

# VITAVM<sup>®</sup>9

Instructions for use / Full version



VITA shade determination

VITA shade communication

VITA shade reproduction

VITA shade control

VITA – perfect match.

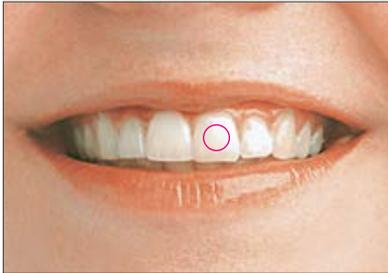
**VITA**

For veneering zirconia substructures  
and for individualizing VITABLOCKS.  
Available in VITA SYSTEM 3D-MASTER  
and VITA classical A1 – D4 shades.

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## Competence for more than 90 years

Shade management is more than just shade determination. At VITA, shade management means incorporating better solutions into a complete process. A key question we always ask at VITA is: How can we improve shade determination and reproduction? We do this through standardized process steps to increase the efficiency. Today, dental practitioners are expected to achieve better results while spending less time and money. This goal is what brings us together.



## VITA shade determination

The accurate determination of the basic shade of a tooth is the key prerequisite for patient acceptance. The basic shade is generally found in the dentine center (central to gingival area).



## Determining the effects

Natural teeth are uniquely formed for each individual. After determining the base shade, the details of a tooth - such as translucent zones or anomalies - need to be recorded to obtain an ideal match. We recommend the use of a digital photo to analyze details or effects.



## VITA shade communication

To ensure accurate reproduction of the determined shade, it is essential to ensure that all parameters are communicated accurately to the dental laboratory. Any misunderstanding can lead to expensive and unnecessary extra work. For this reason we recommend using the color communication form to describe the basic shade, and a digital photo for the analysis of effects or details. The software of VITA Easyshade provides a template to have all data on a single sheet – a laboratory communication form. With this information, the restoration can be created quickly and reliably, and integrates perfectly into the remaining dentition.



## VITA shade reproduction

The most important step in tooth reproduction is to ensure that the determined tooth shade is accurately reproduced. Then the shade effects of the tooth can be reproduced to obtain a high-quality restoration. You can be certain that whichever VITA materials you choose, you will be able to achieve this objective without time-consuming mixing or testing.

## VITA shade control

In the final step, qualitative shade evaluation is no longer left to the subjective opinion of an individual. With the VITA process, objective control of the final restoration is very important for ensuring satisfied patients and avoiding additional work.

VITA VM 9 feldspar ceramic has been designed as a special veneering ceramic featuring a fine structure for partially yttrium-stabilized ZrO<sub>2</sub> substructures with a CTE of approx.  $10.5 \cdot 10^{-6} \cdot K^{-1}$ , such as VITA YZ. The material is also perfectly suited for individualizing VITABLOCS (see Working Instructions, No. 1219E).

Like all VITA VM materials, VITA VM 9 excels in its refraction and reflection behavior, which can be compared to that of enamel. In addition, the BASE DENTINE and TRANSPADENTINE porcelains, which have been perfectly matched, allow the fabrication of restorations with a highly natural appearance. The use of additional fluorescent and opalescent materials results in individual and esthetically appealing restorations.

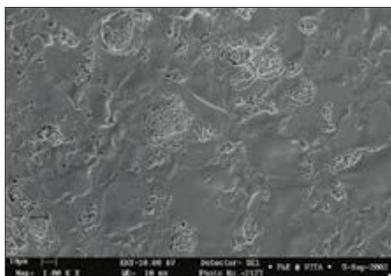
A modified manufacturing process helped to create a new type of ceramic. Compared to conventional ceramics, the structure that is obtained after firing reveals a particularly homogeneous distribution of the crystal and glass phase. This type of structure is described as a "fine structure."

**Fig. 1:**

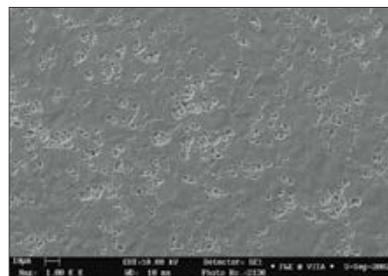
The etched surface (etched for 20 seconds with VITA CERAMICS ETCH) of a ceramic with conventional structure shows agglomerations of leucite crystals of up to 30 µm in diameter. The differences between the CTE values of the leucite agglomerations and those of the glass phase can lead to stress cracks, which can be seen at the bright rims of the cracks in the photo.

**Fig. 2:**

The etched surface of VITA VM 9 (etched for 20 seconds with VITA CERAMICS ETCH) reveals a particularly fine distribution of the leucite crystals in the glass phase, which avoids the formation of stress cracks.



**Fig. 1:** SEM image of the surface of a ceramic with conventional structure (magnification 1000 x).



**Fig. 2:** SEM image of the etched surface of VITA VM 9 (magnification 1000 x).

### **Enamel-like properties**

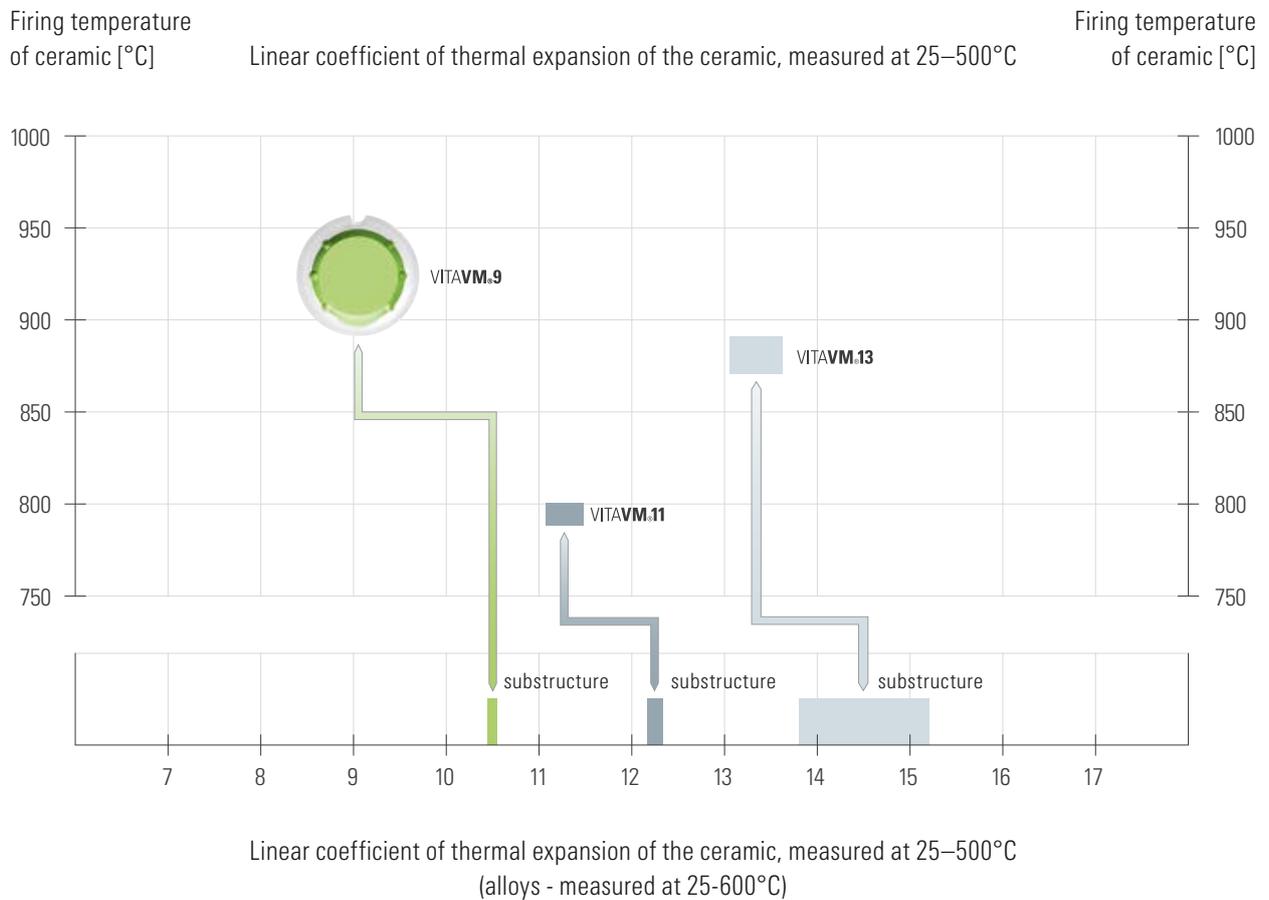
A similar abrasion behavior to that of natural enamel was observed with VITA VM 9. In a study carried out by McLaren (UCLA School of Dentistry, UCLA Center for Esthetic Dentistry, Los Angeles, CA) and Giordano (Goldman School of Dental Medicine, University of Boston, MA) VITA VM 9 showed abrasion behavior similar to natural enamel.

