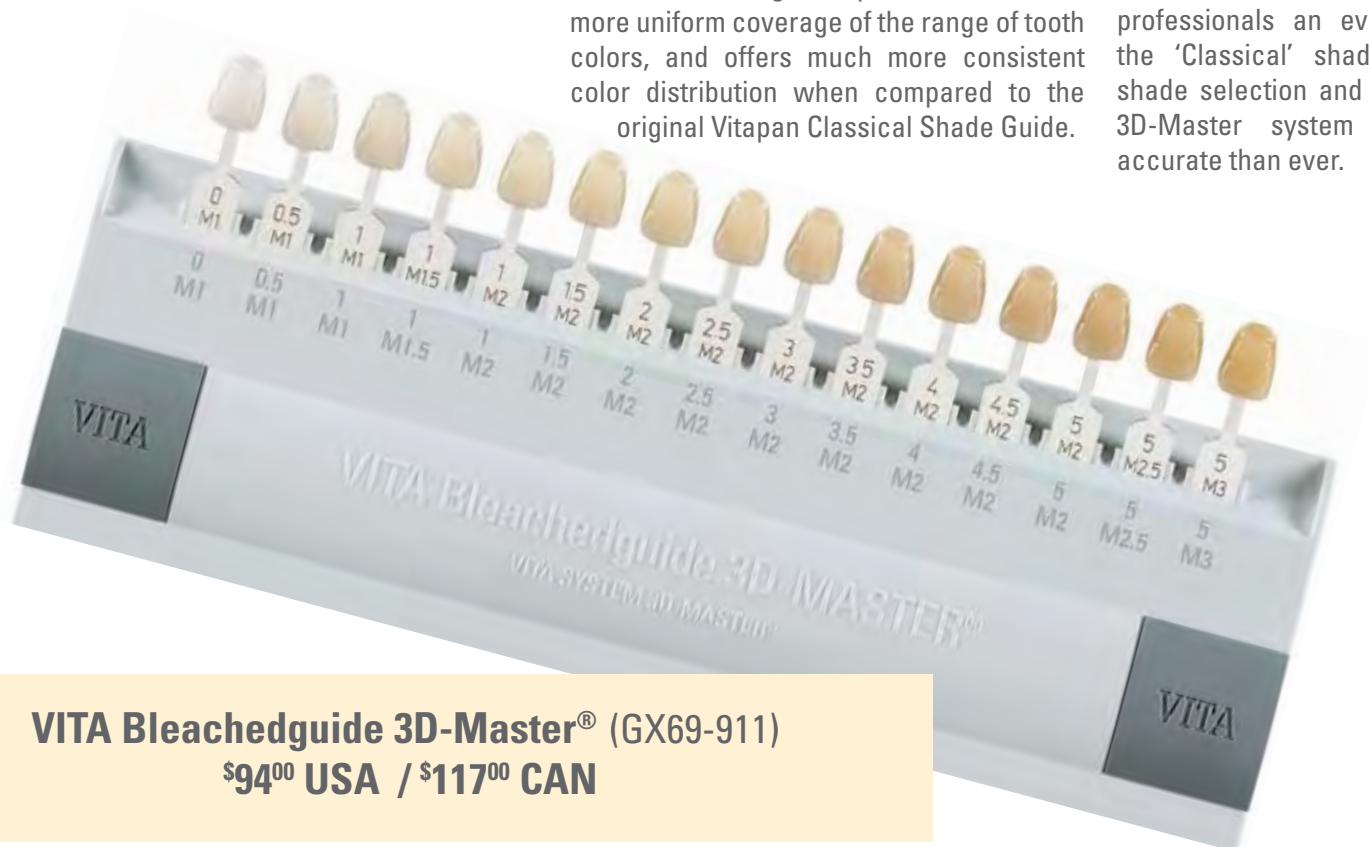
The new guide, like the original VITA 3D-Master tooth guide, provides a broader, more uniform coverage of the range of tooth colors, and offers much more consistent color distribution when compared to the original Vitapan Classical Shade Guide.

Now dentists can benefit from this precise tool to market their bleaching capabilities, as well as benefit from the exacting nature of shade reproduction offered with the 3D-Master system. The Vita Bleachedguide 3D-Master offers a definitive, linear cross-section of the VITA 3D-Master shade system, making it a perfect addition to any dentist who provides tooth whitening.

