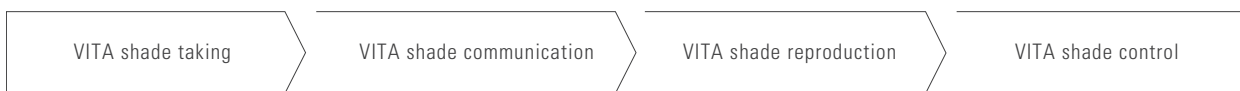
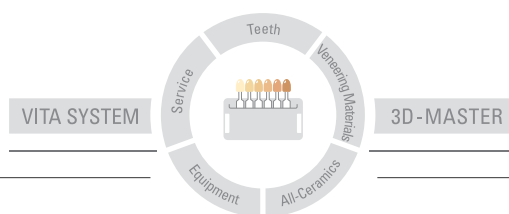


VITAVM[®]9

For individualizing VITABLOCS[®]



Date of issue: 05.10



VITA

Available in VITA SYSTEM 3D-MASTER and VITA classical A1 - D4 shades

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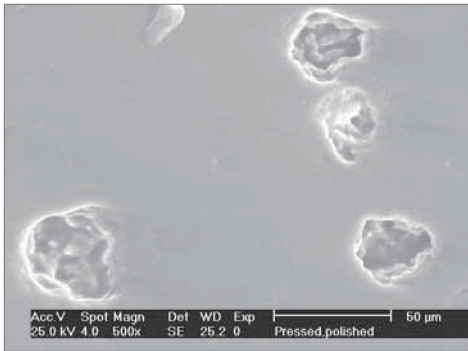


Fig. 1: Press ceramic (magnification 500 x)

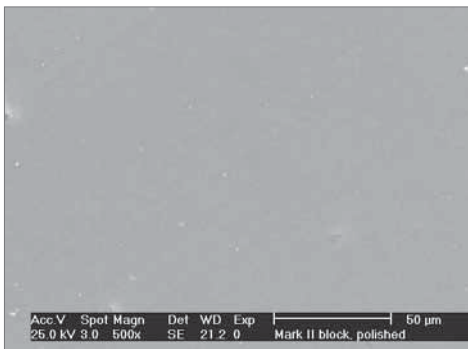


Fig. 2: Industrially manufactured and sintered VITABLOCS (magnification 500 x)

Fig.: Prof. Dr. Russel Giordano, Boston University

VITABLOCS Mark II consist of natural feldspar materials such as potassium feldspar (orthoclase) and albite. The advantages of natural feldspar materials - compared to other ceramic materials - are the high purity and the large temperature range during melting. The average particle size of the raw materials used is approx. 4 µm. As a result, the microstructure of the VITABLOCS exhibits very fine crystalline portions (not entirely molten albite, among others), which are very homogeneously embedded in the surrounding glass matrix.

The crystalline portion is less than 20 % by weight. The fine structure and the industrial sintering process are the reasons for the good polishability and excellent enamel-like abrasion properties of restorations made from VITABLOCS.

The fine structure ensures that antagonist teeth are not exposed to harmful "sandpaper" effects.

Standardized controlled production based on the industrial sintering process under vacuum at 1170°C, which can be reproduced at any time, creates a clearly more homogeneous microstructure with constant material quality (see fig. 1 and 2) compared to ceramic restorations pressed in the laboratory. This results in high flexural strength of 150 MPa and a uniform and highly retentive etching pattern is obtained by selective etching out the feldspar matrix using hydrofluoric acid. This way reliable and clinically durable adhesive bonding to the tooth substance is ensured.

VITA VM 9 has been designed as a special veneering ceramic featuring a fine structure for partially yttrium-stabilized ZrO₂ substructures with a CTE of approx. $10.5 \cdot 10^{-6} \cdot K^{-1}$, such as VITA In-Ceram YZ. The material is also perfectly suited for individualizing VITABLOCS (see Working Instructions, No. 1219E) and for individualizing overpressed VITA VM 9 restorations.

Like all VITA VM materials, VITA VM 9 excels in its refraction and reflection behavior which is similar to that of enamel. The use of fluorescent and opalescent additional materials results in individual and aesthetically 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 particularly homogeneous distribution of the crystal and glass phase. This structure is defined as fine structure.

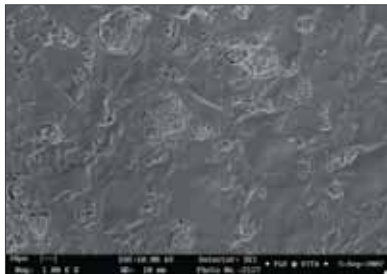


Photo 1: SEM photo of the surface of a ceramic with a conventional structure (magnification 5000 x).

Photo 1::

The etched surface of a ceramic with conventional structure (etched with VITA CERAMICS ETCH for 20 sec) reveals agglomerates of leucite crystals with diameters up to 30 μm . The differences in the CTE of the leucite agglomerates and the glass phase frequently result in stress cracks which can be seen at the bright rims of the cracks in the photo.

