VITABLOCS®

Working Instructions

VITA shade determination | VITA shade communication | VITA shade reproduction | VITA shade control

Date of issue: 03.20

VITA – perfect match. VITA

Fine-structure feldspar ceramic blocks
for the fabrication of inlays, onlays,
veneers and crowns

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VITABLOCS are industrially manufactured, fine-structure feldspar ceramic blocks used to fabricate inlays, onlays, veneers and crowns with various CAD/CAM systems. Compared to other machinable silicate ceramics available on the market, they are characterized by their unique combination of feldspar materials and fine particle microstructure, which results in chipping resistance, protection of the natural tooth substance against abrasion and excellent polishing properties.

Since 1990, more than 30 million clinically proven restorations have been fabricated using VITABLOCS - the world's first fine-structure dental ceramic. Survival rates of 97% for crowns after 5 years, 95.5% after 9 years and 84.4% after 18 years for inlays, correspond to the gold standard (see list of references, page 51). This can also be attributed to the excellent adhesive bond between ceramic and tooth substance, which is achieved with the excellent etching properties of VITABLOCS.

VITABLOCS TriLuxe forte have been available in different shade intensity levels since 2007. VITABLOCS RealLife were introduced in 2010.

VITABLOCS TriLuxe, TriLuxe forte and RealLife are produced from the proven Mark II ceramic. In addition to the excellent reflective effects and the white fluorescence of the Mark II ceramic, various color saturation levels (chroma) and translucency levels can be combined in one block through a special manufacturing process. As a result, they differ significantly from the monochromatic VITABLOCS Mark II. They allow the characteristic color gradients present in natural dentition to be replicated, both in terms of translucency and intensity, facilitating enhanced integration of the restoration into the residual tooth substance or residual dentition. This effect is particularly strong in VITABLOCS RealLife for highly esthetic anterior restorations. The layer structure is almost identical to that of natural anterior teeth, due to the spherical curved dentine core, which is surrounded by an enamel coat.

VITABLOCS consist of natural feldspar materials, such as potassium feldspar 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 sintered VITABLOCS exhibits very fine crystalline portions, which are homogeneously embedded in the surrounding glass matrix. This fine structure (see illustration), combined with the industrial sintering process, is the reason for the good polishing results and the excellent enamel-like abrasion properties of restorations made from VITABLOCS. The fine structure ensures that antagonist teeth are not exposed to harmful "sandpaper" effects.

In most clinical situations, the high translucency of the VITABLOCS ensures excellent matching of the shade with the residual teeth, so that additional characterization of the shade is not required.

VITABLOCS easily fulfill the requirements for good machinability, which becomes evident during the CAM milling process and reduces tool wear. During reworking by the dentist, changes of the shape or adjustments can easily and accurately be carried out in situ with diamond milling instruments.

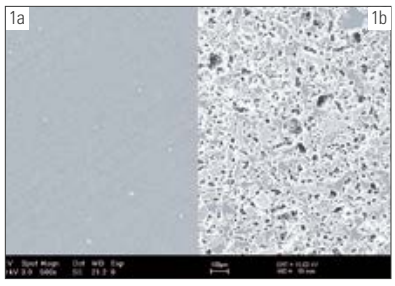


Fig. 1: SEM picture of the VITABLOCS surface (magnification 1,000 x), to the left: polished, to the right: etched for 60 seconds. The uniform and highly retentive etching pattern caused by homogeneous distribution of the crystal and glass phase can be recognized.

Chemical composition*

Oxides	SiO_2	Al_2O_3	Na_2O	K_2O	CaO	TiO_2
% by weight	56–64	20–23	6–9	6–8	0.3–0.6	0.0–0.1

Chemical elements (oxides) that are contained in very low concentrations and required for coloring, are not listed.

* The values of the chemical composition listed above are dependent on the lot.

Physical data*

Properties	Unit of measure	Value
CTE (25–500°C)	$10^{-6} \cdot K^{-1}$	9.4 ± 0.1*
Density	g/cm^3	2.4 ± 0.5*
Flexural strength (Schwickerath) (ISO 6872)	MPa	136 ± 20
Transformation range	°C	780–790*

* The technical/physical values are typical measuring results and refer to internal samples and measurement equipment available on site.
If samples are prepared using different methods and measurement equipment, other measuring results may be obtained.

Indication

VITABLOCS are indicated for the fabrication of inlays, onlays, partial crowns, full crowns, molar endo-crowns and veneers, provided the following additional criteria are met:

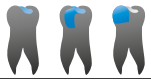
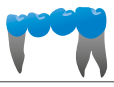
- Normal function
- All preconditions for adhesive bonding using a proven and properly-used functional enamel-dentine adhesive system (total bonding).

Additional finishing with a VITA AKZENT Plus glaze or stain firing should be carried out for large restorations and for individualizing the shade of the surface. See p. 29.

⚠ Note:

Dental treatment and the integration of dental restorations entail the general risk of iatrogenic damage to hard tooth substance, pulp and/or oral soft tissue. The use of bonding systems and the integration of dental restorations entail the general risk of postoperative hypersensitivity. In the event of non-compliance with the processing instructions of the products in use, the product characteristics can not be ensured so that product failure and irreversible damage to the natural hard tooth substance, pulp and/or oral soft tissue may result.

Overview of indications of fine-structure feldspar ceramic:

Indication / Type of material	VITABLOCS Mark II	VITABLOCS TriLuxe forte	VITABLOCS RealLife
 Inlay	●	○	○
Onlay	●	○	○
Table top	●	○	○
Veneer	○	●	●
Endo-crown*	○	○	○
Anterior crown	○	●	●
Posterior crown	○	○	○
 Veneer structure for the VITA Rapid Layer Technology	●	●	—

● recommended ○ possible * molars only

Contraindication

General

- in cases of inadequate oral hygiene
- insufficient preparation results
- insufficient hard tooth substance
- insufficient space available

Hyperfunction

- Restorations made of VITABLOCS are contraindicated for patients diagnosed with excessive occlusal function, in particular those who grind and clench their teeth. The use of VITABLOCS restorations for devitalized teeth of patients with hyperfunctions is absolutely contraindicated.

Endo-crowns - premolars

- Due to the small adhesive surface and the small root diameters, endo-crowns for premolars are contraindicated.

Bridges

- Since VITABLOCS consist of a fine-structure feldspar ceramic with a limited strength of approx. 150 MPa, this material is not suitable for the fabrication of monolithic (mono-ceramic) bridges.

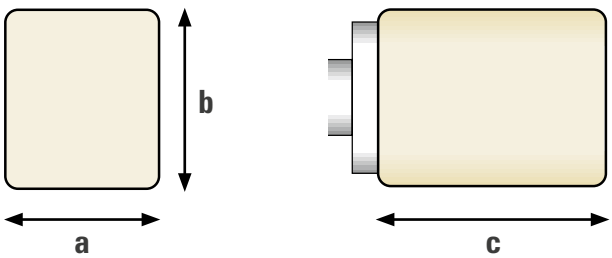
> ⚠ **Note:** Within the scope of the VITA Rapid Layer Technology, VITABLOCS are exclusively used for mechanical fabrication of the veneer structure of bridges with up to four units, based on zirconia substructures.
> Please adhere to the information provided in the Working Instructions, No. 1740.

All-ceramic substructures

- VITABLOCS are not suitable for the fabrication of all-ceramic substructures. Accordingly, VITA VM 9 must only be used for individualizing and not for full veneers of copings made from these materials (see information on page 28).