Literature: E. A. McLaren, DDS; R. A. Giordano II, DMD, DMedSc "Zirconia Based Ceramics: Material Properties, Esthetics and Layering Technique of a new Veneering Porcelain, VM9," (Quintessenz of Dental Technology 28, 99–111 [2005])

**⚠ Note:** If the processing instructions and the guidelines on substructure design recommended by VITA are observed, VITA VM 9 is suitable for all substructures made from zirconia. Since the function depends on a variety of parameters, only the user can ensure the quality in the individual case.

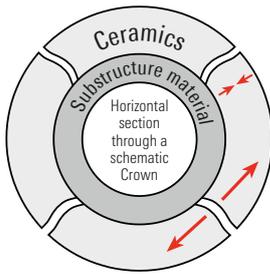
## VITAVM<sup>®</sup>9 Indication range

- for veneering zirconia substructure materials in the CTE range of approx. 10.5, such as VITA YZ SOLUTIONS
- for individualizing VITABLOCS

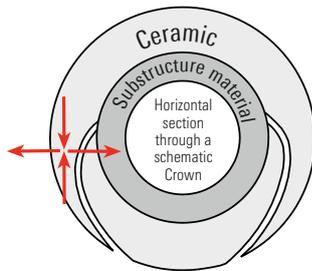


<p>VITA VM 9 CTE (25–500 °C) <math>9.0\text{--}9.2 \cdot 10^{-6} \cdot \text{K}^{-1}</math></p>	<p>VITA YZ, CTE (25–500°C), approx. <math>10.0\text{--}10.5 \cdot 10^{-6} \cdot \text{K}^{-1}</math> VITABLOCS, CTE (25–500°C) approx. <math>9.4 \cdot 10^{-6} \cdot \text{K}^{-1}</math></p>
<p>VITA VM 11 CTE (25–500 °C) <math>11.2\text{--}11.6 \cdot 10^{-6} \cdot \text{K}^{-1}</math></p>	<p>VITA SUPRINITY PC Zirconia reinforced lithium silicate glass ceramic CTE (25–500°C), approx. <math>11.9\text{--}12.3 \cdot 10^{-6} \cdot \text{K}^{-1}</math></p>
<p>VITA VM 13 CTE (25–500 °C) <math>13.1\text{--}13.6 \cdot 10^{-6} \cdot \text{K}^{-1}</math></p>	<p>High gold content, reduced precious metal content, palladium based and non-precious alloys CTE (25–600 °C) <math>13.8\text{--}15.2 \cdot 10^{-6} \cdot \text{K}^{-1}</math> *</p>

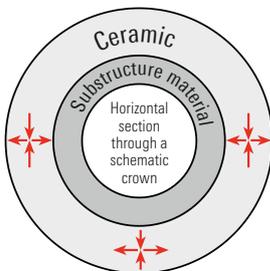
\* visit the download section of our website for more information about alloys



If the CTE of the substructure material is considerably lower than the CTE of the veneering ceramic, tangential tensile stress will increase and form radial cracks that run to the outside. This may result in late cracks.



If the CTE of the substructure material is considerably higher than the CTE of the veneering ceramic, tangential compressive stress will increase and form cracks that run almost parallel to the substructure. This may result in chipping.



The ideal tangential and radial tensile stress is ensured if the CTE of the ceramic has been optimally matched with the CTE of the substructure material.

Optimal preconditions are given if the veneering ceramic features a somewhat lower CTE value than the substructure material. Due to adhesive bonding, the ceramic must follow the thermal behavior of the substructure material. If cooled down, the ceramic is exposed to slight tangential compressive stress.

When veneering a substructure material with ceramic, the layer thickness of the veneer, as well as the CTE value, is significant. In addition, differences in strain (radial tensile stress) develop within the veneer, which can grow with increasing layer thickness.

The firing result obtained with dental ceramics, depends to a great extent on the individual user's firing procedure. The type of furnace, the location of the temperature sensor, the firing trays and the size of the workpiece during the firing cycles are important for the firing result.

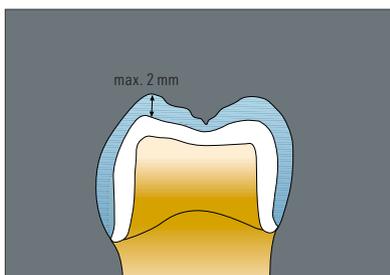
Our application-technical recommendations for the firing temperatures (regardless of whether they have been provided orally, in writing or in the form of practical instructions) are based on extensive experience and tests. The user, however, should consider this information only as a reference. If the surface quality or the degree of transparency or glaze does not correspond to the firing result that is achieved under optimum conditions, the firing procedure must be adjusted accordingly.

**⚠ Note:** Firing trays may also have significant influence on the result. All firing temperatures for VITA VM are based on the use of dark-colored ceramic firing trays. When using light-colored firing trays, the temperature may vary by 10–20°C - in some cases by up to 40° - from the reference value given, depending on the furnace that is used, and must be adjusted correspondingly.

The crucial factors for the firing procedure are not the firing temperature displayed by the furnace, but the appearance and the surface condition of the veneering ceramic after the firing process.



A slight luster of the ceramic surface is an evidence for correct firing. However, if the ceramic appears to be milky and non-homogeneous, the firing temperature is too low. Approach the correct firing temperature in steps of 5–10°C.



Veneering premolars and molars

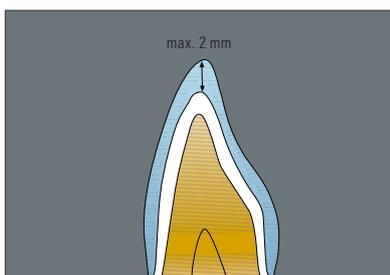
Zirconia crowns and bridge units to be veneered with ceramic must have a reduced anatomical size.

The wall thickness of crowns must be at least 0.5 mm, and bridges must be at least 0.7 mm.

A table with details on further indications can be found in the Working Instructions for VITA YZ SOLUTIONS (No. 10446)

### Layer thicknesses for ceramics

When preparing a ceramic veneer, a uniform layer thickness across the entire surface to be veneered must be ensured. The entire thickness of the ceramic layer, however, should not exceed 2 mm (the optimal layer thickness ranges from 0.7 to 1.2 mm).



Veneering anterior teeth

Mechanical surface treatment, such as grinding with diamond tools and sandblasting, may supply hypercritical quantities of energy to the zirconia substructure, which may result in deformation of large areas of the crystal lattice or even in the phase transition of ZrO<sub>2</sub>. As a consequence, complex stress can be formed at the interface of the veneer, which may result in immediate failure or in critical crack growth and consequential late damage to the restoration. This effect can be detected, for example, by radiographic phase analysis (fig.1). Compared with tetragonal ZrO<sub>2</sub> monoclinic ZrO<sub>2</sub> features a lower CTE of approx.  $7.5 \cdot 10^{-6} \cdot K^{-1}$ \*

If the zirconia restoration is to be cemented using a phosphate monomer containing composite (e.g. PANA VIA), sandblasting of the adhesion surfaces with AL<sub>2</sub>O<sub>3</sub> (max. 50 µm) at a pressure of ≤ 2.5 bar will create a permanent bond between the composite and the oxide ceramic.