Photo 2:

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

Favorable surface condition

The fine structure provides a number of benefits for dental technicians, dentists and patients alike. Thanks to the homogeneous, sealed surface, VITA VM 9 offers excellent grinding and polishing properties in situ to ensure smooth and perfectly sealed surfaces. Accumulation of plaque on the ceramic surface is reduced considerably; hence easy care and cleaning of the high-quality restoration are supported.

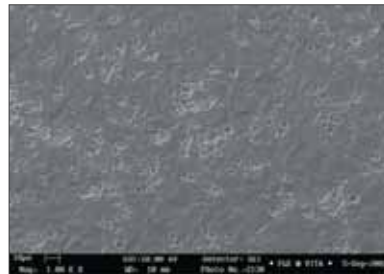
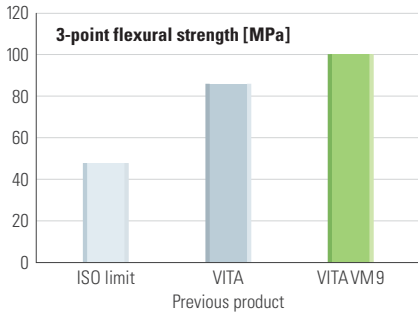


Photo 2: SEM photo of the surface of VITA VM 9 (magnification 5000 x)

Enhanced physical properties

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



Flexural strength

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

VITAVM [®] 9 – Physical properties	Unit of measure	Value
CTE (25–500°C)	10 ⁻⁶ · K ⁻¹	8.8–9.2
Softening point	°C	approx. 670
Transformation temperature	°C	approx. 600
Solubility in acids	µg/cm ²	approx. 10
Average particle size	µm (d ₅₀)	approx. 18
3-point flexural strength	MPa	approx. 100

Similarity to enamel

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

Literatur: E. A. McLaren, DDS; R. A. Giordano II, DMD, DMedSc „Zirconia Based Ceramics: Material Properties, Esthetics and Layering Technique of a new Veneering Porcelain, VM 9“, (Quintessenz of Dental Technology 28, 99–111 [2005])

Indication

VITA VM 9 is **suitable for individualizing VITABLOCS.**

The CTE of the VITABLOCS is slightly lower than the CTE of the VITA VM 9 veneering material.

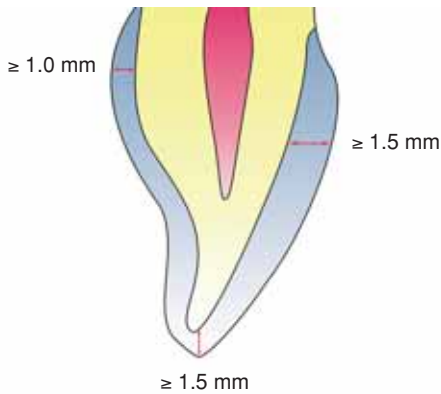
Contraindication

VITA VM 9 is not suitable for full veneers on copings made from VITABLOCS.

Important information:

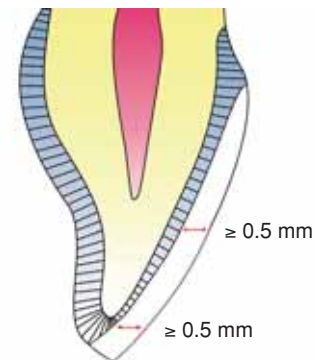
To ensure clinical success, the milled restorations may only be reduced to such an extent that minimum wall thicknesses are adhered to prior to individualizing with VITA VM 9.

Anterior

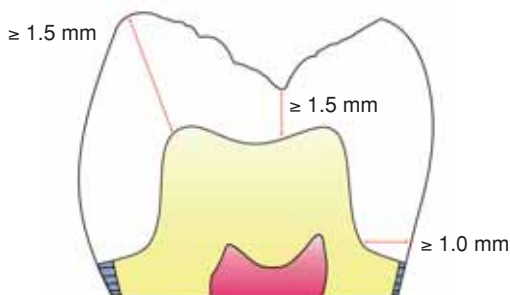


Veneer

The thickness of a milled veneer should not be less than 0.5 mm to avoid distortion when firing on VITA VM 9.



Molar



Preparatory steps for individualizing the milled restoration with VITAVM®9



Milling of the restorations.

Minimum wall thicknesses must be adhered to!



The VITA VM 9 ESTHETIC KIT includes various materials for individualizing the completely milled restoration.



To obtain sufficient space for individualizing the enamel, the incisal margin must be cut back the required amount using a diamond grinding tool..

Note:

It is recommended to use a turbine with water cooling.

Important: The restoration must be carefully cleaned with steam or alcohol to remove all grinding particles.

Individualizing the milled restoration with VITAVM®9



Fixation of stains

Characterizing the restoration with VITA SHADING PASTE OR VITA AKZENT STAINS. Adding fissures and mamelon structures.

Recommended firing

Predr. °C	→ min.	↗ min.	↗ °C/min.	approx. temp. °C	→ min.	VAC min.
500	4.00	4.45	80	880	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.



Prior to the application of the VITA VM 9 materials, the milled restorations should be cleaned thoroughly with steam or alcohol and subsequently wetted with VITA VM MODELLING LIQUID.