Fine-structure feldspar ceramic												
Designation	Size in mm (a x b x c)	Content of pack	Shades									
VITABLOCS® Mark II / VITA SYSTEM 3D-MASTER®												
I-10	8 x 10 x 15	5	–	1M1C	1M2C	2M1C	2M2C	2M3C	3M1C	3M2C	3M3C	4M2C
I-12	10 x 12 x 15	5	0M1C	1M1C	1M2C	2M1C	2M2C	2M3C	3M1C	3M2C	3M3C	4M2C
I-14	12 x 14 x 18	5	0M1C	1M1C	1M2C	2M1C	2M2C	2M3C	3M1C	3M2C	3M3C	4M2C
I-40/19*	15.5 x 19 x 39	2	–	1M1C	1M2C	–	2M2C	–	–	3M2C	–	–
VITABLOCS® TriLuxe forte / VITA SYSTEM 3D-MASTER®												
TF-12	10 x 12 x 15	5	–	–	1M2C	–	2M2C	–	–	2M2C	–	–
TF-14	12 x 14 x 18	5	–	–	1M2C	–	2M2C	–	–	3M2C	–	–
TF-14/14	14 x 14 x 18	5	–	–	1M2C	–	2M2C	–	–	3M2C	–	–
TF-40/19*	15.5 x 19 x 39	2	–	–	1M2C	–	2M2C	–	–	3M2C	–	–
VITABLOCS® RealLife / VITA SYSTEM 3D-MASTER®												
RL-14/14	14 x 14 x 18	5	0M1C	1M1C	1M2C	2M1C	2M2C	–	–	3M2C	–	–
VITABLOCS® Mark II / VITA classical A1–D4®												
I-10	8 x 10 x 15	5	A1C	A2C	A3C	A3,5C	A4C	B2C	B3C	C2C	C3C	D3C
I-12	10 x 12 x 15	5	A1C	A2C	A3C	A3,5C	A4C	B2C	B3C	C2C	C3C	D3C
I-14	12 x 14 x 18	5	A1C	A2C	A3C	A3,5C	A4C	B2C	B3C	C2C	C3C	D3C
VITABLOCS® TriLuxe forte / VITA classical A1–D4®												
TF-12	10 x 12 x 15	5	A1C	A2C	A3C	A3,5C	–	–	–	–	–	–
TF-14	12 x 14 x 18	5	A1C	A2C	A3C	A3,5C	–	–	–	–	–	–
TF-14/14	14 x 14 x 8	5	A1C	A2C	A3C	A3,5C	–	–	–	–	–	–

* for the Rapid Layer Technology.



VITABLOCS® Mark II in 10 VITA SYSTEM 3D-MASTER® shades

0M1C	1M1C	1M2C	2M1C	2M2C	2M3C	3M1C	3M2C	3M3C	4M2C

VITABLOCS® Mark II in 10 VITA classical A1–D4® shades

A1C	A2C	A3C	A3,5C	A4C	B2C	B3C	C2C	C3C	D3C

VITABLOCS® TriLuxe forte in 3 VITA SYSTEM 3D-MASTER® shades

1M2C	2M2C	3M2C

VITABLOCS® TriLuxe forte in 4 VITA classical A1–D4® shades

A1C	A2C	A3C	A3,5C

VITABLOCS® RealLife in 6 VITA SYSTEM 3D-MASTER® shades

0M1C	1M1C	1M2C	2M1C	2M2C	3M2C

	Dental practice	Dental laboratory	VITA products	
	Shade determination - tooth	—	VITA Easyshade V VITA Toothguide 3D-MASTER VITA Linearguide 3D-MASTER	
	Preparation optional Shade determination - prepared tooth	—	—	
	Taking an impression	Fabricating the model	—	
	—	CAD/CAM process	VITABLOCS Mark II VITABLOCS TriLuxe forte VITABLOCS RealLife	
	—	Finishing, checking on the model	—	

	Dental practice	Dental laboratory	VITA products	
	—	Option: shade characterization Individualizing/glazing	VITA AKZENT Plus stains/glaze material VITA VM 9 ESTHETIC KIT VITA FIRING PASTE (pages 19-36)	
	Adhesive bonding Ceramic etching Silanization Enamel/dentine etching adhesive system luting composite Oxygen protection gel	—	VITA ADIVA FULL-ADHESIVE LUTING SET (pages 36-39)	
	Fitting fine morphological adjustments Occlusion and articulation final polishing	—	VITA KARAT diamond polishing paste extraoral (page 48)	

Proper shade determination is the key to a restoration with a natural and esthetic appearance. The tooth shade of the non-prepared tooth or the adjacent teeth is determined after tooth cleaning.

Note that the final shade result is determined primarily by the shade of the prepared tooth stump and the VITABLOCS shade.

The VITA Toothguide 3D-MASTER is suitable for determining the shade and for selecting the corresponding VITABLOCS.

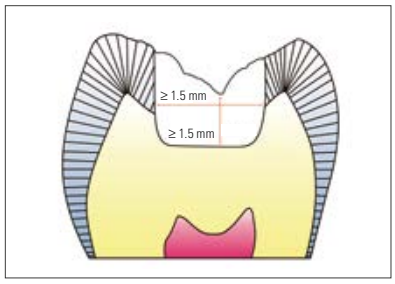
If VITABLOCS, TriLuxe forte or RealLife are used for the fabrication of the restoration, the VITA Toothguide 3D-MASTER should preferably be used for selecting the correct shade, since the basic shade printed on the blocks corresponds to the shade of the respective shade tab.

The "Block mode" of VITA Easyshade V enables digital determination of the block shade to be selected.

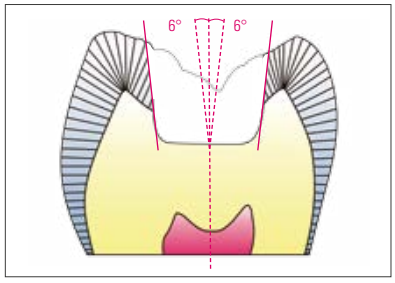
⚠ **Note**: For additional information on the preparation of all-ceramic restorations, please read our detailed brochure "Clinical Aspects of All-Ceramics" No. 1696.

Inlays

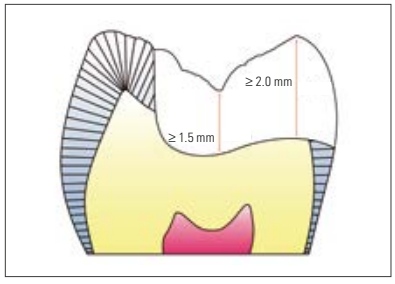
Ceramic layer thickness below the lowest point of the fissure: at least 1.5 mm. Thickness of ceramic in the area of the isthmus: at least 1.5 mm. Box-shaped preparation without resilient margins is recommended.
Round cavity segments, in particular at the bottom of the cavity, should be prepared and sharp edges must be avoided.