What Sets The New VITA Bleachedguide 3D-Master Apart From The VITA Classical?

The Bleachedguide features fifteen shades, one less shade than the sixteen shades of the VITA Classical system, but offers double the coverage of the full spectrum of tooth shades.

The VITA Bleachedguide offers dental professionals an everyday alternative to the 'Classical' shade guide and makes shade selection and monitoring within the 3D-Master system more precise and accurate than ever.



VITA Bleachedguide 3D-Master® (GX69-911)
\$94⁰⁰ USA / \$117⁰⁰ CAN

Developing A New Market Segment with VITABLOCS® TriLuxe forte



By introducing VITABLOCS TriLuxe forte, developed especially for the use in SIRONA milling systems, we have fulfilled the continuing wish for esthetic dental restorations at an affordable price. TriLuxe forte enables us to offer our customers and patients esthetic restorations with the most favorable price in this quality segment; the price of restorations made from these blocks is below the price of restorations made from zirconium oxide. Additionally, when compared to core materials, these blocks allow the fabrication of anterior restorations with significantly higher esthetics.

Tooth 11 example by MDT Lamprecht

A female patient complained about esthetic deficiencies in the upper anterior area. We agreed on the following procedure: crown made from VITABLOCS TriLuxe forte with a slight correction of the position of the crown to achieve a more harmonious shape of the arch. The mesial filling of tooth 21 will be replaced. The tooth will be slightly reduced to enlarge the gap for tooth 11. In this way, the position of tooth 11 can be corrected according to the patient's wish without making any compromises as far as the width of the tooth is concerned.

After preparation, impression, completion of the sawcut model and exposure of the preparation border, the scan model is prepared. The scanning process starts with the scan of the antagonist surface; then the optical scan of the scan model is carried out. Afterwards the direction of insertion is determined and the preparation border is marked. The software creates a crown design using a tooth database, which can be edited virtually.



Then the layer thicknesses are checked and the structure (design) is placed into the TriLuxe forte block. The milling process takes approximately 10 minutes. The ground crown is placed onto the sawcut model. During the try-in, which was performed in the dental practice, all characteristics, such as effects and translucencies to be integrated in the restoration are determined for subsequent individualization of the crown. Now the way the light "runs" through the crown made from VITABLOCS TriLuxe forte can be clearly recognized. The shade of the crown can already be seen on the model but the brilliance of this material becomes fully apparent only after the crown is placed on the stump. The "chameleon effect" results in perfect integration of the crown into the residual teeth, and the unobstructed flow of light allows a detailed analysis of effects and translucencies. These areas are marked, reduced in the laboratory and then completed and fired using VITAVM 9 veneering material (VITAVM 9 Esthetic Kit). After the application of VITA Akzent finishing agent, mixed with VITA Shading Paste, and the subsequent glaze firing process, the manufacturing process is completed.

As with every feldspar ceramic, adhesive cementation is mandatory to achieve the

necessary stability. Any other method of cementation would affect the translucency and thus destroy the esthetic result. This way, however, light can easily penetrate through the crown into the stump and the shade effect is identical with that of a natural tooth.



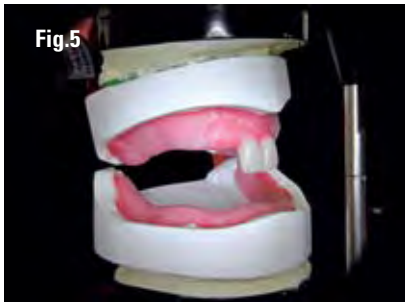
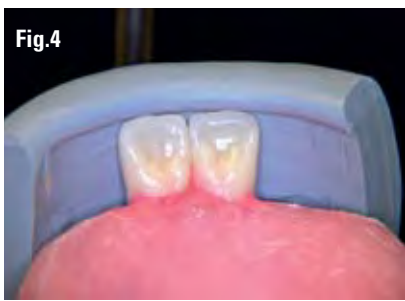
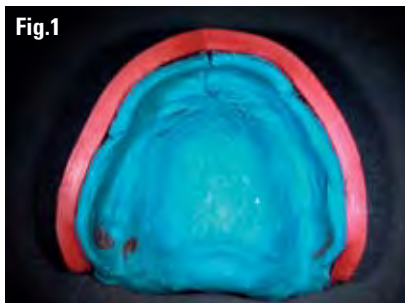
(Abridged version of the original publication: A. Lamprecht, T. Digital Dental. News. May 2007, 48-55)

