

VITAVM.7

Working Instructions



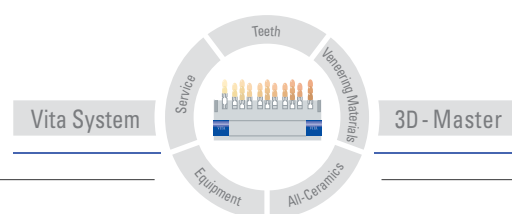
VITA shade taking

VITA shade communication

VITA shade reproduction

VITA shade control

Date of issue: 09.08



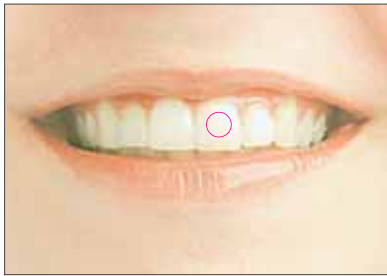
VITA

for veneering oxide ceramics substructures in
the CTE range of 7.2–7.9
Available in VITA SYSTEM 3D-MASTER shades

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Competence for more than 80 years

Shade management is more than just shade determination. At VITA, shade management means incorporating our ever better solutions into a complete process. The key question we have always asked ourselves is: How can we improve shade determination and reproduction? By establishing standardized process steps to increase the efficiency. Dental specialists are nowadays expected to achieve better results while spending less time and money. It is this goal that brings us together.



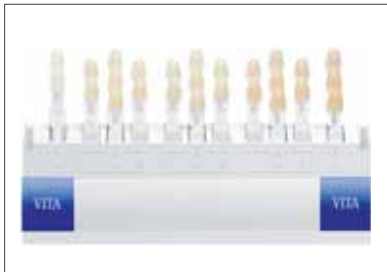
VITA shade taking

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). You can use the VITA Toothguide 3D-MASTER or the VITA Easyshade system to quickly and safely determine what is most relevant - the base shade.



The determination of the effects

Natural teeth are unique and a perfect creation of nature. Therefore, after determining the base shade, details of a tooth, translucent zones or anomalies for example, need to be recorded to obtain a perfect match. We recommend the use of a digital photo to analyze details or effects.



Tips for shade taking

Always accept your first decision since your eyes will begin to tire after 5–7 seconds. Shade taking should be performed in an environment with muted colors. The tooth shade is determined by daylight or under standard daylight lamps (e.g. OSRAM LUMILUX DELUXE daylight 12–950). Shade taking should be carried out before preparation since after preparation the tooth shade appears too white on account of dehydration.



VITA shade communication

To ensure perfect reproduction of the determined shade, it is essential to ensure that all parameters are communicated accurately to the dental laboratory. Any misunderstanding leads 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. This information will enable you to create a restoration that matches the remaining teeth perfectly in a quick and reliable manner.



VITA shade reproduction

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



Perfectly matched process steps

Teeth, ceramics, composites and all-ceramic materials are available in all 26 3D-MASTER shades. VITA also offers the materials required for the reconstruction of bleached teeth. After all, the patient's main concern is not the determination of his tooth shade but his wish to receive a top-quality and perfectly esthetic solution for his specific problem.



VITA shade control

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

VITAVM 7 was developed as a special, low-fusing veneering ceramic for all-ceramic aluminium oxide substructures in the CTE range of approx. $7.2-7.9 \cdot 10^{-6} \cdot K^{-1}$ (e.g. VITA In-Ceram ALUMINA, SPINELL, ZIRCONIA, AL).

Like all VITAVM porcelains, VITAVM 7 is also characterized by its enamel-like light refraction and reflection properties. The use of additional fluorescent and opalescent porcelains enables highly individual restorations with a high standard of esthetics to be achieved.

Enamel-like properties

In a study by Giordano at the Goldman School of Dental Medicine at the University of Boston, the abrasion behaviour of various ceramic materials was tested in comparison to that of natural tooth enamel. The best results were obtained with VITAVM 7, since on account of its fine structure it demonstrates virtually ideal, enamel-like properties.

Literature: E. A. McLaren, R. A. Giordano II, R. Pober, B. Abozenada "Zweiphasige Vollglas-Verblendkeramik", [Two-phase full glass veneering ceramic; in German language publication, Quintessenz Zahntech 30, 1, 32-45 (2004)]

The concept of "fine-structure ceramic"

With the development of a new type of dental ceramic, VITA felt obliged to create a term which fully reflects the nature of this innovative product.

Compared to conventional ceramic materials, the fine-structure ceramic is distinguished mainly by the fact that the different phases of its structure are more finely and considerably more homogeneously distributed. This is achieved by modifying the manufacturing process so

that the VITA fine-structure ceramic differs completely from traditional dental ceramics.

The resulting product characteristics are unique.

Fine-structure ceramic under the scanning electron microscope

The homogeneous distribution of the two glass phases is shown by the comparison of the SEM photos. Photos 1 and 2 show the etched surface of VITADUR ALPHA and VITAVM 7 with identical coefficients of thermal expansion (CTE).

The two phases can be clearly distinguished in the structure of VITADUR ALPHA. Etching with hydrofluoric acid leads to increased abrasion in one phase, so that the glass phase that has been etched protrudes less strongly – almost like an "elevation". This phase is marked with arrows in the photo.

In contrast the 2 phases are more homogeneously distributed in the fine-structure ceramic (photo 2) so that even during etching no "elevations" become visible. In the SEM photos, the different phases can only be distinguished by the light or dark shades accordingly (caused by the composition of the respective phase).

Advantages of the material properties of the fine-structure ceramic

Compared to conventional ceramics, the fine-structure ceramic enables markedly better physical results to be achieved. All requirements of ISO 6872 are easily fulfilled.