Ceramic layer thickness
Occlusal: **at least 1.5 mm**
Area of the isthmus: **at least 1.5 mm**

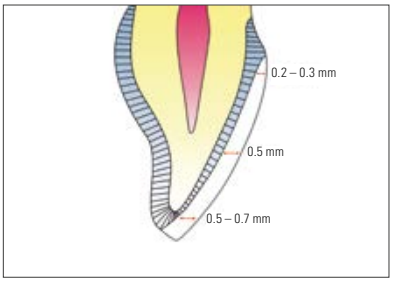


Opening angle >10°



Onlays

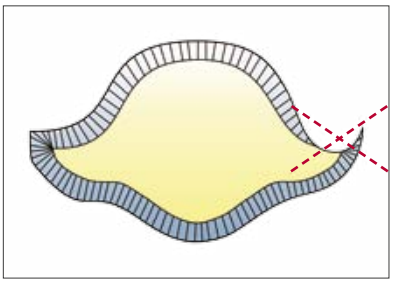
Ceramic layer thickness
Occlusal: **at least 1.5 mm**
Area of cusps: **at least 2.0 mm**



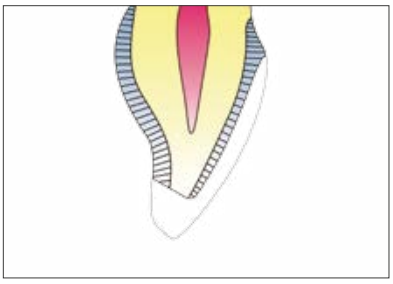
Veneers

Ceramic layer thickness

Incisal:	**0.5 - 0.7 mm**
Labial:	**0.5 mm**
Cervical:	**0.2 - 0.3 mm**

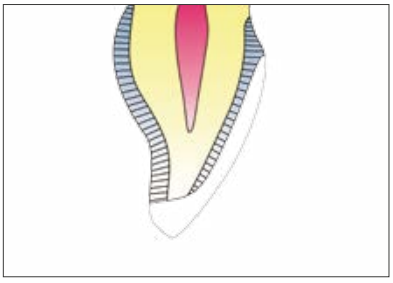


Gutter-shaped preparations should be avoided

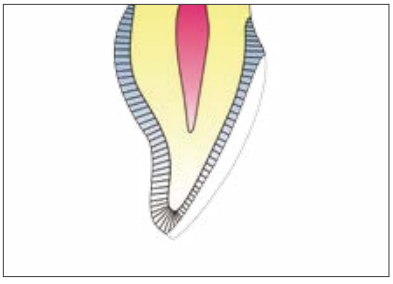


Types of incisal veneer preparation

Incisal reduction with bevelling in the palatal direction (incisal path of insertion)



Incisally reduced, but labially inclined preparation margin (buccal path of insertion)



The preparation border should taper towards the incisal edge if at least 1.5 mm of tooth substance remains

Crowns

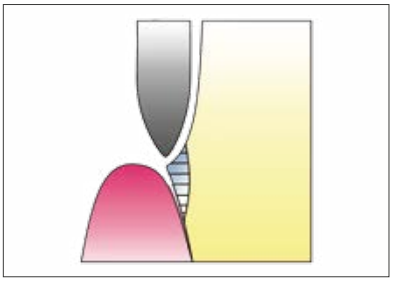
A chamfer or shoulder with rounded inner angle should be prepared in the case of all-ceramic crowns. The goal should be a circumferential cutting depth of one millimeter. The vertical preparation angle should be at least 3°. All transitions from the axial to the occlusal or incisal surfaces should be rounded. Homogeneous, smooth surfaces are recommended. A wax-up and the fabrication of silicone keys to control the preparation are helpful for the diagnosis and the clinical application (defect-oriented preparation).

Location of the preparation border

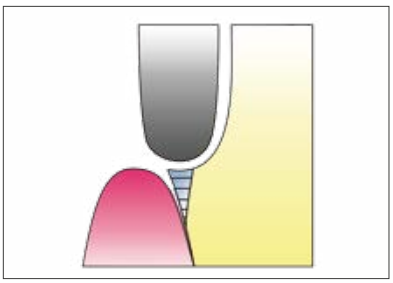
In light of periodontal-physiological considerations, a subgingival preparation border should be prepared if possible.

If esthetic aspects are more important, a preparation border located in the paramarginal area may be required.

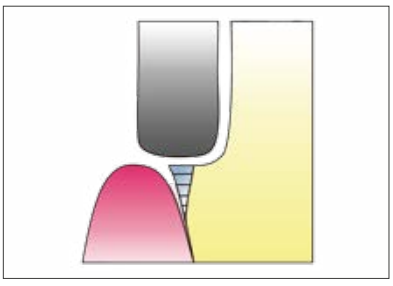
A subgingival preparation border should generally be avoided.



Chamfer preparation



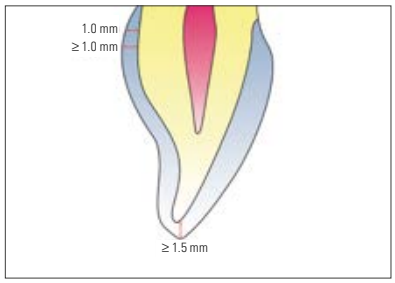
Accentuated chamfer preparation



Shoulder preparation or step with rounded inner edge

Ceramic layer thickness for crowns

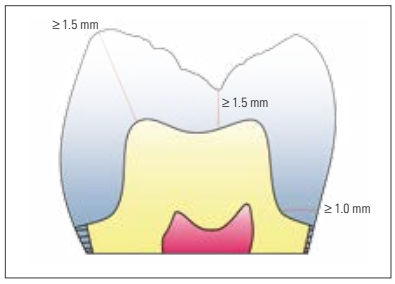
To ensure the clinical success of crowns fabricated using VITABLOCS, the following values for ceramic layer thickness must be observed:



Anterior crowns

Ceramic layer thickness

Incisal:	**at least 1.5 mm**
Circumferential:	**at least 1.0 mm**
Crown margin:	**1.0 mm**



Posterior crowns

Ceramic layer thickness

Area of the cusps:	**1.5 mm - 2.0 mm**
Occlusal:	**at least 1.5 mm**
Circumferential:	**at least 1.0 mm**
Crown margin:	**1.0 mm**

CAD design, milling
Detailed information can be found in the documentation of your CAD/CAM system.

The lug is cut off using a diamond bur or coarse, flexible discs.

Then the proximal surfaces are polished. Use flexible discs or similar tools (use caution and adjust low speed) to remove irregularities or unevenness at the margins.

Then the restoration is carefully fitted on the model, if present.

⚠ **Note:** Restorations made of VITABLOCS fine-structure feldspar ceramic must not be reworked using tungsten carbide instruments, since such instruments produce microcracks and damage the ceramic. The following must be observed:

- Use only fine-grit diamond abrasive tools (40 µm) for contouring.
- It is recommended to polish with polishing brushes and VITA Karat diamond polishing paste.
- When reworking, cool with water whenever possible and exert only slight pressure.

Characterization/Individualization of the shade

In esthetically demanding cases, the shades of restorations made of VITABLOCS can be characterized/individualized. Generally, two different concepts can be used:

- Characterization with VITA AKZENT Plus stains (see page 20)
- Individualization with porcelains of VITA VM 9 veneering material (see page 28)

Necessary firing equipment

A furnace, such as VITA SMART.FIRE, VITA VACUMAT 6000 M or VITA V60 i-Line, is required for characterizing with stains and glaze material and for individualizing with VITA VM 9.

VITA SMART.FIRE is a firing unit developed specifically for the needs of chairside milling dentists for the crystallization, glaze, stain and corrective firing of all common chairside materials. Selecting the materials and starting the program are done in one simple step. Ideally, customized material-specific programs are already pre-installed for simple firing. Thanks to its compact design, the firing unit can be set up quickly and simply, and saves space in every practice.

The VITA VACUMAT 6000 M is a fully-automatic, microprocessor-controlled firing unit. The firing unit is ideal for all dental ceramic firing requirements. The furnace impresses with superb quality and esthetics, and offers outstanding firing results, user safety and convenience. The captivating design, available either in stainless steel or in one of six high-quality contemporary finishes, is a real eye-catcher for your work area. Freely selectable control units, such as VITA vPad comfort or VITA vPad excellence, can be connected to the furnace.

With the dental ceramic furnace VITA V60 i-Line, VITA consistently meets the requirements for quality and durability. VITA V60 i-Line emphasizes two core aspects: outstanding long-term firing results, as well as maximum ease of use.

Learn more!
www.vita-zahnfabrik.com

Characterization with VITA AKZENT Plus stains
Anterior restorations can be perfectly characterized with stains, in particular if discoloration of the surface needs to be reproduced. Teeth without highly translucent areas and with minor internal changes are particularly suitable.