Thoralf Lamprecht,
Master Dental
Technician





Lingualized Occlusion With VITA Lingoform[®] A simple solution for many problems



Lingualized occlusion has proven its reliability for all bite (occlusion) classes, and has become a permanent element in the training program at schools and universities. This concept is well suited for conventional and implant-supported overdentures. The horizontal shear force is reduced in implant supported dentures and the denture site and the implants can be protected. The stable position ensures high patient satisfaction for gingiva-supported dentures. In the following, the fabrication of a full denture with the new VITA Lingoform line of posterior teeth is described. These teeth were presented for the first time during the IDS 2007 in Cologne, Germany.

If the dentist took a function-specific impression of the key areas. The functional margin should always be fixed with wax (See fig. 1).

The individual impression trays/waxbites must remain on the models until they have been properly fixed (correct relation to each other) (See fig. 2).

After mounting on the articulator, the impression is removed and the models are trimmed in accordance with the functional margin. It must be ensured that the margins will not be too thin or they may be damaged (See fig. 3).

The silicone key at the wax bite rim in the upper jaw provides lip support to the patient (See fig. 4).

Based on this key, the upper anteriors can now be set up in a targeted manner. Photos may be taken to fulfill any wishes for individual set-ups (See fig. 5).

Various procedures are used for the analysis of models. However, since these provide only basic information, the virtual stability can only be checked in the mouth of the patient. Marking the contours of the alveolar ridge is one of the most essential elements of analysis for "ridge-specific" setting up. Teeth are set up towards the mesial direction starting with the first lower molar, which is normally at the lowest point (See fig. 6).

In the lower jaw the Pound's line marks the maximal "advance" into the lingual space. Ideally, the central fossa is located on the basic static line.

Continued on next page





“Crossbite situations can be avoided to a large degree.”

Due to the missing buccal contacts, the use of the lingualized concept allows to set up teeth towards the buccal direction without jeopardizing the stability of the denture (See fig. 7).

Consequently, crossbite situations can be avoided to a large degree. If a crossbite set-up cannot be avoided, the fossa can be shifted (ground) somewhat to the lingual direction and any resulting buccal contacts can be eliminated. In rare cases, teeth can still be set up to achieve a plain crossbite.

In the set-up of the posterior teeth that is based on the ridge, the design of the curve of Spee is more or less distinctive depending on the contours of the alveolar ridge. **No curve of Wilson is integrated.** From the labial view, the posterior teeth are aligned horizontally, except for the first lower premolar (See fig. 8).

After setting up the lower teeth, the first upper molar should be brought into the correct position. When the palatal cusps grip into the fossa of the first lower molar, a small cavity is formed between the buccal cusps. Removal of the first canine may prove to be helpful to achieve perfect set-up of the upper posteriors (See fig. 9).

Occlusal adjustments are not required when the teeth are set up in wax. The concept provides simplicity and the precision of VITA Lingoform teeth allow optimal intercuspation of antagonist pairs (See fig. 10).

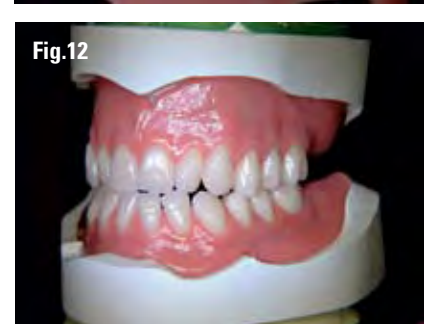
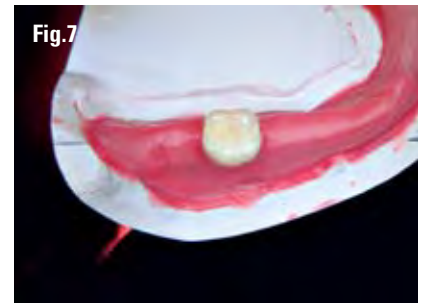
VITA Lingoform posterior teeth can be combined with VITA Vitapan or Physiodens anterior teeth, as required. In this case, Physiodens teeth were used (See fig. 11).