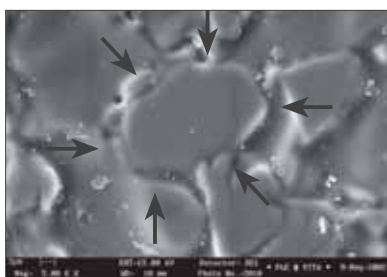


Fig. 1: SEM photo of the etched surface of VITADUR ALPHA (magnification 5000x)

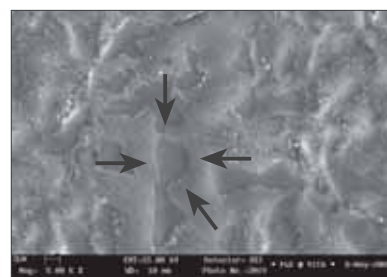
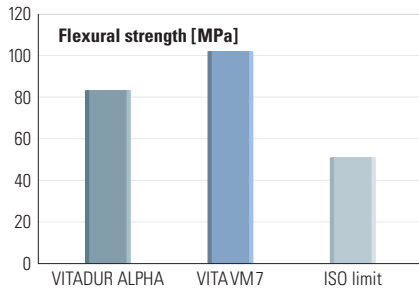


Fig. 2: SEM photo of the etched surface of VITAVM 7 (magnification 5000x)

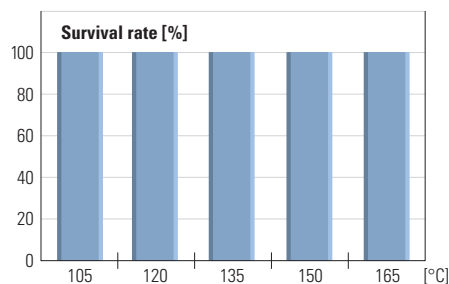
Solubility

Ceramics have generally proved their reliability in various fields of medical supply due to their outstanding biocompatibility. The low solubility of VITAVM 7 ensures high resistance in the oral environment and prolonged period of wearing.



Flexural strength

The flexural strength values of VITAVM 7 are 20% above those of the reliable VITADUR ALPHA veneering ceramic. They are more than twice as high as the values required by ISO. This excellent result underlines the high reliability of restorations layered with VITAVM 7.



Thermal stability

The thermal stability test is used to measure the absence of stress of a ceramic restoration and for successful coordination of the coefficients of thermal expansion within the system.

A survival rate of 100% of restorations veneered with VITAVM 7 is ensured even at variations of temperature up to 165°C. This illustrates that ceramic and substructure have been matched perfectly and indicates long-term clinical success.

VITAVM [®] 7 – Physical properties	Unit of measure	Value
CTE (25–500°C)	10 ⁻⁶ · K ⁻¹	6.9–7.3
Softening point	°C	approx. 689
Transformation temperature	°C	approx. 615
Solubility in acids	µg/cm ²	approx. 10.8
Density	g/cm ³	approx. 2.4
Average particle size	µm	approx. 18
Flexural strength	MPa	approx. 106

Advantages for dental laboratory processing

The benefits of a fine-structure ceramic for dental technicians are found in excellent stability during modeling as well as in a highly homogeneous surface after firing. This contributes to enhanced processing characteristics, e.g. when grinding the restoration. The firing stability of the ceramic is still excellent even after several firing processes.

VITAVM[®]7 – from the patient's view

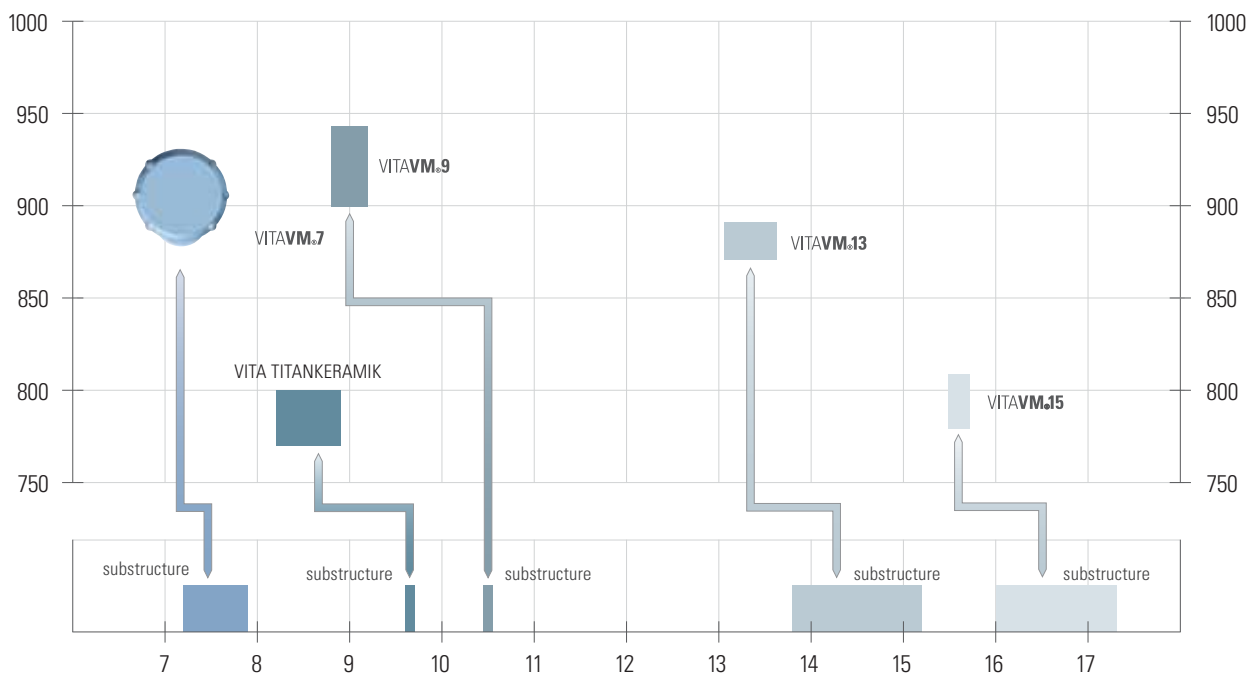
The fine-structure ceramic offers patients additional comfort of wearing. The veneer feels softer in situ – comparable to the enamel of natural teeth. The homogeneous surface of the veneers ensures pleasant tongue contact and supports the patient in the hygiene of his high-quality restoration.

for substructure materials in the CTE range of 7.2–7.9 such as VITA In-Ceram ALUMINA, SPINELL, ZIRCONIA and AL

Firing temperature
of ceramic [°C]

Linear coefficient of thermal expansion, measured at 25–500°C

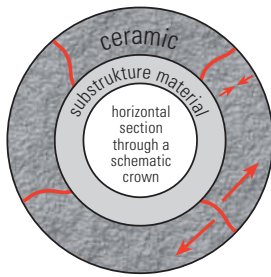
Firing temperature
of ceramic [°C]



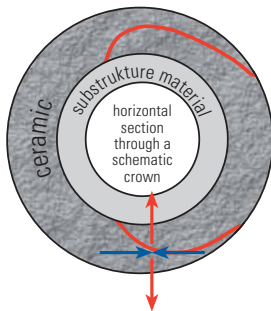
Linear coefficient of thermal expansion of the substructure ceramic, measured at 25–500°C
(alloys measured at 25–600°C)