⚠ **Note:** A layer of stain which is too thick, inhibits the penetration of light and results in an unnatural appearance.
When using the new VITA AKZENT Plus pastes, which feature excellent ceramic translucency, the final shade effect in the wet condition is only evident after firing, and not immediately after applying the stains to the milled VITA Mark II block.

Systems in three different forms are available for characterizing with ceramic stains:

1. VITA AKZENT Plus PASTE KIT
with 19 stain pastes (shade table, see page 49) for simple and fast surface characterization in the dental practice:

- ready-to-use pastes with uniform consistency and homogeneous pigmentation for fast application
- can be mixed with one another to achieve individual shade effects
- can be diluted or mixed again

2. VITA AKZENT Plus POWDER KIT
with 19 stain powders (shade table, see page 49) for surface characterization:

Consistency can be adjusted by adding different quantities of liquid.
- The powder materials are perfectly suitable for mixing with the ceramic layering materials (add max. 5 % of stain powder) and for intensifying the shade of these materials.
- The AKZENT Plus materials can all be mixed with one another.
- Unlimited flexibility and cost-effectiveness, since materials have unlimited shelf life.

3. VITA AKZENT Plus SPRAY KIT
Particularly suited for monolithic restorations made of VITABLOCS.
The spray glaze and spray finishing shades are ready to use and easy to apply.

- uniform application
- Thanks to a special spray head, precise spray application without any waste is possible.

⚠ **Note:** To save time, stains firing and glaze firing can be carried out simultaneously when using VITA AKZENT Plus PASTE or VITA AKZENT Plus POWDER materials.

Step-by-step procedure based on the example of VITA AKZENT Plus EFFECT STAINS*

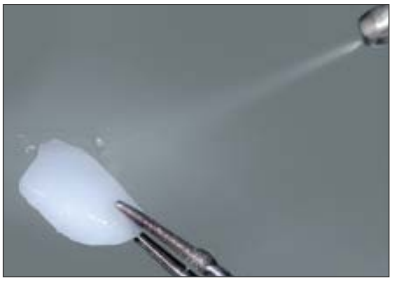
Crown made from a VITABLOC block immediately after milling.

The lug is cut off using a diamond grinding tool or a flexible disk.

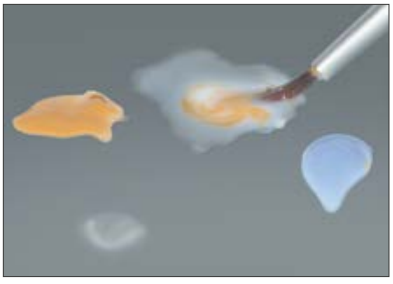
If present and necessary, the crown is fitted on the model.
Fine diamond tools are suitable for finishing. If possible, the ceramic should be ground when wet.

A texture marker can be applied to analyze the shape and surface texture, which can be optimized by grinding later on.

⚠ **Note:** The texture marker needs to be completely removed with steam prior to any firing process, to avoid discoloration on the ceramic.



Grinding particles and grease are removed from the finished crown using steam or alcohol. A pair of tweezers (e.g., Smart Clip, Hammacher) or pick-up sticks (Hager & Werken) are suitable to hold the object.



The selected AKZENT Plus EFFECT STAIN POWDER stain and AKZENT Plus POWDER FLUID are mixed to obtain the desired consistency and intensity.

Additionally, AKZENT Plus FINISHING AGENT
can be added to adjust the intensity.

* Please observe the information in the Working Instructions VITA AKZENT Plus, No. 1925.

A thin transparent layer of stain is applied to the restoration.

First the stain is applied to the proximal surfaces.

A distinctive incisal edge effect can be achieved through the use of VITA AKZENT Plus EFFECT STAIN ES 11 (blue) and ES 12 (grey-blue).
Additional shade characteristics can be imitated with suitable stain mixtures.
A comparison with a shade sample (tooth) from the VITA Toothguide 3D-MASTER or the VITA classical A1–D4 shade guide can be used to check the result.
See the table on page 23/24.

The characterized restoration is placed on the firing tray and fired in the VITA VACUMAT.

Firing under vacuum is not required for glazing.

The figure on the left shows the restoration after the first firing.

A thin, opaque layer of glaze material (VITA AKZENT Plus GLAZE) is applied in the next step. During the application, minor shade corrections can be integrated into the glaze material.

Optional:
Stain firing can be carried out together with glaze firing when using AKZENT Plus GLAZE. The restoration is coated with VITA AKZENT Plus GLAZE and then characterized with VITA AKZENT Plus stains.

Additionally, mechanical polishing of the glazed restoration can be carried out. Examples of what can be used for this purpose include Dia-Glaze (from Yeti) or VITA KARAT diamond polishing paste (for extraoral use only).

- Since VITABLOCS are only available in a limited number of shades, the classification table (see page 26) can be used for safe reproduction of shades, not available as blocks, using VITA AKZENT Plus.

- Please note that the monochromatic VITABLOCS Mark II and the multichromatic VITABLOCS TriLuxe forte and RealLife are not layered like shade sample teeth, and because of this, the shades of the 3D-MASTER Toothguide or VITA classical A1-D4 shade guide and the corresponding block are not identical. This is indicated by the additional letter "C" following the shade designation on the block.

⚠ **Note:** Do not apply excessively thick layers of stain; in cases of uncertainty, two stain fixation firings should be carried out.

- The correct selection of the block shade to reproduce the natural tooth shade of the patient is very important in this system. The milled restoration is the basic shade carrier and essential for the final impression of the stained restoration. Fine nuances of the shade are achieved by staining.

VITA SYSTEM 3D-MASTER

Classification table for shade characterization of VITABLOCS Mark II with VITA AKZENT Plus PASTE

Based on the information in the table and in order to mix the materials, the respective quantities are added next to each other onto the mixing tray using the brush, and then mixed to obtain the final paste. In this way, good individual shade reproduction is achieved.

- VITA AKZENT Plus BODY STAINS should always be applied starting from the neck, to a **maximum of two thirds of the tooth length,** towards the incisal edge.

- As a result, the pure block shade forms the undercoat of the incisal edge. These are the precondition requirements to achieve a good translucent effect with the use of EFFECT STAINS incisal shades.

- The ratios of the individual stain proportions depend on the wall thickness of the crown or the veneer. It is recommended to hold the shade sample tab from the VITA SYSTEM 3D-MASTER Toothguide next to the object when applying the shade, to reproduce and match the shade.

Lightness group	VITA SYSTEM 3D-MASTER Toothguide	Shade of VITABLOCS block or VITABLOCS Guide	Mixture for characterization
0	0M1	0M1C	only GLAZE glaze material, applied thinly
1	1M1	1M1C	BS 5 ES 12 / ES 13
1	1M2	1M2C	2/5 BS 01 + 2/5 BS 03 + 1/5 ES 13, ES 12
2	2L1,5	2M1C	2/4 BS 04 + 1/4 BS 02 + 1/4 BS 01 + small quantity of ES 13
2	2L2,5	2M2	2/5 BS 02 + 2/5 BS 04 + 1/5 BS 03
2	2M1	2M1	3/4 BS 05 + 1/4 ES 13 + small quantity of ES 07
2	2M2	2M2	1/2 BS 03 + 1/2 BS 04, incisal 1/2 ES 12 + 1/2 ES 13
2	2M3	2M3C	2/3 BS 02 + 1/3 BS 03 + 1 brush tip each of ES 04 and ES 05, stain must be applied thinly
2	2R1,5	2M1	3/5 BS 05 + 2/5 BS 03 + 1 brush tip of ES 13
2	2R2,5	2M2C	2/5 BS 05 + 2/5 BS 03 + 1/5 BS 02
3	3L1,5	3M1C	2/5 BS 04 + 2/5 BS 05 + 1/5 ES 07 observe block shade
3	3L2,5	3M2	2/5 BS 04 + 2/5 BS 02 + 1/5 ES 07 observe block shade
3	3M1	3M1C	2/4 BS 05 + 1/4 ES 07 + 1/4 ES 13 + 1 brush tip of ES 06
3	3M2	3M2C	2/4 BS 05 + 1/4 BS 03 + 1/4 ES 07 + (1 brush tip of ES 06, if a more intensive shade is required)
3	3M3	3M3C	2/4 BS 02 + 1/4 BS 03 + 1/4 BS 04 + 1 brush tip of ES 07
3	3R1,5	3M1C	4/5 BS 05 + 1/5 ES 07 + 1 small quantity of ES 06 each
3	3R2,5	3M2C	2/4 BS 05 + 1/4 BS 03 + 1/4 ES 07
	Incisal shade		Mixture of ES 12, ES 13 and ES 10. Applies to all shades, to achieve a translucent effect