The perfect precondition for easy acceptance of the restoration by the patient is to make as few changes to the original situation as possible. The solution for this case is an edge-to-edge bite (See fig. 12).

It is a fairly common mistake to offer “normal bite” restorations to patients with this predisposition.

VITA LINGOFORM posteriors are available in three moulds and nine shades. Additional information, including a mould guide, can be obtained by contacting Vident.

- Eduard Kock-Kramer,
Master Dental Technician



New Product: VITAPM[®]9

Press-to-Zirconia All-Ceramic System



VITAPM[®]9 is VITA's latest restorative material in the VM line of small particle, 3D-Master shaded, excellent wear rate porcelain systems. The difference between PM[®]9 and the other VM porcelains is that PM[®]9 is a press-to-Zirconia porcelain. This makes PM[®]9 an extremely versatile all-ceramic system that enables technicians to consistently produce beautiful, high-strength restorations of all types.

Pressable VITAPM[®]9 is based on the proven fine-structure ceramic VITAVM[®]9 and is used for pressing to yttrium-stabilized ZrO₂ frameworks in the CTE range of 10.4 - 10.6 • 10⁻⁶ • K⁻¹ such as VITA In-Ceram YZ and other zirconium oxide substructure materials for natural looking high-strength anterior and posterior crowns and bridges.

VITAPM[®]9 may also be unsupported (no zirconium substructure) for the fabrication of single or multi-surface inlays, onlays, partial crowns, veneers and anterior crowns using the staining/glazing or layering technique. Restorations made from VITAPM[®]9 can be easily characterized using the layering technique with the entire range of VITA VM[®]9 ceramic materials or individualized (staining technique) with VITA Akzent or VITA SHADING PASTE stains. The pressed objects exhibit natural fluorescence to fulfill your patients' wishes for individual aesthetic

restorations with a favorably priced range of pressing pellets in ten different shades. Each of the shaded pellets in the system is available in two levels of translucency and can be stained/glazed, or modified using the powders in the VITAVM[®]9 porcelain system.

The fine-structure composition of the VITAPM[®]9 system provides:

- Material homogeneity
- Excellent grinding and polishing characteristics
- Excellent wear rates
- Superior esthetic results
- Highly stable layering technique
- High-quality press ceramic investment material for precise press results

VITAPM[®]9's general indications include:

- Pressing to VITA In-Ceram YZ for inLab (or other) yttrium-stabilized ZrO₂ anterior and posterior crown and bridge frameworks in the CTE range of 10.4-10.6-10⁻⁶ x K⁻¹
- Pressing of (stand alone): Single- and multi-surface inlays, onlays, veneers, and anterior full crowns
- Layering technique (with the VITAVM[®]9 veneering material)

- Staining technique (with the stains of the VITA Akzent and VITA SHADING PASTE assortments).

Advantages: All-in-one press ceramic for three applications:

1. Pressing to zirconium oxide
2. Staining/glazing technique
3. Layering technique or a combination of both.

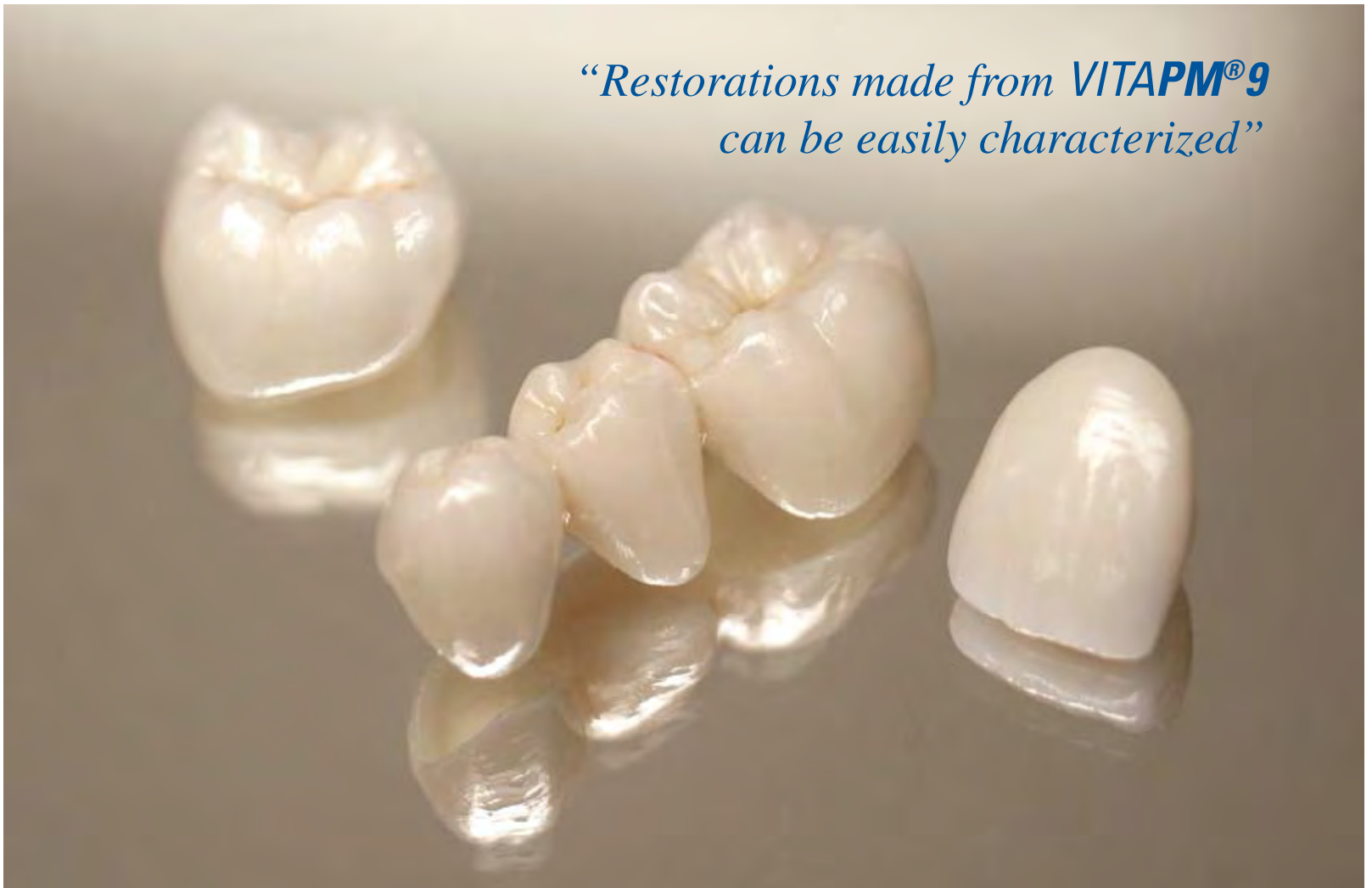
- Identical press procedure for all 3 applications
- Shades matched with the most accurate tooth shade system on the market - VITA SYSTEM 3D-MASTER
- Can be characterized with the fine-structured ceramic VITAVM[®]9
- Excellent bonding to colored yttrium-stabilized ZrO₂ frameworks
- No liner required for bond

The Veneering Porcelain

One of the great advantages of the VITAPM[®]9 System is that the veneering (add-on) porcelain is VITA VM9. This extremely popular porcelain offers the lab technician, the dentist and the patient desirable features including outstanding physical properties, handling characteristics and clinical wear characteristics that mimic those of enamel.

Continue on next page

*“Restorations made from VITAPM®9
can be easily characterized”*



Restorations created by Nelson Rego, CDT

The technician will love its multiple firing stability, its accurate 3D-Master shade match, its reduced firing shrinkage and its life-like translucency.

VITAPM®9 2g pellets are available in 10 VITA 3D-Master®shades, each with two different levels of translucency.

The shade of the lower translucency pellet (Opaque variation) of VITA PM 9 has been matched with VITA In-Ceram YZ with Coloring Liquid. The opaque variation “O” is primarily suitable for the press-to technique and the translucent variation “T” is suitable for the staining and layering technique to fabricate inlays, onlays, veneers and anterior crowns.