<p>VITA VM 7 CTE (25–500°C) $6.9-7.3 \cdot 10^{-6} \cdot K^{-1}$</p>	<p>VITA In-Ceram ALUMINA, CTE (25–500°C) $7.2-7.6 \cdot 10^{-6} \cdot K^{-1}$ VITA In-Ceram SPINELL, CTE (25–500°C) $7.5-7.9 \cdot 10^{-6} \cdot K^{-1}$ VITA In-Ceram ZIRCONIA, CTE (25–500°C) $7.6-7.8 \cdot 10^{-6} \cdot K^{-1}$ VITA In-Ceram AL, CTE (25–500°C) approx. $7.3 \cdot 10^{-6} \cdot K^{-1}$</p>
<p>VITA TITANKERAMIK CTE (25–500°C) $8.2-8.9 \cdot 10^{-6} \cdot K^{-1}$</p>	<p>TITANIUM CTE (25–500°C), approx. $9.6 \cdot 10^{-6} \cdot K^{-1}$</p>
<p>VITA VM 9 CTE (25–500°C) $8.8-9.2 \cdot 10^{-6} \cdot K^{-1}$</p>	<p>VITA In-Ceram YZ CTE (25–500°C), approx. $10.5 \cdot 10^{-6} \cdot K^{-1}$</p>
<p>VITA VM 13 CTE (25–500°C) $13.1-13.6 \cdot 10^{-6} \cdot K^{-1}$</p>	<p>High gold content, reduced precious metal content, palladium based and precious metal-free alloys CTE (25–600°C) $13.8-15.2 \cdot 10^{-6} \cdot K^{-1}$ *</p>
<p>VITA VM 15 CTE (25–500°C) $15.5-15.7 \cdot 10^{-6} \cdot K^{-1}$</p>	<p>Multi-indication alloys CTE (25–600°C) $16.0-17.3 \cdot 10^{-6} \cdot K^{-1}$ *</p>

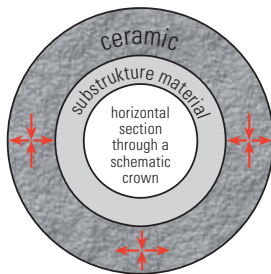
* visit the download section of our website for more information about alloys



If the CTE of the substructure material is **considerably lower** than the CTE of the veneering ceramic, tangential tensile stress will increase and form 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 flaking.



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 for Y-TZP substructures 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. Cracks that are beginning to form are sealed and crack propagation will be stopped.

If a substructure material is veneered with ceramic, the layer thickness of the veneer is a decisive factor in addition to the CTE value. Accordingly, differences in strain (radial tensile stress) are obtained, which will grow in case of increasing layer thickness.

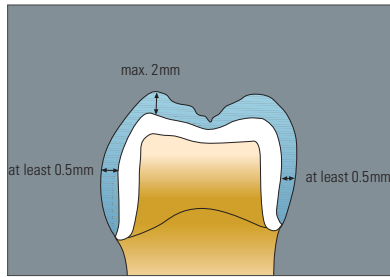
When using dental ceramics, the firing result largely depends on the individual firing procedure of the user. The type of furnace, the location of the temperature sensor, the firing tray as well as the size of the workpiece during the firing cycles are key factors for the final restoration. Our application-technical recommendations for the firing temperatures (regardless whether they have been provided orally, in writing or in the form of practical instructions) are based on numerous experiences and tests. The user, however, should consider this information only to provide basic values. If surface, transparency and degree of gloss should not correspond to the firing result that is achieved under optimal conditions, the firing procedure must be adjusted correspondingly.

⚠ Note: Firing trays may also have a major influence on the result. All firing temperatures for VITAVM 7 are based on the use of black ceramic firing trays. When using light firing trays, the temperature must be raised by 10–20 °C depending on the type of furnace that is used.

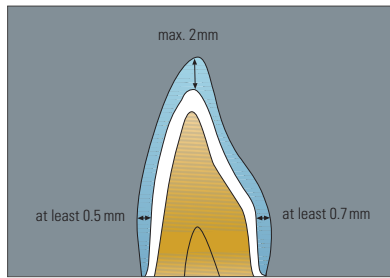
The crucial factors for the firing procedure are not the firing temperature displayed by the furnace but the appearance and the surface condition of the firing object after the firing process.



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



Veneering of premolars and molars



Veneering of anterior teeth

Please observe the detailed instructions given in the respective VITA In-Ceram working instructions!

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 2mm.

The substructure should always have a design to support the tooth stump, i.e. it should have a reduced anatomical tooth size and not have any sharp edges.












No matter what your scheduled indication, with the highest degree of innovation, cutting edge technology and precision, VITA provides you with the best material every time: VITA In-Ceram.

The wide spectrum of oxide ceramics is matched precisely to your requirements. For every indication you can always be sure of the best material.

Whatever your patient's initial situation, or whatever manufacturing procedure you choose (slip-casting or milling technique), our wide range of ceramics for glass infiltration and dense sintering guides you through the process of selecting the correct material from the innovative VITA In-Ceram product family straight towards the perfect solution each time.

VITA In-Ceram permits

- a wide range of indications through a wide variety of materials
- shade accuracy through individual shading of substructures
- excellent esthetics and biocompatibility
- non-adhesive cementation of the restorations
- reliable working procedure and clinical success to which 16 million clinical restorations bear witness.

	Oxide ceramic			
	Infiltration ceramic			Sinter ceramic
	VITA In-Ceram SPINELL	VITA In-Ceram ALUMINA	VITA In-Ceram ZIRCONIA	VITA In-Ceram AL
	—	—	—	●
	○	—	—	—
	○	—	—	—
	●	●	○	●
	—	●	●	●
	—	●	●	●
	—	—	●	—
Veneering material				

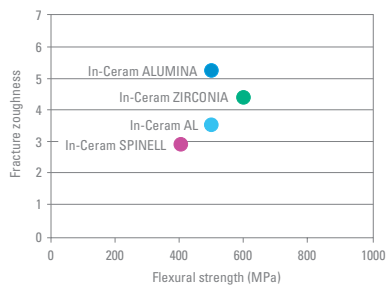
● recommended ○ possible — not possible

The material

After sintering, VITA In-Ceram SPINELL, ALUMINA and ZIRCONIA are initially porous materials. The porosities are then sealed with a special glass by means of an infiltration procedure. This means that these are compound materials.

Aluminium dioxide (Al_2O_3) is an oxide ceramic material with numerous fascinating properties – from its translucency in case of thin walls and its bright color up to its excellent biocompatibility.