\* D.J. Green, R.H.J. Hannik, M.V. Swain: Transformation Toughening of Ceramics, CRC Press USA, 1989

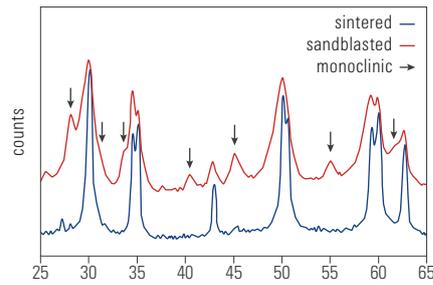


Fig. 1: X-ray diffraction diagram of a Y-TZP (blue) and its phase transition after sandblasting (red).

If reworking of sintered Y-TZP is required, the following basic guidelines must be observed:

- Grinding should only be performed using fine diamond tools. Cool with water and exert only little pressure when grinding.
- Areas exposed to considerable tensile stress during clinical use e.g., connectors of bridge structures, should not be ground.
- Final thermal treatment of the substructure is recommended to reverse any phase transitions. A single firing process at 1000°C and a holding time of 15 minutes are sufficient.

## VITAVM<sup>®</sup>9 Expansion cooling when veneering zirconia substructures

Scientific studies and ongoing market observation have formed the basis of VITA Zahnfabrik's recommendations for decades, in order to offer customers the best possible solution for dental restorations. New results confirm that great care is required, particularly when veneering and processing zirconia substructures. As a result, the following procedures are recommended in order to offer even more safety:

Based on the poor thermal conductivity of both materials (Y-TZP and veneering ceramic), higher residual stress can occur in this compound system than is known in the case of metal ceramics. This residual thermal stress in the veneering ceramic, in particular in the case of large restorations, can be counteracted by means of slow cooling to below the transformation temperature of the veneering ceramic during the last firing cycle (approx. 600°C for VITA VM 9). Such a firing procedure with expansion cooling is well known as a

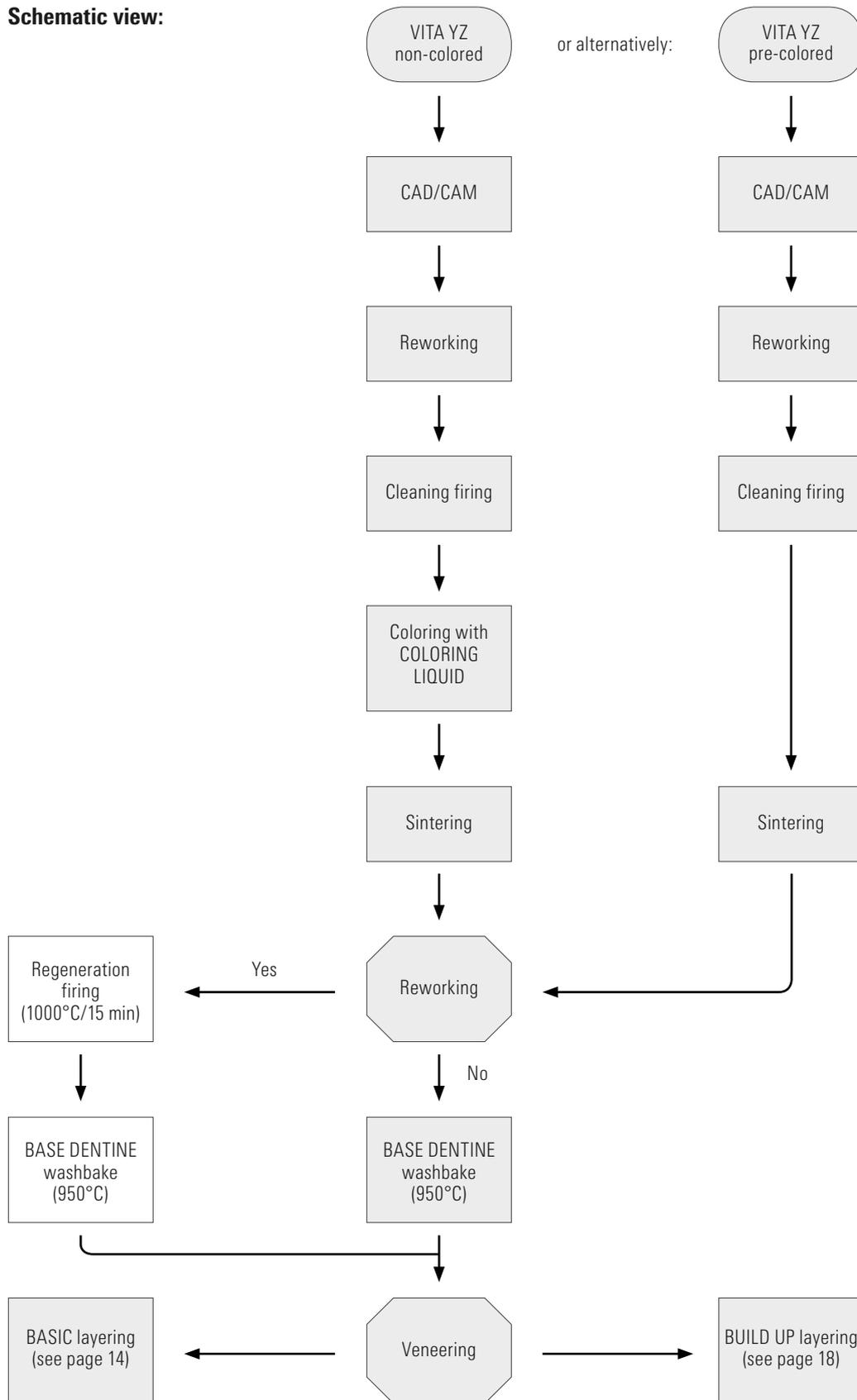
metal ceramic technique to dental technicians. Such a step is necessary for some gold alloys in order to reduce stress. It is also necessary to adhere to the standard and familiar guidelines for all-ceramic dental restorations as follows:

- dentists must carry out the preparation correctly, according to the recommended procedure for all-ceramic restorations; for instance, a circumferential chamfer (not a tangential preparation) is required in the case of all-ceramic restorations.
- after grinding in situ by the dentist in order to adjust the occlusion, either polishing must be repeated or glaze firing needs to be carried out.

More information on this subject:

K.H. Kunzelmann, M. Kern, P. Pospiech, A. Mehl, R. Frankenberger, B. Reiss and K. Wiedhahn: Vollkeramik auf einen Blick – 3. Auflage Herausgeber AG Keramik, ISBN-Nr. 3-00-017195-0.

**Schematic view:**



The restorations should be cleaned in distilled water and grinding dust should be removed prior to the application. Cleaning firing should be performed on a fibrous pad in a ceramic furnace (e.g., VITA VACUMAT) to remove the cooling and lubricating liquid from the porous structure.

**Cleaning firing in the VITA VACUMAT<sup>®</sup>**

Pre-dry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
500	3.00	6.00	33	700	5.00	–

According to the shade to be reproduced, the restoration is immersed into the coloring liquid in the working container. The recommended immersion time is two minutes. When immersing the substructure, vacuum or pressure (2 bars) can be used additionally.



**⚠ Important:** Use only plastic tweezers or a plastic sieve.

Then remove excess COLORING LIQUID with a paper tissue and allow to dry. Do not sinter when wet.



The substructure can be colored from within and without at the margins in order to ensure complete penetration of the color.

**⚠ Attention:** The application brush should only be used to apply COLORING LIQUID! The use of a flat brush is recommended.

Do not use for layering the ceramic: risk of discoloration! The brush may only be cleaned with distilled water.



Restorations colored with COLORING LIQUID should only be sintered using the slotted crucible. As a result, perfect firing of the organic components is ensured.