The pellets may be stained/glazed immediately after pressing, or they may be cut back to allow room for any of VITA VM9’s enamels and effect powders.

VITAPM®9’s complete assortment kit for the press-on technique and the staining and layering technique includes:

- 20 packs (5 pcs. each) of VITAPM®9 press pellets, 2g each, in 10 shades and 2 translucency levels (opaque (O) and translucent (T) in the following VITA SYSTEM 3D-MASTER shades for VITAPM®9
- 1 pack of 50 disposable press plungers
- 1 investment system, 3 pieces (200g)
- 1 syringe cont. 12 ml of VITA Firing Paste

Be among the first laboratories to take advantage of VITAPM®9’s amazing esthetics and extreme versatility.

If you would like to try it or have any questions, please call (800) 828-3839 and talk to your Vident Customer Service Representative.

Shades Include:

0M1P-O 0M2P-O 1M1P-O 1M2P-O 2M1P-O 2M2P-O 2M3P-O 3M1P-O 3M2P-O 3M3P-O



0M1P-T 0M2P-T 1M1P-T 1M2P-T 2M1P-T 2M2P-T 2M3P-T 3M1P-T 3M2P-T 3M3P-T



Combination Prosthesis With New Veneering Composite

By Richard Zimmermann, Master Dental Technician

Special Reprint from the publication "dental-labor", Issue 3/2004



Remaining natural dentition urgently requiring treatment



Fixation impression



Manufacture of the resin dies



Master model



Transfer of the primary parts to the milling platform

NEW VENEERING MATERIAL FOR THE TRIED AND TESTED TELESCOPIC TECHNIQUE

Introduction

High-quality combined prosthetics are part of everyday laboratory routine. At the same time, however, we see ourselves as a quality-conscious, all round laboratory producing all types of dental restorations. All six dental technicians on our staff have a definite preference for materials that are as versatile as possible in use, comfortable to work with, and with which reliably good results can be obtained. We also place particular value on system-oriented materials. This applies both to the shade system and the material mix used by the system. The latter has particular influence on the quality of a combined prosthesis.

Diagnosis And Treatment Planning

The patient's remaining natural dentition was greatly in need of treatment (fig. 1). Before commencing the actual restorative work it was necessary to carry out extensive periodontal treatment; compromised teeth were extracted. On account of the patient's age and the possibility of extension of the restorations, it was decided in favor of a telescopic combination prosthesis. Due to the patient's extremely high dental arch, a solution without a transverse bar was selected in this case. For various reasons, a sufficient shoulder preparation was not possible in the case of a few abutments. This is why the classical telescopic technique was used instead of the electroforming technique which is our customary procedure.

Primary Parts

After the initial impression taking and the manufacture of a saw model, the primary parts were milled in wax and then cast in metal according to the usual procedure. In our laboratory we generally produce classical telescopic crowns with a taper of 0° in order to obtain the best results in terms of shape, function and aesthetics.

After the try-in of the primary parts, the dentist took the fixation impression. The photograph of the fixation impression very clearly shows the exact marginal fit of the cast components (fig. 2).

COMBINATION PROSTHESIS WITH NEW VENEERING COMPOSITE

Manufacturing the master model

For the master model resin dies are manufactured for the primary parts. This is carried out with the aid of retention screws and the Pattern Resin material (fig. 3). Fig. 4 shows the master model with the Splitcast base plate.



Transfer of the primary parts to the milling platform

Master Dental Technician Richard Zimmermann

The author Richard Zimmermann, who has been working for eight years now with the Vita System 3D-Master and had previously used Vita Zeta LC Composite, immediately tested the new Vita Material under the conditions of normal everyday routine in his laboratory. His specialized documentation of the present case gives the reader an insight into how this material was successfully used in the telescopic technique.



Registration

The registration is now continued with the aid of a bite registration block in the mouth of the patient. The maxillary model is mounted in the articulator with reference to the cranium by means of a face-bow. The mandibular model is subsequently cast according to the bite registration.

Milling

Before milling the primary telescope in metal, the entire direction of insertion is checked once again: checking the light gap at the primary telescopes on the master model shows whether an alteration of the abutments has occurred in situ since the time of the fixation impression. Should this be the case, the causes must be investigated.