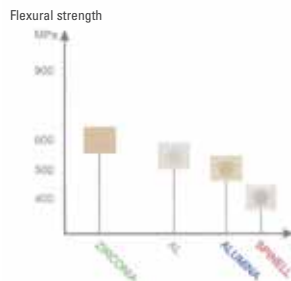
After sintering, VITA In-Ceram AL forms a dense one-phase oxide ceramic. The mechanical properties are improved by adding (doping) special oxides.



Material properties and their advantages for clinic and laboratory

Compared to glass or felspar ceramics, oxide ceramics exhibit higher flexural strength and fracture toughness and are therefore suitable for the fabrication of all-ceramic crown and bridge substructures.

- High radiopacity
- Outstanding esthetics and excellent biocompatibility
- High functional strength thanks to excellent physical properties



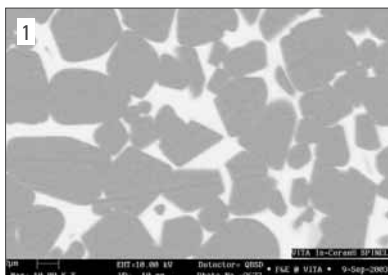
Overview of the different degrees of translucency and the strengths of the various VITA In-Ceram materials

As industrially manufactured, porously presintered blocks, the VITA In-Ceram SPINELL, ALUMINA and ZIRCONIA BLANKS are more strongly sintered (necking) than the corresponding In-Ceram slip material. The VITA In-Ceram YZ CUBES are also porously presintered. As a result all VITA In-Ceram block materials are ideally suited for machine processing, particularly homogeneous and demonstrate a very high degree of strength.

VITA In-Ceram is a material concept which offers advantages to suit differing requirement profiles.

The result is a universal materials and processing system for future-oriented dental laboratories and practices.

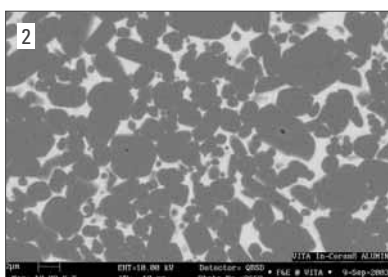
Glass infiltration



VITA In-Ceram® SPINELL ($MgAl_2O_4$)

SPINELL offers perfect anterior esthetics. Thanks to its natural, translucent appearance, it can be used for the fabrication of anterior crowns. This is possible thanks to the excellent physical properties of the synthetically produced spinell which features a high degree of chemical purity.

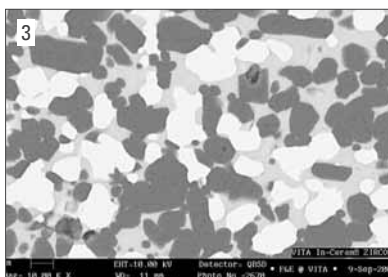
Fig. 1: SPINELL structure, glass infiltrated (magnification 10,000x)



VITA In-Ceram® ALUMINA (Al_2O_3)

ALUMINA – the synthesis of esthetics and strength – is highly versatile and ideally suited for the manufacture of anterior and posterior crown substructures and three-unit anterior bridges. In-Ceram ALUMINA is made of synthetically manufactured corundum which is extracted from bauxite.

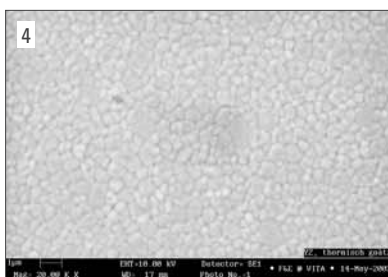
Fig. 2: ALUMINA structure, glass infiltrated (magnification 10,000x)



VITA In-Ceram® ZIRCONIA (Al_2O_3/ZrO_2)

The extremely high strength of ZIRCONIA makes it suitable for posterior crowns and posterior bridges of up to 3 units. ZIRCONIA is aluminium oxide (Al_2O_3) reinforced with zirconium oxide and combines the fracture toughness of ZrO_2 with the high flexural strength of aluminium oxide.

Fig. 3: ZIRCONIA structure, glass infiltrated (magnification 10,000x)



Dense sintering

VITA In-Ceram AL (Al_2O_3)

VITA In-Ceram AL for inLab are presintered blocks made of pure aluminium oxide. In this easily machinable condition they are then milled to bridge and crown substructures in enlarged tooth size. The shrinkage which takes place during the subsequent dense sintering process (see fig. 2) in a special, high-temperature furnace (VITA ZYrcomat), is exactly calculated.

This results in highly stable, marginally accurate substructures which demonstrate all the physical benefits of aluminium oxide.

Fig. 4: In-Ceram AL structure, dense sintered (magnification 20,000x)



VITA In-Ceram® AL COLORING LIQUID

Special liquid for coloring substructures made of VITA In-Ceram AL in 5 lightness levels (LL1–LL5) which are matched to the VITA SYSTEM 3D-MASTER. The use of the liquid ensures perfect reproduction of shades.



Detailed information on processing the VITA In-Ceram AL COLORING LIQUIDS can be found in the working instructions for VITA In-Ceram AL (publication No. 1272)



Colored VITA In-Ceram® AL crown and bridge substructures (CTE $7.3 \cdot 10^{-6} \cdot K^{-1}$)

Colored VITA In-Ceram AL crown and bridge substructures prepared for veneering.



BASE DENTINE Wash-Brand

In order to achieve good bonding between VITA In-Ceram AL substructures and VITA VM 7, we recommend to carry out a BASE DENTINE wash opaque firing which results in perfect wetting of the surface.

To enhance and intensify the basic shade, the wash opaque firing can also be carried out with CHROMA PLUS materials in the case of thin walls.



Recommended firing

Predr. °C	→ min.	↗ min.	↗ °C/min.	approx. temp. °C	→ min.	VAC min.
500	2.00	7.30	60	950	1.00	7.30