VITA classical

Classification table for shade characterization of VITABLOCS Mark II with VITA AKZENT Plus PASTE

Based on the information in the table above and in order to mix the materials, the respective quantities are added next to each other onto the mixing tray using the brush, and then mixed to obtain the final paste. In this way, good individual shade reproduction is achieved.

⚠ **Note:** VITA AKZENT Plus BODY STAINS should always be applied starting from the neck, **across the entire length of the tooth,** towards the incisal edge.

Tooth shade of the patient	Shade of the VITABLOCS block	Mixture for characterization
A1	**A1C**	4/5 BS 04 + 1/5 BS 03; **Incisal:** 1/2 ES 12 + 1/2 ES 13; **Mamelons:** ES 03
B1		2/3 BS 04 + 1/3 BS 02; **Incisal:** 2/3 ES 13 + 1/3 ES 12; **Mamelons:** ES 2 or 1/2 ES 2 + 1/2 ES 03
C1		3/5 BS 04 + 1/5 ES 7 + 1/5 ES 13; **Incisal:** ES 13 unmixed or 1/2 ES 7 + 1/2 ES 02
A2	**A2C**	3/5 BS 05 + 1/5 BS 02 + 1/5 BS 03; **Incisal:** 2/3 ES 02 + 1/3 ES 12; **Effects:** ES 02 and ES 05
A3	**A3C**	2/4 ES 05 + 1/4 BS 02 + 1/4 BS 03 + 1 small quantity of ES 6; **Incisal:** 2/3 ES 13 + 1/3 ES 12; **Effects:** with mixture of base shades or ES 02 and ES 06
A3,5	**A3,5C**	1/2 BS 05 + 1/2 BS 04 + 1 large quantity each of BS 02 and BS 03 in equal proportions, ES 07 and 1 small quantity of ES 13; **Incisal:** ES 13 + 1 brush tip of ES 01 white + mix with small quantity of glaze material. Brightens the incisal area slightly in the case of a monochromatic underlying layer.
A4	**A4C**	2/4 BS 05 + 1/4 BS 04 + 1/4 ES 07 + 1 brush tip of BS 03; **Incisal:** ES 12 + 1 brush tip of ES 01 white + mix with small quantity of glaze material; brightens the monochromatic underlying layer. If an increased grey value is intended: add small quantity of ES 13 to the mixture
B2	**B2C**	1/2 BS 03 + 1/2 BS 04, **Incisal:** 1/2 ES 12 + 1/2 ES 13
B3	**B3C**	2/3 BS 02 + 1/3 BS 03 + 1 brush tip each of ES 04 and ES 05. Generally, apply the shade very thinly, since a large content of the base shade is already found in the underlying layer; **Incisal:** Mix 1/2 ES12 and 1/2 ES 13 with some glaze material + 1 small quantity of ES 01 white if a somewhat brighter shade is to be achieved.
C2	**C2C**	3/4 BS 04 + 1/4 ES 07 **Incisal - variation 1:** Mix some glaze material with a very small quantity of ES 01 and use as incisal. This creates a brighter shade; **Incisal - variation 2:** Mix ES 13 with 1 brush tip of ES 01 white and some glaze material; this will lighten less and a subtle greyish shade is obtained
C3	**C3C**	2/3 BS 04 + 1/3 ES 07 + 1 brush tip of BS 02 and a very small quantity of ES 14; **Incisal:** Variation 1 and 2 as for shade C2
C4	**C3C**	2/4 ES 07 + 1/4 BS 04 + 1/4 BS 05 + 1 brush tip each of BS 03 and ES 14
D3	**D3C**	2/4 BS 05 + 1/4 BS 04 + 1/4 ES 07 (+ 1 brush tip of ES 06 if a more intensive shade is required)

Firing of VITA AKZENT Plus in the VITA VACUMAT

	Predry. °C	→ min	↗ min	↗ °C/min	approx. temp. °C	→ min	VAC min
Stains fixation firing	500	4.00	4.23	80	850	1.00	–
Glaze firing with VITA AKZENT Plus POWDER and SPRAY	500	4.00	5.37	80	950	1.00	–
VITA AKZENT Plus PASTE	500	6.00	5.37	80	950	1.00	–

Firing of VITA AKZENT Plus in the VITA SMART.FIRE

	Predry. °C	→ min	↗ min	↗ °C/min	approx. temp. °C	→ min	VAC min
Stains fixation firing	480	4.00	4.37	80	850	1.00	–
Glaze firing with VITA AKZENT Plus POWDER and SPRAY	480	4.00	5.52	80	950	1.00	–
VITA AKZENT Plus PASTE	480	6.00	5.52	80	950	1.00	–

⚠ **Note:** The latest firing parameters are available in the firing units.

Optional:

VITA AKZENT Plus GLAZE SPRAY

The VITA AKZENT Plus GLAZE SPRAY can be used as an alternative for glazing with VITA AKZENT Plus GLAZE material or VITA AKZENT GLAZE PASTE.

VITA AKZENT® Plus GLAZE SPRAY is a spray-on ceramic powder that can be easily applied and is suitable for glazing all-ceramic and metal ceramic restorations, such as inlays, onlays, veneers, crowns and bridges with a sintering temperature of ≥ 800°C.

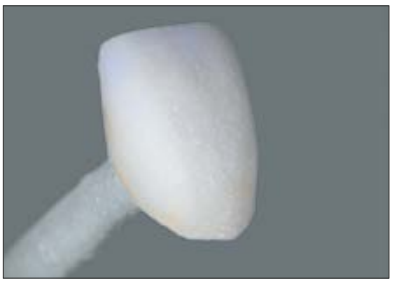
Stains firing can be carried out together with glaze firing when using VITA AKZENT Plus GLAZE SPRAY.

⚠ **Note:** To avoid spraying onto the adhesive surfaces of the restoration (e.g., basal surface of inlays, inner surfaces of crowns and veneers), it is recommended to use VITA Firing Paste to prepare an individual firing tray. As a result, inaccuracy of fit is avoided. See working instructions on page 31. In addition, glaze material can not be adequately etched with hydrofluoric acid.

⚠ **Note:** Shake VITA AKZENT PLUS GLAZE SPRAY well prior to use (approx. 1 min.). The mixing ball needs to be heard clearly.

Apply VITA AKZENT Plus GLAZE SPRAY to the stain at a distance of approx. 10 - 15 cm to the restoration, to ensure uniform and complete coverage.

Spray intermittently to achieve optimum results.