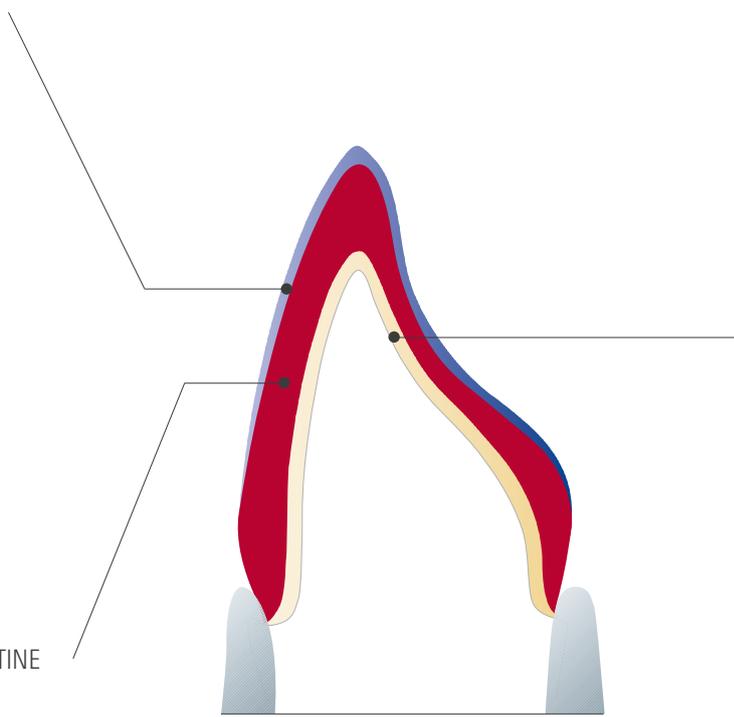


More information on further processing can be found in the Working Instructions for VITA YZ (No. 10446).

VITA VM 9 ENAMEL



VITA VM 9 BASE DENTINE



Colored all-ceramic substructure (CTE approx. 10.5)

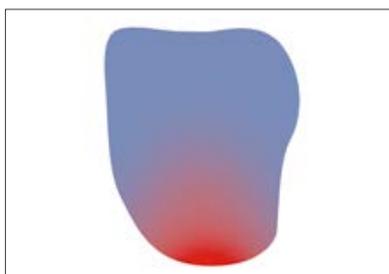
VITA VM 9 BASIC layering consists of the application of the two materials BASE DENTINE and ENAMEL.

The color-bearing BASE DENTINE materials, which provide good coverage, offer the perfect precondition for the preparation of veneers with intensive shades. With this two-layer alternative, VITA offers an ideal solution for the reproduction of optimal shade results in case of thin walls. Additionally, the intensive shade effect of the BASE DENTINE materials permits generous use of the ENAMEL materials, which create the desired translucency. The user is able to prepare a natural restoration with a lifelike appearance with only two layers.

**⚠ Note:** The intensity of the restoration can be varied with different layer thicknesses of BASE DENTINE and ENAMEL. The thicker the BASE DENTINE layer, the more intensive the shade of the restoration. The thicker the ENAMEL layer, the paler the shade of the restoration.

The use of CHROMA PLUS materials helps to achieve perfect shade reproduction in the cervical area.

To obtain a brighter or warmer shade, the respective TRANSPA DENTINE can either be mixed with SUN DENTINE or replaced by SUN DENTINE. When using Chroma Plus or Sun Dentine materials, the final result of the restoration may differ significantly from the shade sample.





**Colored VITA YZ® crown and bridge substructure (CTE approx. 10.0–10.5)**

Substructure colored with COLORING LIQUID ready for veneering with VITA VM 9. To allow easy removal of the restoration later on, the model must be previously insulated using the VITA Modisol pen.



**Washbake**

To achieve adequate bonding of colored VITA YZ substructures and VITA VM 9, we recommend carrying out a BASE DENTINE washbake. The BASE DENTINE powder is mixed with MODELLING Fluid RS to obtain a thin aqueous mixture and applied very thinly to the dry and clean substructure, while ensuring uniform coverage.

To support and intensify the base shade in case of thin walls or non-colored zirconia substructures, CHROMA PLUS materials may be used for the washbake.



**Recommended firing**

Pre-dry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
500	2.00	8.11	55	950	1.00	8.11



**VITA MODELLING FLUID RS**

For mixing any dentin, incisal or additional materials. Its smooth consistency allows for extended and wet processing, while also ensuring good stability. This fluid is perfectly suited for use in larger restorations and multi-unit bridges.



**Application of VITAVM®9 BASE DENTINE**

Apply the desired shade of BASE DENTINE that has been mixed with MODELLING Fluid RS starting from the neck to obtain the required complete tooth shape. The centric, lateral and protrusive occlusion should already be checked in the articulator during this stage.



To obtain adequate space for the enamel, it is necessary to reduce the BASE DENTINE material, according to the required layering pattern.



**Application of VITAVM®9 ENAMEL**

Apply several small portions of ENAMEL to complete the crown mould, beginning from the middle third of the crown. To compensate for firing shrinkage, the size of the mould should be prepared somewhat larger.

The classification table for the ENAMEL materials can be found on page 26.



Prior to the first dentine firing, the individual units of bridges must be separated in the interproximal areas down to the substructure.



Restoration ready for first dentine firing.  
Only firing pad for ceramic may be used for firing!

**Recommended firing - first dentine firing\***

Pre-dry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
500	6.00	7.27	55	910	1.00	7.27

\* For further details on the recommended firing procedures for larger restorations, please refer to page 21.



Restoration after first dentine firing.



**Corrections of shape/further layering**

Insulate the model once more with the VITA Modisol pen.  
The interdental spaces and the basal surface of the pontic must be filled with BASE DENTINE.



Apply BASE DENTINE starting from the neck and add ENAMEL in the body area up to the incisal area to perform subsequent corrections of the shape.

**Recommended firing - second dentine firing\***

Pre-dry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
500	6.00	7.16	55	900	1.00	7.16

\* For further details on the recommended firing procedures for larger restorations, please refer to page 21.



Bridge and crown after second dentine firing.



**Finishing**

Finish the bridge or crown respectively. For glaze firing, the entire surface must be ground evenly and grinding particles must be removed carefully.

When processing the interdental spaces with the diamond separating disc, please ensure that no damage is caused to the substructure.

In case of formation of dust, use an extraction system or wear a face mask. Additionally, protective goggles must be worn when grinding the fired ceramic.



If required, the entire restoration can be coated with VITA AKZENT Plus GLAZE and then individualization can be carried out using the VITA AKZENT Plus stains. (see VITA AKZENT Plus working instructions, No. 1925)