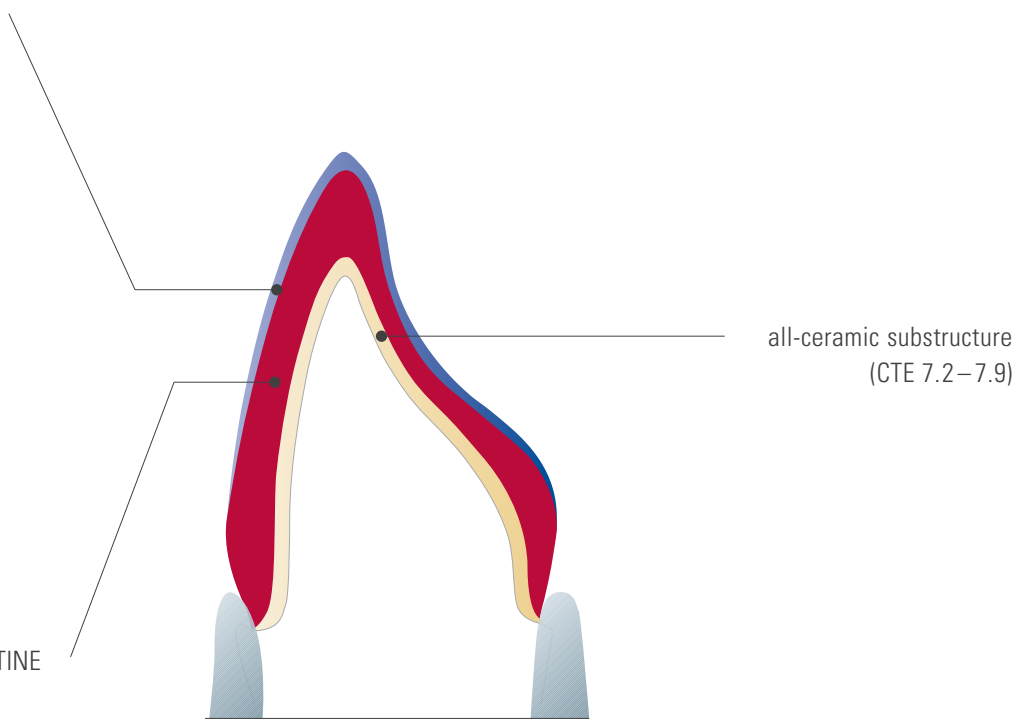
Completed BASE DENTINE wash opaque firing.

See page 17 for further steps of the working procedure for the VITA VM 7 BASIC layering (Application of VITA VM 7 BASE DENTINE). See page 21 for further steps to continue the working procedure for the VITA VM 7 BUILD UP layering (Application of VITA VM 7 BASE DENTINE).

VITAVM 7 ENAMEL



VITAVM 7 BASE DENTINE



VITAVM 7 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. This two-layer variation offers an ideal solution in particular for the reproduction of the optimal shade of restorations with thin walls. Additionally, the intensive shade effect of the BASE DENTINE porcelains permits a variable use of the ENAMEL porcelains which create the desired translucency. The user is able to prepare a natural restoration with a life like 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 is the shade of the restoration. The thicker the ENAMEL layer, the paler is the shade of the restoration.



**VITA In-Ceram[®] crown and bridge substructures*
(CTE 7.2 – 7.9 · 10⁻⁶ · K⁻¹)**

VITA In-Ceram ALUMINA crown and bridge substructures ready for veneering. To allow easy removal of the restoration later on, the model must be previously insulated using the VITA Modisol pen.

*See page 15 for the procedure for VITA In-Ceram AL



Application of VITAVM[®]7 BASE DENTINE

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

See page 16 for information about the BASIC layering!



To obtain adequate space for the enamel, removal of corresponding amount of the BASE DENTINE according to the layering pattern is required.



Application of VITAVM[®]7 ENAMEL

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

The classification tables of the VITAVM 7 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.



The applied porcelains ready for first dentine firing.

Recommended firing – first dentine firing

Predr. °C	→ min.	↗ min.	↗ °C/min.	approx. temp. °C	→ min.	VAC min.
500	6.00	7.27	55	910	1.00	7.27

The user should consider this information only to provide basic values. If surface, transparency and degree of gloss do not correspond to the firing result that is achieved under optimal conditions, the firing procedure 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 firing object after the firing process.



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

Predr. °C	→ min.	↗ min.	↗ °C/min.	approx. temp. °C	→ min.	VAC min.
500	6.00	7.16	55	900	1.00	7.16

The user should consider this information only to provide basic values. If surface, transparency and degree of gloss do not correspond to the firing result that is achieved under optimal conditions, the firing procedure 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 firing object after the firing process.



Bridge and crown after second dentine firing.



Finishing

Finish the bridge or crown respectively. Prior to glaze firing, the entire surface must be ground evenly and then grinding dust must be thoroughly removed.

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 Glaze and then individualization can be carried out using the VITA AKZENT stains. (See VITA AKZENT working instructions no. 771)

Recommended firing – Glaze firing with VITA AKZENT®

Predr. °C	→ min.	↗ min.	↗ °C/min.	approx. temp. °C	→ min.	VAC min.
500	4.00	5.00	80	900	1.00	–

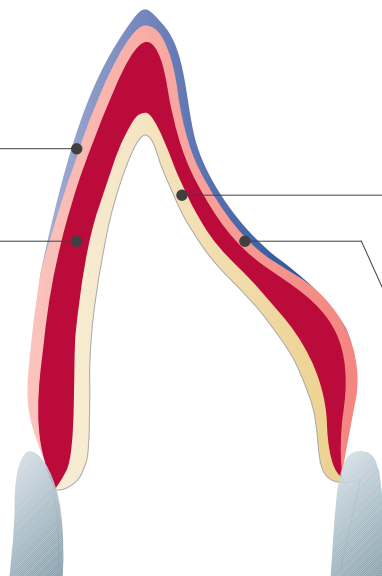


The user should consider this information only to provide basic values. If surface, transparency and degree of gloss do not correspond to the firing result that is achieved under optimal conditions, the firing procedure must be adjusted correspondingly. The crucial factors for the firing procedure are not the firing temperature displayed by the furnace but the appearance and the surface condition of the firing object after the firing process.

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 proved to be highly suitable.

VITAVM 7 ENAMEL



all-ceramic substructure
(CTE 7.2–7.9)

VITAVM 7 BASE DENTINE



VITAVM 7 TRANSPA DENTINE



The VITAVM 7 BUILD UP layering includes the application of the three materials BASE DENTINE, TRANSPA DENTINE and ENAMEL.

The combination of color-bearing BASE DENTINE and translucent TRANSPA DENTINE in the VITAVM 7 BUILD UP layering creates an enhanced effect of depth in the restoration.

The use of the three-layer method permits reduced and more individual application of the ENAMEL porcelains resulting in even more convincing reproduction of the natural example.

⚠ Note: By combining ENAMEL and TRANSPA 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 TRANSPA DENTINE and ENAMEL will reduce the chroma of the shade.



**VITA In-Ceram[®] crown and bridge substructures*
(CTE 7.2 – 7.9 · 10⁻⁶ · K⁻¹)**

VITA In-Ceram ALUMINA crown and bridge substructures ready for veneering. To allow easy removal of the restoration later on, the model must be previously insulated using the VITA Modisol pen.

*See page 15 for the procedure for VITA In-Ceram AL



Application of VITAVM[®]7 BASE DENTINE

Apply the desired shade of BASE DENTINE starting from the neck to obtain the required complete tooth shape.