The individual copings are subsequently fixed by means of a transfer system to separate milling dies (figs. 5 and 6).

In this way, the primary parts can each be milled separately and cleanly without contaminating or damaging the master model (fig. 7). They are not replaced onto the intact master model until after the finishing has been completed.

Secondary construction

The primary parts are then coated with Pattern Resin and reduced to a material thickness of approx. 0.3 mm. The resin dies should be left subsequently to settle for at least 4 hours in order to obtain an optimum fit (fig. 8). In figs. 9 and 10 it can be seen that

the entire construction is now waxed up on the resin dies for the optimum design of the restoration. An impression of the wax-up is taken labially and palatally with silicone keys. The wax model is then reduced labially to the dimensions required for a resin veneer – taking into account the appropriate substructure design criteria. A wax cutter by Komet, with a shape somewhat resembling a ship's propeller, has proven very helpful for this working step.

Due to lack of space, it was decided against a full veneer in this case. In other cases we have obtained good results with the new VITAVM[®]LC veneering composite in the full veneering technique.

After making the final adjustments to the wax modeling, retentions were then added: to ensure controlled application the retention pearls are attached singly to the surface of the veneer.

In our dental laboratory we consider retention pearls to be indispensable. The nobler the alloy of the veneer substructures, the greater the importance of the retentions. We did not obtain good results with the so-called micro-retentions, since the retention undercuts are too inadequate. The individual retention pearls are later ground down to the centre of their equator, since only the undercut part has an effective retention function (figs. 11 and 12).

Continued on next page



Processing a primary telescope



Manufacture of the resin dies from Pattern Resin



Fully modeled secondary construction



Fully modeled secondary construction



Reducing the wax-up in the area of the later veneer surfaces



Positioning of the retention pearls



Try-in of the primary and secondary construction in the mouth of the patient



Try-in of the primary and secondary construction in the mouth of the patient



Veneer surface after sandblasting and cleaning



Veneer surface conditioned with VITAVM BOND



Filling the hollow pontics



Attaching an incisal shield

Continued from previous page

COMBINATION PROSTHESIS WITH NEW VENEERING COMPOSITE

Veneering

The veneer surfaces were sandblasted thoroughly with 130 μ m aluminum oxide at a pressure of 2 bar and any remaining excess abrasive removed by blasting with oil-free air. A clean brush is also suitable for cleaning; under no circumstances, however, must the surface come into contact with water or oil (fig. 15).

Bonder

The subsequent layering of the framework with VITAVM BOND must take place within 10 minutes. This is the only way to ensure optimum conditions for achieving a secure bond (fig. 16). On account of the thin consistency of the bond, optimum surface conditioning can be achieved quite simply. The retention areas are very well enclosed. The bond is dried in this case under an infra-red lamp. Because the adhesive bond hardens via heat application, the complete hardening of the compound material, which is situated in undercut retention areas, can also be guaranteed.

Opaque

The VITAVM LC OPAQUE is now applied directly to this adhesive bond layer: the opaque is mixed to a creamy consistency with a plastic spatula and applied in thin layers with a brush.

For optimum coverage of the metal substructure in this case, three opaque layers were applied. Curing is required after the application of each layer. The time required can vary according to the equipment used. Some of the most commonly used curing units are listed in the working instructions of VITAVM LC.

In our experience the heat-curing adhesive bond VITAVM BOND and the light-curing VITAVM LC OPAQUE make an excellent team.

The hollow pontics are filled with veneering material up to the level of the labial surfaces of the crown, cured and once again covered with opaque and cured. This enables a homogeneous layer thickness of all subsequent veneers to be achieved, and thus optimum esthetic results obtained (fig. 17).

Layering

With the silicone key produced from the wax-up, the palatal and incisal areas of the future veneer are first modeled and cured (fig. 18). This results in a shape-giving basis, on which the multi-color layer is then built up.

Now the basic shape of the tooth is layered in base dentine (fig. 19). Areas which permit only thin layer thicknesses, such as the interdental areas, are cut free in order to be filled subsequently with thinly layered Effect Liner. After modeling the base veneer, an intermediate curing is carried out. In our laboratory the full curing time is used here too in order to ensure that the resin polymerizes completely.