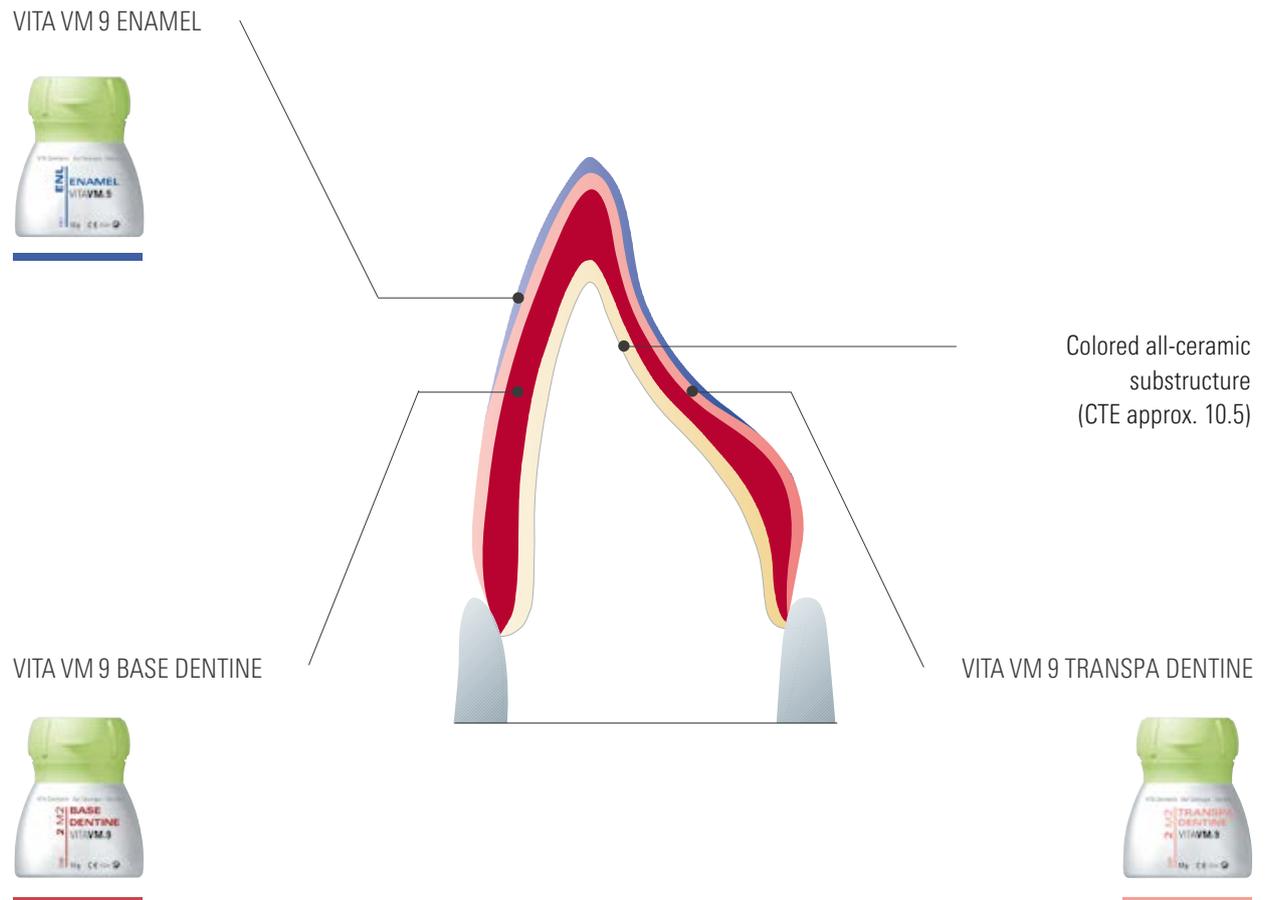
**Recommended firing - glaze firing with VITA AKZENT® Plus\***

Pre-dry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
500	4.00	5.00	80	900	1.00	–

\* For further details on the recommended firing procedures for larger restorations, please refer to page 21.

Completed restoration on the model.

**Note:** If the restoration needs to be adjusted (ground) when it is tried in, it must be smoothed again. Polishing or glaze firing have proven to be very suitable.



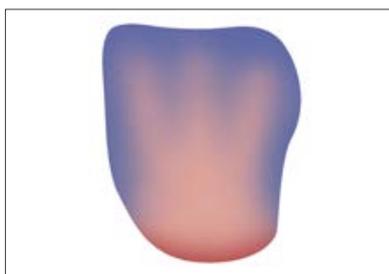
The VITA VM 9 BUILD UP layering includes the application of the three materials BASE DENTINE, TRANS PA DENTINE and ENAMEL.

The combination of color-bearing BASE DENTINE and translucent TRANS PA DENTINE in the VITA VM 9 BUILD UP layering creates an enhanced effect of depth in the restoration, which results in an even more convincing reproduction of the natural example. The use of the three-layer method permits reduced and more individual application of the ENAMEL materials.

By combining ENAMEL and TRANS PA DENTINE according to the layer thickness of BASE DENTINE, the intensity of the shade can be individualized. An increased proportion of BASE DENTINE results in an intensified shade, whereas larger quantities of TRANS PA DENTINE and ENAMEL will reduce the chroma of the shade.

**⚠ Note:** The shade effect of the restoration is mainly influenced by BASE DENTINE. Analogous to natural teeth, the TRANS PA DENTINE materials create a harmonious transition to the enamel.

The use of CHROMA PLUS materials helps to achieve perfect shade reproduction in the cervical area.



To obtain a brighter or warmer shade, the respective TRANS PA DENTINE can either be mixed with SUN DENTINE or replaced by SUN DENTINE. When using Chroma Plus or Sun Dentine materials, the final result of the restoration may differ significantly from the shade sample.



**Colored VITA YZ® crown and bridge substructure (CTE approx. 10.0–10.5)**

Substructure colored with COLORING LIQUID ready for veneering with VITA VM 9. To allow easy removal of the restoration later on, the model must be previously insulated using the VITA Modisol pen.



**Washbake firing**

To achieve adequate bonding of colored VITA YZ substructures and VITA VM 9, we recommend carrying out a BASE DENTINE washbake. The BASE DENTINE powder is mixed with MODELLING FLUID RS to obtain a thin aqueous mixture and applied very thinly to the dry and clean substructure, while ensuring uniform coverage.

To support and intensify the base shade, CHROMA PLUS materials may be used for the washbake. This is recommended for very thin walls or non-colored zirconia substructures.



**Recommended firing**

Pre-dry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
500	2.00	8.11	55	950	1.00	8.11



**VITA MODELLING FLUID RS**

For mixing any dentin, incisal or additional materials. Its smooth consistency allows extended and wet processing, while also ensuring good stability. This fluid is perfectly suited for use in larger restorations and multi-unit bridges.



**Application of VITAVM®9 BASE DENTINE**

Apply the desired shade of BASE DENTINE that has been mixed with MODELLING FLUID RS over the whole surface to be veneered, starting from the neck in reduced tooth size. The centric, lateral and protrusive occlusion should already be checked in the articulator during this stage.



Completely layered BASE DENTINE.



**Application of VITAVM®9 TRANSPA DENTINE**

TRANSPA DENTINE is applied in the required complete tooth shape.



To create enough space for the enamel, it is necessary to reduce the volume of TRANSPA DENTINE.



**Application of VITAVM®9 ENAMEL**

To complete the crown, apply several small portions of ENAMEL to the upper third of the crown. To compensate for firing shrinkage, the size of the mould should be prepared somewhat larger.

The classification table for the VITA VM 9 ENAMEL materials can be found on page 26.



Prior to firing, the individual units of bridges must be separated in the interdental areas down to the substructure.



Restoration ready for first dentine firing.  
Only firing pad for ceramic may be used for firing!

**Recommended firing - first dentine firing\***

Pre-dry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
500	6.00	7.27	55	910	1.00	7.27

\* For further details on the recommended firing procedures for larger restorations, please refer to page 21.



Restoration after first dentine firing.



**Corrections of shape/further layering**

Insulate the model once more at the pontic with the VITA Modisol pen. The interdental spaces and the basal surface of the pontic must be filled with BASE DENTINE.



Subsequent corrections of the shape in the body area are carried out using TRANSPA DENTINE ...



... and ENAMEL in the incisal area.

**Recommended firing - second dentine firing\***

Pre-dry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
500	6.00	7.16	55	900	1.00	7.16

\* For further details on the recommended firing procedures for larger restorations, please refer to page 21.



Bridge and crown after second dentine firing.



**Finishing**

Finish the bridge or crown respectively. For glaze firing, the entire surface must be ground evenly and grinding particles must be removed carefully.

When processing the interdental spaces with the diamond separating disc, please ensure that no damage is caused to the substructure.

In case of formation of dust, use an extraction system or wear a face mask. Additionally, protective goggles must be worn when grinding the fired ceramic.



If required, the entire restoration can be coated with VITA AKZENT Plus GLAZE and then individualization can be carried out using the VITA AKZENT Plus stains. (see VITA AKZENT Plus working instructions, No. 1925)



**Recommended firing - glaze firing with VITA AKZENT® Plus\***

Pre-dry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
500	4.00	5.00	80	900	1.00	–

\* For further details on the recommended firing procedures for larger restorations, please refer to page 21.

Completed restoration on the model.

**⚠ Note:** If the occlusion of the restoration needs to be adjusted using abrasive tools when it is tried in, it must be smoothed again. Polishing or glaze firing have proven to be very suitable.

Based on the poor thermal conductivity of both materials (Y-TZP and veneering ceramic), higher residual stress can occur in this compound system than is known to typically occur in metal ceramics. This residual thermal stress in the

veneering ceramic can be counteracted by means of slow cooling to below the transformation temperature of the veneering ceramic during the last firing cycle (approx. 600°C for VITA VM 9).