See page 20 for information about the BUILD UP layering!



Completely layered BASE DENTINE.



Application of VITAVM[®]7 TRANSPA DENTINE

TRANSPA DENTINE is applied in the required complete tooth shape. The centric, lateral and protrusive occlusion must be checked in the articulator during this stage.



To obtain sufficient space for the enamel, the volume of the TRANSPA DENTINE must be reduced correspondingly.



Application of VITAVM[®]7 ENAMEL

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

The classification tables for the VITAVM 7 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 the first dentine firing.

Recommended firing – first dentine firing

Predr. °C	→ min.	↗ min.	↗ °C/min.	approx. temp. °C	→ min.	VAC min.
500	6.00	7.27	55	910	1.00	7.27

The user should consider this information only to provide basic values. If surface, transparency and degree of gloss do not correspond to the firing result that is achieved under optimal conditions, the firing procedure 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 firing object after the firing process.



Restoration after first dentine firing.



Corrections of shape/further layering

Insulate the model once more at the pontic with the VITA Modisol pen. The interproximal 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

Predr. °C	→ min.	↗ min.	↗ °C/min.	approx. temp. °C	→ min.	VAC min.
500	6.00	7.16	55	900	1.00	7.16

The user should consider this information only to provide basic values. If surface, transparency and degree of gloss do not correspond to the firing result that is achieved under optimal conditions, the firing procedure 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 firing object after the firing process.



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.



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 GLAZE and then individualization can be carried out using the VITA Akzent stains (see VITA Akzent working instructions, no. 771).

Recommended firing – Glaze firing with VITA AKZENT®





Predr. °C	→ min.	↗ min.	↗ °C/min.	approx. temp. °C	→ min.	VAC min.
500	4.00	5.00	80	900	1.00	–



The user should consider this information only to provide basic values. If surface, transparency and degree of gloss do not correspond to the firing result that is achieved under optimal conditions, the firing procedure 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 firing object after the firing process..

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 proved to be highly suitable.

	Predr. °C	 min.	 min.	 °C/min.	approx. temp. °C	 min.	VAC min.
BASE DENTINE Wash-Brand	500	2.00	7.30	60	950	1.00	7.30
MARGIN* firing	500	6.00	7.40	60	960	1.00	7.40
EFFECT LINER* firing	500	6.00	8.11	55	950	1.00	8.11
First dentine firing	500	6.00	7.27	55	910	1.00	7.27
Second dentine firing	500	6.00	7.16	55	900	1.00	7.16
Stains fixation firing	500	6.00	3.00	100	800	–	–
Glaze firing	500	–	5.00	80	900	1.00	–
Glaze firing VITA AKZENT	500	4.00	5.00	80	900	1.00	–
Corrective firing with CORRECTIVE*	500	4.00	6.00	55	830	1.00	6.00





*Indication range, see pages 28/29

When using dental ceramics, the firing result largely depends on the individual firing procedure of the user, i.e. among other aspects, the type of furnace, the location of the temperature sensor, the firing tray as well as the size of the workpiece during the firing cycles.

Our application-technical recommendations for the firing temperatures (regardless whether they have been provided orally, in writing or in the form of practical instructions) are based on numerous experiences and tests. The user, however, should consider this information only to provide basic values.

If surface, transparency and degree of gloss do not correspond to the firing result that is achieved under optimal conditions, the firing procedure 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 firing object after the firing process.

Explanation of the firing parameters:

- Predr. °C Start temperature
-  min. Predrying time in min, closing time
-  min. Heating time in min
-  °C/min. Temperature rise rate in degrees Celsius per minute
- approx. temp. °C End temperature
-  min. Holding time for end temperature
- VAC min. Vacuum holding time in minutes

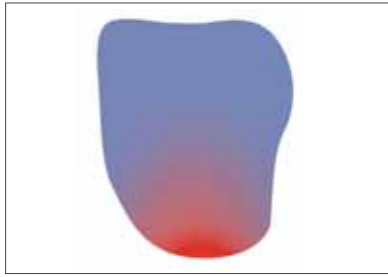
The classifications given below are only intended to provide reference values!

VITA SYSTEM 3D-MASTER shades	ENAMEL	EFFECT LINER SPINELL**	EFFECT LINER ZIRCONIA**	CHROMA PLUS**	MARGIN**
0M1	ENL	–	EL1	–	M1
0M2	ENL	–	EL1	–	M1
0M3	ENL	–	EL1	–	M1
1M1	ENL	EL2	–	–	M1/M7*
1M2	ENL	EL2	–	–	M1/M7*
2L1.5	ENL	EL4	EL4	CP2	M1/M7*
2L2.5	ENL	EL4	EL4	CP2	M1/M4*
2M1	ENL	EL4	EL4	CP2	M1/M4*
2M2	ENL	EL4	EL4	CP2	M1/M4*
2M3	ENL	EL4	EL4	CP2	M4
2R1.5	ENL	EL4	EL4	CP2	M1/M7*
2R2.5	ENL	EL4	EL4	CP2	M1/M4*
3L1.5	ENL	EL4	EL4	CP3	M4/M7*
3L2.5	ENL	EL4	EL4	CP3	M4/M7*
3M1	ENL	EL4	EL4	CP3	M7
3M2	ENL	EL4	EL4	CP3	M4/M7*
3M3	ENL	EL4	EL4	CP3	M4/M9*
3R1.5	ENL	EL4	EL4	CP3	M7
3R2.5	ENL	EL4	EL4	CP3	M4/M7*
4L1.5	END	EL4	EL3	CP4	M7
4L2.5	END	EL4	EL3	CP4	M4/M9*
4M1	END	EL4	EL3	CP4	M7
4M2	END	EL4	EL3	CP4	M7/M9*
4M3	END	EL4	EL3	CP4	M9
4R1.5	END	EL4	EL3	CP4	M7/M8*
4R2.5	END	EL4	EL3	CP4	M7/M9*
5M1	END	EL3	EL3	–	M7/M8*
5M2	END	EL3	EL3	–	M7/M9*
5M3	END	EL3	EL3	–	M5/M9*

* Mixing ratio 1:1

** Indication range, see pages 28/29

When veneering VITA In-Ceram SPINELL and ZIRCONIA, EFFECT LINER materials are required for perfect shade reproduction.



VITAVM[®]7 BASIC layering

Please see also the layering pattern on page 16!



VITAVM[®]7 BUILD UP layering

Compare the layering pattern on page 20!

