The basic veneer is now built up using the individual layering technique: The VM LC additional resins offer a wide range of possibilities for individualization. In the present case, for example, Effect Liner has been applied to the marginal region and thinner areas. The VM LC paint stains are ideally suited for creating shade nuances within the veneer. They should, however, on no account be used at the surface in order to avoid the risk of damage to the acrylic veneers resulting from vigorous cleaning action on the part of the patient. The Effect Enamel resins can be used with great success in the incisal area, but also for other areas of the veneer (fig. 20).

After a further curing cycle the anatomical shape is optimized using fine, cross-cut burs (fig. 21). The veneer is cleaned, moistened with VM LC Modelling Liquid and completed by means of a final layering (fig. 22).

After the final curing the last corrections to the shape are made using cross-cut burs. It should be noted that surface roughening with diamond abrasives or similar tools between the applications of the different layers has a negative effect on the bonding of the veneer layers.



Basis layering



Multi-color buildup of the layering



The processed veneer before finishing



The polished restoration



The finished combined prosthesis



The finished prosthesis in situ

Finishing

After processing, the veneers are carefully polished to a high luster using silicone polishers and a small leather buff. The new veneering material polishes very well. Particular care should be exercised when polishing in order to achieve the highest possible degree of plaque resistance. Fig. 22 shows the anteriors after polishing is completed.

After setting up, the few posteriors (Vita Physiodens teeth), are fixed in place by means of silicone keys. Regarding the Physiodens teeth it should be noted that these, in addition to their advantages in complete denture prosthetics, are, thanks to their broad tooth moulds, also particularly suitable for combined prosthetics. After burning out the pink wax, the dorsal retention wings of the secondary construction are covered with pink opaque. Subsequently, with the aid of the silicone keys, which are used for fixing the Physiodens teeth, the prosthesis saddles are completed with a pink autopolymerizing material (fig. 23).

Seating

After completion of the entire prosthesis, this is now seated in the patient's mouth by the dentist. Due to good planning and systematic procedures, we had no unpleasant surprises. Nevertheless the prosthesis should, if possible, be remounted once more.

The tooth shade was determined at the beginning of treatment using the Vita Toothguide 3D-Master. It was possible to reproduce this quite easily with both the veneering material VITAVM LC and the Vita Physiodens teeth. In Fig. 24 it can be seen that the anterior esthetics are equivalent to those of a good ceramic restoration.

The restoration harmonizes in all aspects with the patient's facial features – the post-treatment photograph of the patient (fig. 26) speaks for itself.



The patient with his new restoration



Acknowledgements

I would like to thank Dr. Med. Dent., Dr. Ludwig Mesch of Rickenbach/Germany for his exemplary work as well as his excellent collaboration in solving this case.

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Vident Introduces 10-YEAR LIMITED WARRANTY On VITA In-Ceram[®] YZ Frameworks

Vident now offers a ten-year warranty on VITA In-Ceram[®] YZ milled frameworks, effective immediately on all restorations placed after September 1, 2007.

"There is a growing number of dental materials that look alike, but these materials do not perform alike," said Bill Sundheimer, president of Vident. *"We are happy to offer this warranty as proof of our ongoing commitment to offering the best, most reliable and innovative materials in the dental industry. This warranty assures dentist and patient satisfaction not just for the short-term, but for many years to come when they use VITA YZ frameworks."*

VITA In-Ceram YZ blocks are made of yttrium-stabilized zirconium oxide and feature a flexural strength exceeding 900MPa, making it the strongest all-ceramic dental material, with no compromise of esthetics. VITA In-Ceram YZ blocks, designed for milling on the Sirona inLab[®], enable the laboratory technician to create a slender framework, while leaving ample room for the application of esthetic VITAVM[®]9 veneering porcelain or VITAPM[®]9 press ceramics.

There are warranty limitations, including the requirement that all processing instructions from VITA are strictly adhered to, and VITA In-CeramYZ frameworks are sintered only in the VITA ZYrcomat furnace.

For full details, including approved indications and warranty limitations, visit www.vident.com or call Vident at 800-828-3839