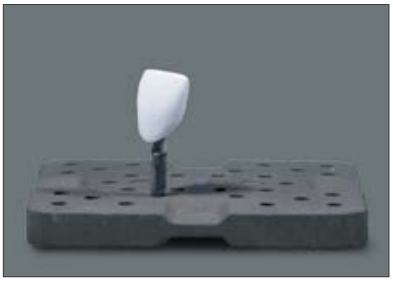
Let the solvent evaporate completely while spraying to be able to control the thickness of the glaze layer that has already been applied. A whitish (GLAZE, GLAZE LT) and reddish (BODY) coat indicates a uniform layer. If required, spray again.

⚠ **Note:** The use of a hairdryer results in faster evaporation.

If spraying several restorations, the bottle needs to be shaken between the individual spraying processes.

Best results are obtained with 2 to 3 layers of glaze material.

Place the restoration on a firing tray.



⚠ **Important information:** Since dust is formed during spraying, always wear a face mask and safety goggles. Additionally, it is recommended to use an extraction unit.

Firing of VITA AKZENT Plus GLAZE SPRAY in the VITA VACUMAT

Predry. °C	→ min	↗ min	↗ °C/min	approx. temp. °C	→ min	VAC min
500	4.00	5.37	80	950	1.00	–

Firing of VITA AKZENT Plus GLAZE SPRAY in the VITA SMART.FIRE

Predry. °C	→ min	↗ min	↗ °C/min	approx. temp. °C	→ min	VAC min
480	4.00	5.52	80	950	1.00	–

⚠ **Note:** The latest firing parameters are available in the firing units.

Restoration after characterization of the shade

Individualization of anterior crowns and veneers with VITA VM 9

VITA VM 9 veneering material is comprised of a fine-structure ceramic with a CTE of 9.0 – 9.2 ($10^{-6} \cdot K^{-1}$) for veneering crown and bridge frameworks made of yttria-stabilized zirconia (Y-ZrO_2), such as VITA YZ, and for individualizing milled restorations made from fine-structure feldspar ceramic blocks with a CTE (20 – 500°C) of approx. 9.4 ($10^{-6} \cdot K^{-1}$).

- VITABLOCS Mark II
- VITABLOCS TriLuxe forte
- VITABLOCS RealLife

The VITA VM 9 ESTHETIC KIT for VITABLOCS (Prod. No. BV9EKCV2) with selected VITA VM 9 materials and accessories is available and specially designed for individualizing.

VITA VM 9 materials excel in their refraction and reflection behavior, which can be compared to that of enamel. The use of the additional fluorescent and opalescent materials allows for the enhancement of the esthetic results. Please observe the information in the corresponding Working Instructions VITA VM 9 No. 1190.

Since both the base ceramic, as well as the veneering ceramic are finely-structured, the behavior of VITABLOCS restorations individualized with VITA VM 9 ceramic is similar to that of natural tooth enamel.

Contraindication

VITA VM 9 must not be used for direct veneers on copings made from VITABLOCS, since these blocks are not indicated for the fabrication of framework structures.

> ⚠ **Important information:** To ensure clinical success, the milled restorations may only be reduced prior to individualizing with VITA VM 9 if minimum values for wall thickness in restorations are observed. See information on page 7. Reduction of the restorations can also be carried out with the CAD software.

Veneer

The thickness of a milled veneer should not be less than 0.5 mm to avoid distortion of the restoration when firing on VITA VM 9 (see page 15). In such cases, the use of VITA Firing Paste is strongly recommended.

Step-by-step procedure based on the example of an anterior crown

Milling of the restoration.

The lug is removed with a diamond-coated milling tool.
Any premature contacts are ground off carefully from the inner side of the veneer.
Mesial and distal contacts are checked.

Place the crown on the working model immediately after the grinding process, and prior to the cut-back process.

Pretreatment
To obtain sufficient space for layering on the enamel, the incisal area is reduced with a diamond milling instrument.

> ⚠ **Important information:** Restorations made of VITABLOCS fine-structure feldspar ceramic must not be reworked using tungsten carbide instruments, since such instruments produce microcracks and damage the ceramic.
> It is recommended to exert low pressure and use sufficient water cooling.

In the case of morphological reduction, pronounced undercuts must be avoided, as they weaken the base ceramic.
The minimum thickness of the basic material must be adhered to (see page 13).

Remove any grinding particles from the veneer with steam or alcohol.

Optional:
Characterization with VITA AKZENT Plus stains

VITA AKZENT Plus stains can be used for external characterization of restorations made from VITABLOCS, and after morphological reduction, stains can also be integrated into fissures and mamelon structures (see firing table) before starting actual layering with VITA VM 9 materials. Enhanced shade effect from the depth is achieved, especially in cases of limited space.

"Stains fixation firing"

Recommended firing in the VITA VACUMAT

Predry. °C	→ min	↗ min	↗ °C/min	approx. temp. °C	→ min	VAC min
500	4.00	4.22	80	850	1.00	–

Recommended firing in the VITA SMART.FIRE

Predry. °C	→ min	↗ min	↗ °C/min	approx. temp. °C	→ min	VAC min
480	4.00	4.37	80	850	1.00	–

⚠ **Note:** The latest firing parameters are available in the firing units.

⚠ **Important information:** Before applying the VITA VM 9 materials, modelling liquid (VITA VM MODELLING LIQUID) should be applied to the reduced restoration to achieve adequate wetting.

Failure to do so may result in lifting the ceramic material from the base structure.

Application of VITA VM 9 MAMELON

Application of VITA VM 9 ENAMEL

Enamel classification

VITA SYSTEM 3D-MASTER

Block shade	0M1C	1M1C	1M2C	2M1C	2M2C	2M3C	3M1C	3M2C	3M3C	4M2C
Enamel	ENL	ENL	ENL	ENL	ENL	ENL	ENL	ENL	ENL	END

VITA classical A1–D4

Block shade	A1C	A2C	A3C	A3,5C	A4C	B2C	B3C	C2C	C3C	D3C
Enamel	ENL	ENL	ENL	END	END	END	END	END	ENL	END

The layered restoration ready for "individualization firing."

Place the individualized restoration on a suitable firing tray.

VENEER: place on fibrous pad. When using a fibrous pad, the final firing temperature needs to be raised by approx. 10-20°C.

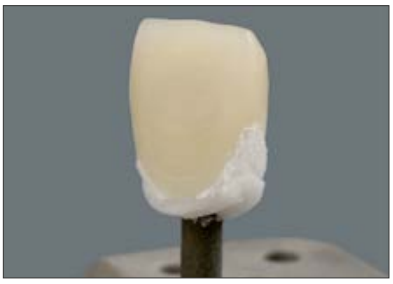
Use of VITA Firing Paste

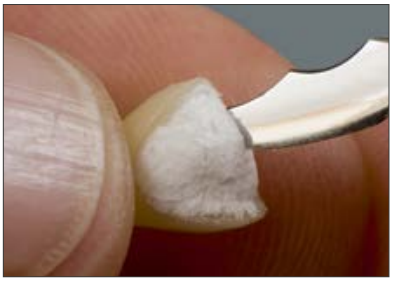
Indication

VITA Firing Paste is a ready-to-use, fire-resistant paste for the fabrication of individual firing trays for all-ceramic and metal ceramic techniques. The material enables the secure attachment of firing objects on the firing tray, and is used for stabilizing substructure-free press ceramic restorations during the firing procedure, while at the same time, ensuring optimum heat distribution. VITA Firing Paste is easy to remove again after completion of the firing cycle.

Use

Apply VITA Firing Paste directly from the syringe into the restoration or the inner surfaces of the restoration (slightly overfill the restoration) and place the restoration carefully onto the firing tray.





⚠ **Important information:** VITA Firing Paste contains aluminium silicate fibers. Wear a face mask and work under an extraction unit when removing the hardened paste.
Alternatively: rinse off under running water. Any residue is removed in the ultrasonic bath. Do not sandblast!
See information on hazardous substances on page 51.