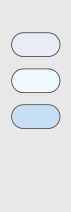





VITAVM[®]7 liquid

VITAVM[®] MODELLING LIQUID

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

VITAVM MODELLING LIQUID offers exceptional stability when building up layers. Since the liquid dries more quickly, VITA MODELLING LIQUID is a useful accessory for dental technicians who want to prepare small restorations or do not want to dry the restoration repeatedly or remove excess liquid constantly.

<p>VITAVM.7 EFFECT LINER</p> <ul style="list-style-type: none"> – to control the fluorescence from the depth of the restoration – universally suitable to enhance and intensify the basic shade – applied in the gingival area, they enhance the distribution of light – for reliable shade reproduction of VITA In-Ceram SPINELL and ZIRCONIA (classification tables, see page 26) 		<table border="1"> <tbody> <tr> <td>EL1</td> <td>snow</td> <td>white</td> </tr> <tr> <td>EL2</td> <td>cream</td> <td>beige</td> </tr> <tr> <td>EL3</td> <td>tabac</td> <td>brown</td> </tr> <tr> <td>EL4</td> <td>golden fleece</td> <td>yellow</td> </tr> <tr> <td>EL5</td> <td>papaya</td> <td>orange</td> </tr> <tr> <td>EL6</td> <td>sesame</td> <td>green-yellow</td> </tr> </tbody> </table>	EL1	snow	white	EL2	cream	beige	EL3	tabac	brown	EL4	golden fleece	yellow	EL5	papaya	orange	EL6	sesame	green-yellow																
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EL3	tabac	brown																																		
EL4	golden fleece	yellow																																		
EL5	papaya	orange																																		
EL6	sesame	green-yellow																																		
<p>VITAVM.7 EFFECT CHROMA</p> <ul style="list-style-type: none"> – color-intensive modifier porcelains – to accentuate certain color areas of the tooth – to vary the lightness value in the neck, dentine and enamel areas. 		<table border="1"> <tbody> <tr> <td>EC1</td> <td>ghost</td> <td>white</td> </tr> <tr> <td>EC2</td> <td>linen</td> <td>sand-beige</td> </tr> <tr> <td>EC3</td> <td>pale banana</td> <td>light yellow</td> </tr> <tr> <td>EC4</td> <td>lemon drop</td> <td>tender lemon yellow</td> </tr> <tr> <td>EC5</td> <td>golden rod</td> <td>light orange</td> </tr> <tr> <td>EC6</td> <td>sunflower</td> <td>orange</td> </tr> <tr> <td>EC7</td> <td>light salmon</td> <td>pink</td> </tr> <tr> <td>EC8</td> <td>toffee</td> <td>beige-brown</td> </tr> <tr> <td>EC9</td> <td>doe</td> <td>brown</td> </tr> <tr> <td>EC10</td> <td>larch</td> <td>green-brown</td> </tr> <tr> <td>EC11</td> <td>gravel</td> <td>green-grey</td> </tr> </tbody> </table>	EC1	ghost	white	EC2	linen	sand-beige	EC3	pale banana	light yellow	EC4	lemon drop	tender lemon yellow	EC5	golden rod	light orange	EC6	sunflower	orange	EC7	light salmon	pink	EC8	toffee	beige-brown	EC9	doe	brown	EC10	larch	green-brown	EC11	gravel	green-grey	
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EC11	gravel	green-grey																																		
<p>VITAVM.7 MAMELON</p> <ul style="list-style-type: none"> – highly fluorescent porcelain which is mainly used in the incisal area – for shade characterization between dentine and enamel 		<table border="1"> <tbody> <tr> <td>MM1</td> <td>ecru</td> <td>beige</td> </tr> <tr> <td>MM2</td> <td>mellow buff</td> <td>warm yellow-brown</td> </tr> <tr> <td>MM3</td> <td>peach puff</td> <td>tender orange</td> </tr> </tbody> </table>	MM1	ecru	beige	MM2	mellow buff	warm yellow-brown	MM3	peach puff	tender orange																									
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MM3	peach puff	tender orange																																		
<p>VITAVM.7 GINGIVA</p> <ul style="list-style-type: none"> – to restore the original gingival situation – are applied and fired during the first and/or second dentine firing – color nuances range from orange-red and reddish to brown-red 		<table border="1"> <tbody> <tr> <td>G1</td> <td>rose</td> <td>dusty pink</td> </tr> <tr> <td>G2</td> <td>nectarine</td> <td>orange-pink</td> </tr> <tr> <td>G3</td> <td>pink grapefruit</td> <td>pink</td> </tr> <tr> <td>G4</td> <td>rosewood</td> <td>brown-red</td> </tr> <tr> <td>G5</td> <td>cherry brown</td> <td>black-red</td> </tr> </tbody> </table>	G1	rose	dusty pink	G2	nectarine	orange-pink	G3	pink grapefruit	pink	G4	rosewood	brown-red	G5	cherry brown	black-red																			
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G4	rosewood	brown-red																																		
G5	cherry brown	black-red																																		
<p>VITAVM.7 CORRECTIVE</p> <ul style="list-style-type: none"> – with reduced firing temperature (830 °C) for corrections after glaze firing – in three nuances for neck, dentine and enamel areas 		<table border="1"> <tbody> <tr> <td>COR1</td> <td>neutral</td> <td>neutral</td> </tr> <tr> <td>COR2</td> <td>sand</td> <td>beige</td> </tr> <tr> <td>COR3</td> <td>ochre</td> <td>brown</td> </tr> </tbody> </table>	COR1	neutral	neutral	COR2	sand	beige	COR3	ochre	brown																									
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COR2	sand	beige																																		
COR3	ochre	brown																																		