	Pre-dry. °C	 min.	 min.	 °C/min.	Temp. approx. °C	 min.	 °C	 min.	VAC min.
Cleaning firing T	500	3.00	6.00	33	700	5.00	–	–	–
Cleaning firing HT	290	10.00	31.00	10	600	5.00	–	–	–
Regeneration firing (optional, see page 11)	500	0.00	5.00	100	1000	15.00	–	–	–
Firing - VITA EFFECT Bonder powder*	500	6.00	6.00	80	980	1.00	–	–	6.00
Washbake firing	500	2.00	8.11	55	950	1.00	–	–	8.11
MARGIN** firing	500	6.00	8.21	55	960	1.00	–	–	8.21
EFFECT LINER** firing	500	6.00	7.49	55	930	1.00	–	–	7.49
1. dentine firing	500	6.00	7.27	55	910	1.00	600***	–	7.27
2. dentine firing	500	6.00	7.16	55	900	1.00	600***	–	7.16
Glaze firing	500	0.00	5.00	80	900	1.00	600***	–	–
Glaze firing with AKZENT Plus	500	4.00	5.00	80	900	1.00	600***	–	–
Corrective firing with CORRECTIVE**	500	4.00	4.20	80	760	1.00	500***	–	4.20

\* The user should consider this information only as a reference. If the surface quality or the degree of transparency or glaze does not correspond to the firing result that is achieved under optimum conditions, the firing procedure must be adjusted accordingly. The critical factors for the firing procedure are not the firing temperature indicated on the furnace display, but the appearance and the surface quality of the firing object after firing.

\*\* Indication range, see page 24

\*\*\* Long-term cooling down to the respective temperature is recommended for the respective last firing cycle of the veneering ceramic. The lift position for VITA VACUMAT furnaces should be > 75%. Firing object must be protected against direct supply of air.

**When using dental ceramics, the firing result largely depends on the individual firing procedure of the user, along with the type of furnace, the location of the temperature sensor and the firing tray, as well as the size of the object during the firing cycles.**

**Our application recommendations for the firing temperatures (regardless of whether they have been provided orally, in writing or in the form of practical instructions), are based on extensive experience and tests. The user, however, should consider this information only as a reference.**

**If the surface quality or the degree of transparency or glaze does not correspond to the firing result that is achieved under optimum conditions, the firing procedure must be adjusted accordingly. The critical factors for the firing procedure are not the firing temperature indicated on the furnace display, but the appearance and the surface quality of the firing object after firing.**

Explanation of the firing parameters:

- Pre-dry. °C      Start temperature
-       Predrying time in minutes, closing time
-       Heating time in minutes
-       Temperature rise rate in degrees Celsius per minute
- Temp. approx. °C      End temperature
-       Holding time for end temperature
-       Long-term cooling
- VAC min.      Vacuum holding time in minutes

## VITAVM®9 Classification tables for VITA SYSTEM 3D-MASTER® and VITA classical A1–D4®

The classifications given below are only intended to provide reference values!

VITA SYSTEM 3D-MASTER shades	VITA YZ T COLORING LIQUID	EFFECT BONDER	MARGIN	EFFECT LINER	CHROMA PLUS	ENAMEL
0M1	–	EB0	M1	EL1	–	ENL
0M2	–	EB0	M1	EL1	–	ENL
0M3	–	EB0	M1	EL1/EL2*	–	ENL
1M1	CLL/P	EB1	M1/M7*	EL1/EL2*	–	ENL
1M2	CLL/P	EB1	M1/M7*	EL2	–	ENL
2L1.5	CLL/P	EB2	M1/M7*	EL1/EL2*	CP2	ENL
2L2.5	CLM	EB2	M1/M4*	EL1/EL3*	CP2	ENL
2M1	CLL/P	EB2	M1/M4*	EL1/EL6*	CP2	ENL
2M2	CLL/P	EB2	M1/M4*	EL1/EL3*	CP2	ENL
2M3	CLL/P	EB2	M4	EL2/EL4*	CP2	ENL
2R1.5	CLL/P	EB2	M1/M7*	EL1/EL6*	CP2	ENL
2R2.5	CLM	EB2	M1/M4*	EL2/EL4*	CP2	ENL
3L1.5	CLM	EB3	M4/M7*	EL2/EL6*	CP3	ENL
3L2.5	CLM	EB3	M4/M7*	EL4/EL6*	CP3	ENL
3M1	CLL/P	EB3	M7	EL1/EL6*	CP3	ENL
3M2	CLM	EB3	M4/M7*	EL2/EL6*	CP3	ENL
3M3	CLM	EB3	M4/M9*	EL4/EL6*	CP3	ENL
3R1.5	CLM	EB3	M7	EL2/EL3*	CP3	ENL
3R2.5	CLM	EB3	M4/M7*	EL5/EL6*	CP3	ENL
4L1.5	CLM	EB4	M7	EL6	CP4	END
4L2.5	CLM	EB4	M4/M9*	EL3/EL4*	CP4	END
4M1	CLL/P	EB4	M7	EL6	CP4	END
4M2	CLM	EB4	M7/M9*	EL2/EL3*	CP4	END
4M3	CLM	EB4	M9	EL5/EL6*	CP4	END
4R1.5	CLM	EB4	M7/M8*	EL2/EL3*	CP4	END
4R2.5	CLM	EB4	M7/M9*	EL3/EL4*	CP4	END
5M1	CLM	EB5	M7/M8*	EL3/EL6*	–	END
5M2	CLM	EB5	M7/M9*	EL5/EL6*	–	END
5M3	CLM	EB5	M5/M9*	EL3/EL4*	–	END

VITA classical A1–D4 shades	VITA YZ T COLORING LIQUID	EFFECT BONDER	MARGIN	EFFECT LINER	CHROMA PLUS	ENAMEL
A1	CLL/P	EB1	M1/M7*	EL2	CP1	ENL
A2	CLM	EB2	M4/M7*	EL1/EL3*	CP2	ENL
A3	CLM	EB2	M4	EL4/EL6*	CP2/CP3*	ENL
A3.5	CLM	EB3	M4/M9*	EL5/EL6*	CP2/CP3*	END
A4	CLM	EB3	M4/M9*	EL1/EL4*	CP2/CP4*	END
B1	CLL/P	EB1	M1/M4*	EL1/EL2*	CP1	END
B2	CLM	EB1	M1/M4*	EL1/EL3*	CP1	END
B3	CLM	EB3	M4	EL2/EL4*	CP2/CP3*	END
B4	CLM	EB3	M4/M9*	EL4/EL6*	CP3	END
C1	CLL/P	EB3	M1/M4*	EL1/EL6*	CP1	END
C2	CLM	EB2	M4/M7*	EL2/EL6*	CP1/CP5*	END
C3	CLM	EB3	M4/M7*	EL6	CP1/CP5*	ENL
C4	CLM	EB4	M4/M7*	EL3/EL6*	CP5	ENL
D2	CLM	EB2	M1/M9*	EL2/EL6*	CP1/CP5*	END
D3	CLM	EB3	M4/M7*	EL2/EL3*	CP2/CP5*	END
D4	CLM	EB3	M1/M4*	EL2/EL6*	CP2/CP5*	END

\* Mixing ratio 1:1



**VITA MODELLING FLUID RS**

Red special liquid for mixing all dentine, incisal and additional materials. The smooth consistency of VITA MODELLING FLUID RS allows extended and wet processing, while ensuring good stability. The fluid is particularly suited for large restorations and multi-unit bridges.



**VITAVM® MODELLING LIQUID**

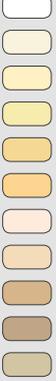
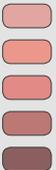
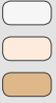
For mixing BASE DENTINE, TRANSPA DENTINE, ENAMEL and all additional materials.

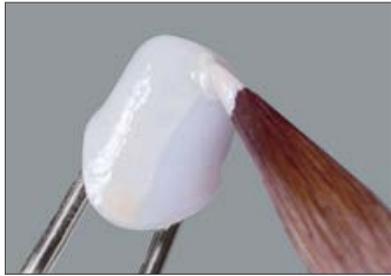


**VITA MODELLING FLUID**

For mixing all dentine, incisal and additional materials. The MODELLING FLUID avoids rapid drying of the ceramic material. The liquid also causes increased plasticity when layering.