"1. Individualization firing with VITA VM 9"

Recommended firing of VITA**VM®9 in the VITA VACUMAT®**

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

Recommended firing in the VITA SMART.FIRE

Predry. °C	→ min	↗ min	↗ °C/min	approx. temp. °C	→ min	VAC min
480	6.00	8.10	55	930	1.00	8.10

⚠ **Note:** The latest firing parameters are available in the firing units.

When using VITA Firing Paste, the firing temperature for VITA VM 9 should be 10-20 °C above the values provided in the working instructions for VITA VM 9.

Restoration after individualization firing

Finishing
Finish the restoration. Mechanical polishing with diamond polishing paste (KARAT diamond polishing paste, VITA).

⚠ **Important information:**
In case of dust formation, 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, AKZENT Plus GLAZE SPRAY, AKZENT Plus GLAZE LT or with VITA AKZENT Plus FINISHING AGENT.

To achieve uniform gloss, the restorations should be polished with rubber polishers prior to glaze firing.

Completed restoration on the model after glaze firing.

A texture marker can be applied to analyze the shape and surface texture, which can be optimized by grinding later on.

⚠ **Note:** The texture marker needs to be completely removed with steam prior to any firing process to avoid discoloration on the ceramic.

Recommended firing in the VITA VACUMAT

	Predry. °C	→ min	↗ min	↗ °C/min	approx. temp. °C	→ min	VAC min
Stains fixation firing VITA AKZENT Plus	500	4.00	4.22	80	850	1.00	–
First individualization firing with VITA VM 9 *	500	6.00	7.49	55	930	1.00	7.49
Second individualization firing with VITA VM 9 *	500	6.00	7.38	55	920	1.00	7.38
Glaze firing VITA AKZENT Plus GLAZE POWDER /FINISHING AGENT POWDER	500	4.00	5.15	80	950	1.00	–
Glaze firing VITA AKZENT Plus GLAZE SPRAY	500	4.00	5.15	80	950	1.00	–
Glaze firing VITA AKZENT Plus GLAZE PASTE / FINISHING AGENT PASTE	500	6.00	5.15	80	950	1.00	–
Glaze firing VITA AKZENT Plus GLAZE LT** POWDER	500	4.00	3.30	80	780	1.00	–
Glaze firing VITA AKZENT Plus GLAZE LT** SPRAY	500	4.00	3.30	80	780	1.00	–
Glaze firing VITA AKZENT Plus GLAZE LT** PASTE	500	6.00	3.30	80	780	1.00	–
Corrective firing with VITA VM 9 COR	500	4.00	4.40	60	780	1.00	4.40

* When using Firing Paste, the firing temperature for VITA VM 9 should be increased by 10-20°C. **low-fusing (low temperature)

Recommended firing in the VITA SMART.FIRE

	Predry. °C	→ min	↗ min	↗ °C/min	approx. temp. °C	→ min	VAC min
Stains fixation firing VITA AKZENT Plus	480	4.00	4.37	80	850	1.00	–
First individualization firing with VITA VM 9 *	480	6.00	8.10	55	930	1.00	8.10
Second individualization firing with VITA VM 9 *	480	6.00	8.00	55	920	1.00	8.00
Glaze firing VITA AKZENT Plus GLAZE POWDER /FINISHING AGENT POWDER	480	4.00	5.52	80	950	1.00	–
Glaze firing VITA AKZENT Plus GLAZE SPRAY	480	4.00	5.52	80	950	1.00	–
Glaze firing VITA AKZENT Plus GLAZE PASTE / FINISHING AGENT PASTE	480	6.00	5.52	80	950	1.00	–
Glaze firing VITA AKZENT Plus GLAZE LT** POWDER	480	4.00	3.45	80	780	1.00	–
Glaze firing VITA AKZENT Plus GLAZE LT** SPRAY	480	4.00	3.45	80	780	1.00	–
Glaze firing VITA AKZENT Plus GLAZE LT** PASTE	480	6.00	3.45	80	780	1.00	–
Corrective firing with VITA VM 9 COR	480	4.00	5.00	60	780	1.00	5.00

* When using Firing Paste, the firing temperature for VITA VM 9 should be increased by 10-20°C. **low-fusing (low temperature)

⚠ **Note:** The latest firing parameters are available in the firing units.

When using dental ceramics, the firing result largely depends on the individual firing procedure of the user, including, among other aspects, the type of furnace, the location of the temperature sensor, the firing tray and 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:

Predry. °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
VAC min.	Vacuum holding time in minutes

VITA VM 9 ESTHETIC KIT for VITABLOCS for CEREC

Product line content

Quantity	Contents	Material
1		VITABLOCS Mark II 3D-MASTER Sample Set
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 EO2
2	12 g	EFFECT CHROMA EC1, EC4
1	12 g	MAMELON MM2
1	4 g	VITA AKZENT Plus GLAZE Paste
1	4 g	VITA AKZENT Plus FINISHING AGENT paste
1		Working Instructions
		Accessories

VITA**VM®9 EFFECT ENAMEL** – can be used for all enamel areas of the natural tooth – universally suitable translucent enamel effect material – to achieve a natural effect of depth	EE1	whitish-translucent	
	EE10	blue	
VITA**VM®9 EFFECT PEARL** – only suitable for effects on the surface, not for layering in – perfectly suitable for bleached restorations	EP1	shade in pastel-yellow	
VITA**VM®9 EFFECT OPAL** – to create the opal effect in restorations of young and very translucent teeth	EO2	opal, whitish	
VITA**VM®9 EFFECT CHROMA** – color-intensive modifier porcelains – to accentuate certain color areas of the tooth – to vary the lightness value in the neck, dentine and enamel areas	EC1	white	
	EC4	tender lemon yellow	
VITA**VM®9 MAMELON** – highly fluorescent porcelain, which is mainly used in the incisal area – for shade characterization between incisal edge and dentine	MM1	warm yellow-brown	
VITA**VM®9 CORRECTIVE** – materials with reduced firing temperature (800°C) for corrections after glaze firing – in three nuances for neck, dentine and enamel areas	COR1	neutral	
	COR2	beige	
	COR3	brown	

Adhesive bonding
Today a variety of adhesive bonding systems are available on the market. The information given below describes a possible procedure.

Correct processing and adherence to the manufacturer's instructions are essential for the clinical success of all systems.

Light- or dual-curing fine-hybrid composites, such as VITA ADIVA F-CEM, and a proven and properly used functional enamel-dentine adhesive system (Total Bonding) should be used for adhesive bonding (cementation) of restorations made of VITABLOCS. The ultrasonic insertion method or preheated composite can be used for stronger composite materials.

The self-adhesive composite VITA ADIVA-S-CEM or RelyX Unicem 2 (3M ESPE) can be used exclusively for crowns.

> ⚠ **Note:** Temporary bonding is not permitted for restorations made of silicate ceramic, such as VITABLOCS, since adequate stabilization is not ensured. Risk of fracture!

Essentially, there are no differences in the protocols for adhesive cementation of inlays, crowns and veneers. However, a few special aspects should be considered for adhesive cementation of veneers and crowns:

- Dual-curing composite cements should not be used for thin veneers, since these materials may cause a slight change in color (yellow shade) after curing. Because of this, a light-curing composite is preferable.
- A microbrush glued to the veneer using a light-curing bonding material can be used as a holder.
- Fixing the veneer with a finger allows more uniform distribution of pressure during adhesive placement.
- Adhesive bonding of crowns should preferably be performed using a more flowable, dual-curing composite (depending on the thickness of the layering).

Step-by-step description based on the example of an inlay

Conditioning the tooth substance
Try-in of the restoration; check the fit visually and by tactile means.