<p>VITAVM[®]7 EFFECT ENAMEL</p> <ul style="list-style-type: none"> – can be used for all enamel areas of the natural tooth – universally suitable, translucent enamel effect porcelains – to achieve a natural effect of depth 		<p>EE1</p> <p>EE2</p> <p>EE3</p> <p>EE4</p> <p>EE5</p> <p>EE6</p> <p>EE7</p> <p>EE8</p> <p>EE9</p> <p>EE10</p> <p>EE11</p>	<p>mint cream whitish-translucent</p> <p>pastel pastel</p> <p>misty rose pink translucent</p> <p>vanilla yellowish</p> <p>sun light yellowish-translucent</p> <p>navajo reddish-translucent</p> <p>golden glow orange-translucent</p> <p>coral red-translucent</p> <p>water drop bluish-translucent</p> <p>silver lake blue blue</p> <p>drizzle greyish-translucent</p>	
<p>VITAVM[®]7 EFFECT PEARL</p> <ul style="list-style-type: none"> – only suitable for effects on the surface, not for layering in – perfectly suitable for bleached reproductions – to obtain nuances of yellow and red 		<p>EP1</p> <p>EP2</p> <p>EP3</p>	<p>pearl shade in pastel-yellow</p> <p>pearl blush shade in pastel-orange</p> <p>pearl rose shade in pastel-rosé</p>	
<p>VITAVM[®]7 EFFECT OPAL</p> <ul style="list-style-type: none"> – to obtain the opal effect in restorations of young and highly translucent teeth 		<p>E01</p> <p>E02</p> <p>E03</p>	<p>opal neutral, universally suitable</p> <p>opal whitish whitish</p> <p>opal bluish bluish</p>	
<p>VITAVM[®]7 MARGIN</p> <ul style="list-style-type: none"> – for minor corrections at the margin area – after the application, the plastified MARGIN material must be hardened through the supply of heat; it is recommended to use a hair-drier or radiated heat from the furnace to stabilize the shoulder 		<p>M1</p> <p>M4</p> <p>M5</p> <p>M7</p> <p>M8</p> <p>M9</p>	<p>icy beige white</p> <p>wheat yellow</p> <p>amber amber</p> <p>seashell light beige</p> <p>tan pastel-brown</p> <p>beach light orange</p>	
<p>VITAVM[®]7 CHROMA PLUS</p> <ul style="list-style-type: none"> – color-intensive porcelains which are preferably used in combination with BASE DENTINE – in case of thin walls, they enhance the shade in an efficient manner 		<p>CP2</p> <p>CP3</p> <p>CP4</p>	<p>almond beige</p> <p>moccasin light orange-brown</p> <p>caramel orange</p>	



VITAVM [®] 7 BASIC KIT*		
Basic assortment for BASIC layering		
Quantity	Content	Material
3	12 g	EFFECT LINER EL2–EL4
3	12 g	CHROMA PLUS CP2–CP4
26	12 g	BASE DENTINE 1M1–5M3**
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 VM MODELLING LIQUID
1	–	VITA MODISOL pen
1	pack	Firing tray G
1	pack	Fibrous pad firing support
1	–	Shade indicator
1	–	VITA Toothguide 3D-MASTER
1	–	Working instructions

** also available in 50 g in the following shades: 1M1, 1M2, 2M1, 2M2, 2M3, 3L1.5, 3L2.5, 3M1, 3M2, 3M3, 3R1.5, 3R2.5, 4M1, 4M2, 4M3, NT, WIN, ENL, END
 * also available as BASIC KIT SMALL with reduced selection of materials



VITAVM [®] 7 BUILD UP KIT*		
Add-on assortment for BUILD UP layering		
Quantity	Content	Material
26	12 g	TRANSPA DENTINE 1M1–5M3**
1	50 ml	VITA VM MODELLING LIQUID

** also available in 50 g in the following shades: 1M1, 1M2, 2M1, 2M2, 2M3, 3L1.5, 3L2.5, 3M1, 3M2, 3M3, 3R1.5, 3R2.5, 4M1, 4M2, 4M3, NT, WIN, ENL, END
 * also available as BUILD UP KIT SMALL with reduced selection of materials



VITAVM [®] 7 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
2	12 g	EFFECT LINER EL5, EL6
3	12 g	MAMELON MM1, MM2, MM3
3	12 g	EFFECT PEARL EP1, EP2, EP3
3	12 g	EFFECT OPAL EO1, EO2, EO3
3	–	Shade guides

* also available as PROFESSIONAL KIT SMALL (EC1, EC4, EC6, EC8, EC9, MM2, EP1, EO2, EE1, EE3, EE7, EE8, EE9, EE10, EE11)



VITAVM [®] 7 BLEACHED COLOR KIT		
Ultra-bright shades for the reproduction of bleached teeth		
Quantity	Content	Material
1	12 g	EFFECT LINER EL1
3	12 g	BASE DENTINE 0M1, 0M2, 0M3
3	12 g	TRANSPA DENTINE 0M1, 0M2, 0M3
1	12 g	ENAMEL ENL
1	12 g	NEUTRAL NT
1	12 g	WINDOW WIN
1	50 ml	VITAVM MODELLING LIQUID
1	–	BLEACHED SHADE GUIDE SHADE GROUP 0M
1	–	Working instructions



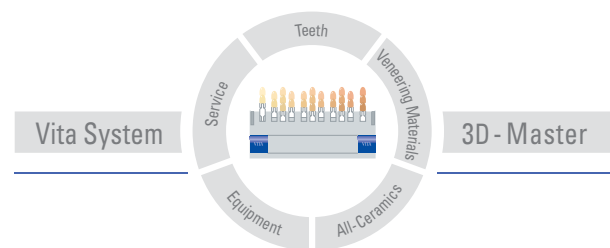
VITAVM [®] 7 GINGIVA KIT		
Gingiva materials with natural effects		
Quantity	Content	Material
5	12 g	GINGIVA G1–G5
1	–	Shade guide



VITAVM [®] 7 MARGIN KIT		
Only for minor corrections in the area of margins		
Quantity	Content	Material
6	12 g	MARGIN M1, M4, M5, M7, M8, M9
1	–	Shade guide

VITAVM7 veneering ceramic is available in VITA SYSTEM 3D-MASTER shades. Shade compatibility with all VITA 3D-MASTER materials is ensured.

With the unique VITA SYSTEM 3D-MASTER all natural tooth shades are systematically determined and completely reproduced.



Please note: Our products should be used according to the working instructions. We cannot be held liable for damages 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 porcelains and equipment from other manufacturers which are not compatible or not authorized for use with our product. Furthermore, our liability for the correctness of this information is independent of the legal ground and, in as far as legally permissible, is limited to the invoiced value of the goods supplied excluding turnover tax. In particular, as far as legally permissible, we do not assume any liability for profit loss, for indirect damages, for consequential damages or for claims of third parties against the purchaser. Claims for damages based on fault liability (culpa in contrahendo, breach of contract, unlawful acts, etc.) can only be made in the case of intent or gross negligence. The VITA Modulbox is not necessarily a component of the product. Date of issue of these working instructions: 09.08

After the publication of these working instructions any previous versions become obsolete. The current version can be found at www.vita-zahnfabrik.com

VITA Zahnfabrik is certified according to the Medical Device Directive and the following products bear the CE mark **CE 0124** :

VITAVM[®]7
VITA In-Ceram[®] ALUMINA
VITA In-Ceram[®] SPINELL
VITA In-Ceram[®] ZIRCONIA
VITA In-Ceram[®] AL
VITA AKZENT[®]

US 5498157 A · AU 659964 B2 · EP 0591958 B1

VITA

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