Note: Failure to do so may result in the fact that the ceramic will not adhere to the base structure.



Application of VITA VM 9 MAMELON.



Application of VITA VM 9 ENAMEL.

OM1C	1M1C	1M2C	2M1C	2M2C	2M3C	3M1C	3M2C	3M3C	4M2C
ENL	ENL	ENL	ENL	ENL	ENL	ENL	ENL	ENL	END



Restoration ready for "individualization firing".

The individualized restoration is placed on a suitable firing tray.

VENEER: place on fibrous pad. When using fibrous pad, the end temperature needs to be increased by approx. 15°C.

Recommended firing

Predr. °C	→ min.	↗ min.	↗ °C/min.	approx. temp. °C	→ min.	VAC min.
500	6.00	7.49	55	930	1.00	7.49

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.



The restoration after individualization firing.

Completion

The restoration is finished.

Mechanical polishing with diamond polishing paste (for example, Dia-Glaze, Yeti; Karat diamond polishing paste, VITA)

If dust is formed, an extraction unit or a face mask must be used. Moreover, protective goggles must be worn when milling the fired ceramic.



If required, the entire restoration can be coated with VITA AKZENT Glaze (Akz 25), AKZENT Glaze Spray, VITA AKZENT finishing agent (Akz 26) or SHADING PASTE Glaze (SP 15).

To obtain a uniform luster, the restoration should be polished with rubber polishers prior to glaze firing.



Completed restoration on the model after glaze firing.

VITAVM®9 Firing chart and content of assortment

	Predr. temp. °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
Stains-fixation firing of VITA SHADING PASTE or VITA AKZENT	500	4.00	4.45	80	880	1.00	-
1st individualization firing with VITA VM 9	500	6.00	7.49	55	930	1.00	7.49
2nd individualization firing with VITA VM 9	500	6.00	7.38	55	920	1.00	7.38
Glaze firing VITA SHADING PASTE, AKZENT, AKZENT glaze, AKZENT glaze spray, AKZENT finishing agent	500	4.00	5.15	80	920	1.00	-
Glaze firing VITA Glaze LT powder	500	4.00	3.30	80	780	1.00	-
Glaze firing VITA Glaze LT paste	500	6.00	3.30	80	780	1.00	-
Correction firing with VITA VM 9 COR	500	4.00	4.40	60	780	1.00	4.40

When using dental ceramics, the firing result largely depends on the individual firing procedure of the user, i.e. among other aspects on 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 (regardless whether they have been provided orally, in writing or in the form of practical instructions) are based on numerous own 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. 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 min.

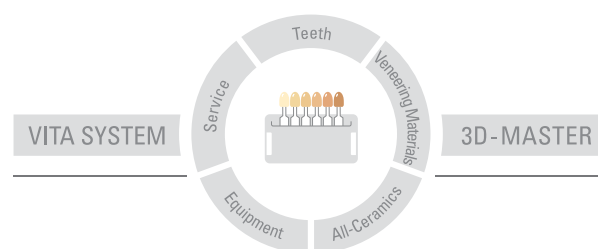
Content of assortment

Quantity	Content	Material
1		Sample Set of VITABLOCS 3D-MASTER
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	12 g	EFFECT OPAL E02
2	12 g	EFFECT CHROMA EC1, EC4
1	12 g	MAMELON MM2
1	7 g	VITA SHADING PASTE glaze SP15
1	5 g	VITA AKZENT finishing agent
1	15 ml	VITA SHADING PASTE LIQUID
1	50 ml	VITAVM MODELLING LIQUID
1		Working instructions
1		Accessories



VITAVM®9 EFFECT ENAMEL – Can be used for all enamel areas of the natural tooth – Universally suitable, translucent enamel effect porcelains – To achieve a natural effect of depth		EE1	whitish-translucent	
		EE10	blue	
VITAVM®9 EFFECT PEARL – Only suitable for effects on the surface, not for layering in – Perfectly suitable for bleached reproductions		EP1	shade in pastel-yellow	
VITAVM®9 EFFECT OPAL – To obtain the opal effect in restorations of young and highly translucent teeth		E01	neutral, universally suitable	
VITAVM®9 EFFECT CHROMA – Color-intensive modifier porcelains – To accentuate certain color areas of the tooth – To increase the lightness value in the neck, dentine and enamel areas.		EC1	white	
		EC4	tender lemon yellow	
VITAVM®9 MAMELON – Highly fluorescent porcelain which is mainly used in the incisal area – For shade characterization between dentine and enamel		MM2	warm yellow-brown	
VITAVM®9 CORRECTIVE – With reduced firing temperature (760°C) for corrections after glaze firing		COR1	neutral	

The VITAVM 9 veneering material is available in VITA SYSTEM 3D-MASTER and VITA classical A1-D4 shades. Shade compatibility with all VITA SYSTEM 3D-MASTER and VITA classical A1-D4 shades is ensured.



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: 05.10.

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[®]9 · VITA AKZENT[®] · VITA SHADING PASTE
VITABLOCS[®]**

US 5498157 A · AU 659964 B2 · EP 0591958 B1

VITA

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