<p><b>VITAVM®9 EFFECT ENAMEL</b></p> <ul style="list-style-type: none"> <li>– can be used for all enamel areas of the natural tooth</li> <li>– universally suitable translucent enamel effect material</li> <li>– to achieve a natural effect of depth</li> </ul>		EE1	mint cream	whitish-translucent	
		EE2	pastel	pastel	
		EE3	misty rose	pink-translucent	
		EE4	vanilla	yellowish	
		EE5	sun light	yellowish-translucent	
		EE6	navajo	reddish-translucent	
		EE7	golden glow	orange-translucent	
		EE8	coral	red-translucent	
		EE9	water drop	bluish-translucent	
		EE10	silver lake blue	blue	
		EE11	drizzle	greyish-translucent	
<p><b>VITAVM®9 EFFECT PEARL</b></p> <ul style="list-style-type: none"> <li>– only suitable for effects on the surface, not for layering in</li> <li>– perfectly suitable for bleached restorations</li> <li>– to obtain nuances of yellow and red</li> </ul>		EP1	pearl	shade in pastel-yellow	
		EP2	pearl blush	shade in pastel-orange	
		EP3	pearl rose	shade in pastel-rosé	
<p><b>VITAVM®9 EFFECT OPAL</b></p> <ul style="list-style-type: none"> <li>– to create the opal effect in restorations of young and translucent teeth</li> </ul>		E01	opal	neutral, universally suitable	
		E02	opal whitish	whitish	
		E03	opal bluish	bluish	
		E04	opal blue	blue	
		E05	opal dark violet	dark violet	
<p><b>VITAVM®9 EFFECT LINER</b></p> <ul style="list-style-type: none"> <li>– to control the fluorescence from the depth of the restoration</li> <li>– universally suitable to support and intensify the base shade</li> <li>– applied in the gingival area, enhances the distribution of light</li> <li>– can also be used for the washbake; the firing temperature, however, must be 970°C</li> </ul>		EL1	snow	white	
		EL2	cream	beige	
		EL3	tabac	brown	
		EL4	golden fleece	yellow	
		EL5	papaya	orange	
		EL6	sesame	green-yellow	
<p><b>VITAVM®9 MARGIN</b></p> <ul style="list-style-type: none"> <li>– for minor corrections at the margin area</li> <li>– after the application, the plastified MARGIN material must be hardened through the supply of heat; it is recommended to use a hair dryer or radiated heat from the furnace to stabilize the shoulder</li> </ul>		M1	beige	white	
		M4	wheat	yellow	
		M5	amber	amber	
		M7	seashell	light beige	
		M8	tan	pastel-brown	
		M9	beach	light orange	

<p><b>VITAVM®9 SUN DENTINE</b></p> <ul style="list-style-type: none"> <li>– to obtain a brighter or warmer shade, the respective TRANSPA DENTINE can either be mixed with SUN DENTINE or replaced by SUN DENTINE</li> </ul>		<p>SD1</p> <p>SD2</p> <p>SD3</p>	<p>sun light      light yellow</p> <p>sun rise      light orange</p> <p>sun set      orange-red</p>	
<p><b>VITAVM®9 CHROMA PLUS</b></p> <ul style="list-style-type: none"> <li>– Chroma Plus materials can be used to achieve more intensive shade reproduction in the cervical region (especially with VITA classical A1–D4 shades)</li> <li>– In restorations with thin walls, they enhance the shade in an effective manner</li> </ul>		<p>CP1</p> <p>CP2</p> <p>CP3</p> <p>CP4</p> <p>CP5</p>	<p>ivory      ivory</p> <p>almond      beige</p> <p>moccasin      light orange-brown</p> <p>caramel      orange</p> <p>burlywood      green-brown</p>	
<p><b>VITAVM®9 EFFECT CHROMA</b></p> <ul style="list-style-type: none"> <li>– color-intensive modifier porcelains</li> <li>– to accentuate certain color areas of the tooth</li> <li>– to vary the lightness value in the neck, dentine and enamel areas</li> </ul>		<p>EC1</p> <p>EC2</p> <p>EC3</p> <p>EC4</p> <p>EC5</p> <p>EC6</p> <p>EC7</p> <p>EC8</p> <p>EC9</p> <p>EC10</p> <p>EC11</p>	<p>ghost      white</p> <p>linen      sand-beige</p> <p>pale banana      light yellow</p> <p>lemon drop      tender lemon yellow</p> <p>golden rod      light orange</p> <p>sunflower      orange</p> <p>light salmon      pink</p> <p>toffee      beige-brown</p> <p>doe      brown</p> <p>larch      green-brown</p> <p>gravel      green-grey</p>	
<p><b>VITAVM®9 MAMELON</b></p> <ul style="list-style-type: none"> <li>– highly fluorescent porcelain, which is mainly used in the incisal area</li> <li>– for shade characterization between incisal edge and dentine</li> </ul>		<p>MM1</p> <p>MM2</p> <p>MM3</p>	<p>ecru      beige</p> <p>mellow buff      warm yellow-brown</p> <p>peach puff      tender orange</p>	
<p><b>VITAVM®9 GINGIVA</b></p> <ul style="list-style-type: none"> <li>– to restore the original gingival situation</li> <li>– are applied and fired during the first and / or second dentine firing</li> <li>– color nuances range from orange-red and reddish to brown-red</li> </ul>		<p>G1</p> <p>G2</p> <p>G3</p> <p>G4</p> <p>G5</p>	<p>rose      dusky pink</p> <p>nectarine      orange-pink</p> <p>pink grapefruit      pink</p> <p>rosewood      brown-red</p> <p>cherry brown      dark red</p>	
<p><b>VITAVM®9 CORRECTIVE</b></p> <ul style="list-style-type: none"> <li>– with reduced firing temperature (760°C) for corrections after glaze firing</li> <li>– in three nuances for neck, dentine and enamel areas</li> </ul>		<p>COR1</p> <p>COR2</p> <p>COR3</p>	<p>neutral      neutral</p> <p>sand      beige</p> <p>ochre      brown</p>	



**Application of VITAVM®9 EFFECT BONDER to a non-colored zirconia substructure**

For reliable shade reproduction, we recommend the use of VITA VM 9 EFFECT BONDER.

Apply a very thin coat of EFFECT BONDER powder that has been mixed with VITA VM OPAQUE FLUID (similar to a wash application).

**Recommended firing VITAVM®9 EFFECT BONDER powder**

Pre-dry. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
500	6.00	6.00	80	980	1.00	6.00

The user should consider this information only as a reference. If the surface quality or the degree of transparency or glaze does not correspond to the firing result that is achieved under optimum conditions, the firing procedure must be adjusted accordingly. The critical factors for the firing procedure are not the firing temperature indicated on the furnace display, but the appearance and the surface quality of the firing object after firing.



Completely fired EFFECT BONDER.

Only firing pad for ceramic may be used for firing!

Further steps to continue processing of VITA VM 9  
Basic layering: see page 12 VITA VM 9 BASIC layering  
(starting from the application of VITA VM 9 BASE DENTINE)

Further steps to continue processing of VITA VM 9  
BUILD UP layering: see page 16 VITA VM 9 BUILD UP layering  
(starting from the application of VITA VM 9 BASE DENTINE)



VITAVM®9 BASIC KIT*		
BASIC assortment for BASIC layering		
Quantity	Content	Material
3	12 g	CHROMA PLUS CP2–CP4
26	12 g	BASE DENTINE 1M1–5M3**
3	12 g	SUN DENTINE SD1–SD3
2	12 g	ENAMEL ENL, END**
1	12 g	NEUTRAL NT**
1	12 g	WINDOW WIN**
3	12 g	CORRECTIVE COR1–COR3
1	50 ml	VITA MODELLING FLUID RS
–	–	Accessories
1	–	VITA Toothguide 3D-MASTER
1	–	Instructions for use

\*also as BASIC KIT classical (A1–D4)

\*\*also available in 50 g



VITAVM®9 BUILD UP KIT*		
Add-on assortment for BUILD UP layering		
Quantity	Content	Material
26	12 g	TRANSPA DENTINE 1M1–5M3**
1	50 ml	VITA MODELLING FLUID RS

\*also as BUILD UP KIT classical (A1–D4)

\*\*also available in 50 g



VITAVM®9 CLASSICAL COLOR KIT*		
Add-on assortment for VITA VM 9 3D-MASTER users		
Quantity	Content	Material
16	12 g	BASE DENTINE A1–D4
16	12 g	TRANSPA DENTINE A1–D4
2	12 g	CHROMA PLUS CP1, CP5
1	50 ml	VITA MODELLING FLUID RS
1	–	Instructions for use

\* Assortment for VITA VM 9 3D-MASTER customers who wish to add VITA classical A1-D4 shades to their assortment



VITAVM®9 PROFESSIONAL KIT For incorporating natural effects and characteristics		
Quantity	Content	Material
11	12 g	EFFECT CHROMA EC1–EC11
11	12 g	EFFECT ENAMEL EE1–EE11
6	12 g	EFFECT LINER EL1–EL6
3	12 g	MAMELON MM1–MM3
3	12 g	EFFECT PEARL EP1–EP3
5	12 g	EFFECT OPAL EO1–EO5
4	–	Shade guides



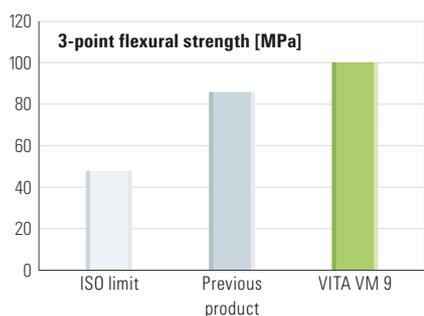
VITAVM®9 GINGIVA KIT Gingiva materials with natural effects		
Quantity	Content	Material
5	12 g	GINGIVA G1–G5
1	–	GINGIVA shade guide



VITAVM®9 MARGIN KIT For minor corrections in the margin areas		
Quantity	Content	Material
6	12 g	MARGIN M1, M4, M5, M7, M8, M9
1	–	MARGIN shade guide



<b>VITAVM®9 ESTHETIC KIT for VITABLOCS</b> Additional assortment for individualizing VITABLOCS		
Quantity	Content	Material
1	Set	VITABLOCS 3D-MASTER (10 pieces of Mark II I12)
1	12 g	WINDOW WIN
1	12 g	NEUTRAL NT
2	12 g	ENAMEL ENL, END
1	12 g	EFFECT PEARL EP1
2	12 g	EFFECT ENAMEL EE1, EE10
1	12 g	CORRECTIVE COR1
1	4 g	AKZENT Plus FINISHING AGENT PASTE
1	4 g	AKZENT Plus GLAZE PASTE
1	12 g	EFFECT OPAL E02
2	12 g	EFFECT CHROMA EC1, EC4
1	12 g	MAMELON MM2
–	–	Accessories / liquids
1	–	Instructions for use



### Flexural strength

Flexural strength of VITA VM 9 compared with that of the previous product and the ISO limit, according to ISO 6872.

### Physical properties

In addition to the favorable homogeneous surface, VITA VM 9 features high flexural strength and very low solubility in acid.

#### VITAVM®9 – Physical properties

Property	Unit of measure	Value
Coefficient of thermal expansion - CTE (25 - 500°C)	$10^{-6} \cdot K^{-1}$	9.0 – 9.2
Solubility in acids	$\mu g/cm^2$	approx. 10
3-point flexural strength	MPa	approx. 100

#### VITAVM®9 – Chemical composition

Components	Wt%
SiO <sub>2</sub>	44 – 72
Al <sub>2</sub> O <sub>3</sub>	6 – 16
K <sub>2</sub> O	5 – 12
Na <sub>2</sub> O	3 – 8
B <sub>2</sub> O <sub>3</sub>	2 – 8
CaO	1 – 3
BaO	1 – 2
CeO <sub>2</sub>	10 – 13
Y <sub>2</sub> O <sub>3</sub>	4 – 6
ZrO <sub>2</sub>	0 – 9
TiO <sub>2</sub>	0 – 5
Li <sub>2</sub> O	< 1
Others	< 10

**Indication:**

- For veneering zirconia substructure materials in the CTE range of approx. 10.5, such as VITA YZ SOLUTIONS
- Individualization of VITABLOCS

**Materials:**

- VITA YZ, CTE (25-500°C), approx.  $10.0 - 10.5 \cdot 10^{-6} \cdot K^{-1}$
- VITABLOCS, CTE (25-500 °C) approx.  $9.4 \cdot 10^{-6} \cdot K^{-1}$

**Contraindication:**

- For substructures not within the recommended CTE range
- For parafunctions (e.g., bruxism)
- If minimum layer thicknesses of the ceramic can not be adhered to
- In cases of inadequate oral hygiene

**Intended purpose:**

- VITA VM 9 products are ceramic materials for dental treatments.

**Patient target group:**

- No restrictions.

**Intended user:**

- Dental professionals only: dentist and dental technician (Rx only).

**Information about risks:**

- Information on reporting serious incidents in connection with medical devices, general risks associated with dental treatments, residual risks and (if applicable) short clinical safety and performance reports (SSCPs) can be found at [www.vita-zahnfabrik.com/product\\_safety](http://www.vita-zahnfabrik.com/product_safety).

**Storage/disposal:**

- Disposal via household waste. The products labelled with a pictogram for hazardous substances are to be disposed of as hazardous waste. Recyclable waste (such as attachments, paper and plastics) must be disposed of using appropriate recycling systems. If necessary, contaminated product residues should be pretreated in accordance with regional regulations and disposed of separately.

**Explanation of symbols:**

Manufacturer VITA Zahnfabrik		Manufacturing date	
Medical device		Shelf life	
For professionals only	Rx only	Product number	
Refer to instructions for use		LOT number (batch)	

<b>Safety at work and health protection</b>	When working with the product, wear suitable safety goggles/ face protection, gloves and safety clothing.	   
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<b>IMPORTANT INFORMATION:</b>	Information on troubleshooting can be found under FAQs - all-ceramics - on our website.
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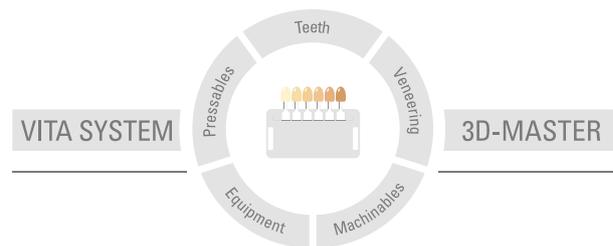






VITA VM 9 veneering material is available in VITA SYSTEM 3D-MASTER and VITA classical A1–D4 shades. Shade compatibility is guaranteed with all VITA SYSTEM 3D-MASTER and VITA classical A1–D4 materials.

With the unique VITA SYSTEM 3D-MASTER, all natural tooth shades can be systematically determined and perfectly reproduced.



**Please note:** Our products must be used in accordance with the instructions for use. We accept no liability for any damage resulting from incorrect handling or usage. The user is furthermore obliged to check the product before use with regard to its suitability for the intended area of applications. We cannot accept any liability if the product is used in conjunction with materials and equipment from other manufacturers that are not compatible or not authorized for use with our product and this results in damage. The VITA Modulbox is not necessarily a component of the product. Date of issue of this information: 2024-03

After the publication of this information for use any previous versions become obsolete. The current version can be found at [www.vita-zahnfabrik.com](http://www.vita-zahnfabrik.com)

VITA Zahnfabrik has been certified and the following products bear the mark

CE 0124:

VITAVM<sup>®</sup>9 · VITABLOCS<sup>®</sup> · VITA YZ<sup>®</sup> · VITA AKZENT<sup>®</sup> Plus



MD

Rx Only (for professional use only)



VITA Zahnfabrik H. Rauter GmbH & Co.KG, Bad Säckingen (Germany)  
Zweigniederlassung Basel c/o Perrig AG, Max Kämpf-Platz 1, 4058 Basel

# VITA

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