Spray into the cavity for 30 sec., and blow dry for 20 sec.
Drying (rubber dam) or placement of cotton rolls, dry-angles, sublingual roll

Etch tooth substance with VITA ADIVA TOOTH-ETCH
(phosphoric acid gel, 35%) for 20 sec.

Spray for 20 sec. and dry.
Control: etched surface must be white opaque.

Application of an adhesive system (such as VITA ADIVA T-BOND).
Agitate VITA ADIVA T-BOND I/II for 30 sec., gently dry for 15 sec. and harden for 20 sec. Then agitate again for 30 sec., gently dry for 15 sec. and harden for 20 sec.

Conditioning the restoration
Use ethanol to degrease the restoration before it is seated.

Apply VITA ADIVA CERA-ETCH (hydrofluoric acid gel, 5%) to the inner surfaces.

Etching time: 60 sec.

⚠ **Note:** Please read the information in the safety data sheet on pages 50/51.

Completely remove any remaining acid by using water spray (60 sec) or clean in the ultrasonic bath. Then dry for 20 sec.
Do not brush clean, as there is a risk of contamination! After drying, the etched surfaces have a white opaque appearance.

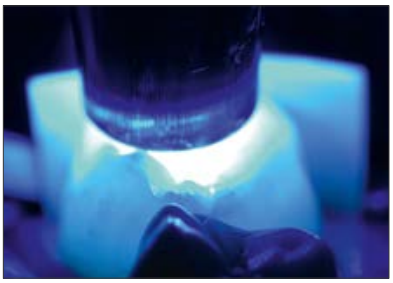
Apply silane (VITA ADIVA C-PRIME) to the etched surfaces and then dry carefully. Allow to evaporate completely.

Insertion
Luting composite (e.g., VITA ADIVA F-CEM) is applied thinly into the cavity and the restoration is carefully placed in situ.

Use a spatula to remove excess composite.

Optional:
Seat the restoration by means of ultrasonic insertion.

Application of oxygen protection gel (e.g., VITA ADIVA OXY-PREVENT) to the cervical margins to prevent oxygen inhibition.



Light curing: buccal and oral: at least 20 sec., occlusal: at least 20 sec. (for each proximal surface)

Use a powerful and properly functioning polymerization light. Generally, second generation LED polymerization units with 5 W LED chips and a lamp power of > 1,000 mW/cm^2 are suitable, such as:

- Demi plus (Demetron)
- PenCure (Morita)
- Bluephase (Ivoclar Vivadent)
- G-Light (GC)
- SPEC 3 LED (Coltène Whaledent)
- Valo LED (Ultradent)

Remove excess with file or fine diamond abrasives (max. 40 µm).

Flexible abrasive discs are used for polishing proximal surfaces. Thin, coated acrylic discs have proven to be the most suitable.

The shade of the completed restoration matches the shade of adjacent teeth. Immediately after adhesive insertion, the teeth are often still dry and the restorations may initially appear to be a little too dark.

Fine morphological adjustments of the occlusion

The occlusion should be completely free of interferences, without any premature contacts in static and dynamic occlusion. The marginal contacts should be carefully adjusted. In the case of pronounced convex or large proximal surfaces where the ceramic is not supported by the shoulder, no marginal contacts should be adjusted to prevent fractures. Central occlusal contacts should not be positioned on the margins of restorations. If possible, occlusally exposed dentine should be integrated into the restoration.

The following procedure is recommended:

When fabricating delicate restorations (especially inlays and onlays with very thin ceramic layers), the occlusion should only be checked after final cementing to avoid fractures in the ceramic.

Use shimstock film for marking occlusal interferences in the static occlusion. Remove interference to the static occlusion caused by occlusal contacts and smooth the surface with a spindle-shaped diamond milling tool (40 µm, red color coding). Use a spindle-shaped diamond milling tool (40 µm) to mark and remove interference in the dynamic occlusion caused by occlusal contacts.

Sufficient cooling with water must be ensured!

The use of pointed diamond tools must be avoided since they penetrate too deeply into the fissures and may weaken the ceramic.

Prepolish with 8 µm diamond abrasives, while exerting slight pressure; adequate cooling with water must be ensured.

Note: Fine-grit diamond tools with round tip should be used for finishing ceramic restorations. Tools with a sharp tip will weaken the ceramic.

Finishing and polishing
Careful polishing is important for the overall esthetic and functional appearance of the restoration. A carefully polished ceramic surface reduces plaque accumulation and protects the antagonist tooth against abrasion.

Pay attention to margins and contact points when polishing the restoration.
The correct speed must be ensured and generation of heat must be avoided.
Prior to cementation, proximal areas are polished outside the mouth, for example, with VITA KARAT diamond polishing paste. To achieve a natural surface shine, the following procedure is recommended:

Finishing/smoothing the outer and occlusal surface of the restoration using Al_2O_3-coated flexible discs (for example, Sof-Lex discs, 3M Espe) in descending order of grit size (black, dark blue, medium blue, light blue) and fine-grit finishing diamonds, while exerting little pressure and ensuring sufficient cooling with water (observe manufacturer's instructions).

High-gloss polishing of the surface with Occlubrush (Hawe Neos) and diamond polishing paste (for example, Ultra II ceramic polishing paste, Shofu). Polish in the lower speed range (max. 15,000 rpm) with intermittent pressure (without water cooling).

Finally, the polishing paste is removed with the Occlubrush brush and water spray.

Completely polished restoration

Fluoridating the working area

Removal of adhesively bonded partial restorations
When fabricating restorations such as inlays, onlays, partial crowns, etc., the transitions between restoration, composite and tooth substance are difficult to differentiate during wet grinding. In order not to penetrate too deeply into the tooth substance, stopping the tool occasionally and drying the working area with air is recommended.

Recommended tool:
Cylindrical diamond tool (105 – 124 µm).

Trepanation
Preferably, a cylindrical diamond tool is used to create a trepanation opening (transversal). Once the opening is created, continue using conventional procedures.

Dentist

Preparation instruments:	Intensiv SA
Retraction cord:	Ultradent
Cord packer:	Deppeler
Contrast spray:	Powder Scan Spray (VITA)
Matrixes and wedges:	Hawe Dead Soft (KerrHawe)
Try-in paste/oxygen protection gel:	VITA ADIVA OXY-PREVENT
Phosphoric acid etching gel:	VITA ADIVA TOOTH-ETCH
Ceramic etching gel:	VITA ADIVA CERA-ETCH
Silane bonding agent:	VITA ADIVA C-PRIME
Luting composite:	VITA ADIVA F-CEM
Adhesive system:	VITA ADIVA T-BOND
Flexible polishing discs:	Sof-Lex (3MEspe)
Polishing brushes:	Occlubrush (KerrHawe)
Diamond polishing paste:	Ultra II Keramik polishing paste (Shofu). KARAT, extraoral polishing paste (VITA)
Disposable applicators:	Microbrush
Cavity cleaning:	ICB Brushes (Ultradent)

Dental laboratory

Paste to check occlusion and contacts, Pasta rossa, 3 g (Anaxdent)
Texture marker (Benzer Dental AG)
Smart Clip holding forceps (Hammacher)
Pick-up sticks (Hager & Werken)

Firing units: VITA SMART.FIRE, VITA VACUMAT 6000 M, VITA V60 i-Line (see page 18)

Materials for characterization / individualization of the shade

VITA VM 9 ESTHETIC KIT for VITABLOCS
VITA INTERNO KIT
VITA AKZENT Plus SPRAY KIT
VITA AKZENT Plus POWDER KIT
VITA AKZENT Plus PASTE KIT
VITA FIRING PASTE

Types of VITABLOCS®

VITABLOCS® Mark II
Fine-structure, monochromatic feldspar ceramic blocks with the abrasion characteristics of natural tooth enamel, that have been clinically proven a million times over since 1990.

VITABLOCS® TriLuxe forte
Fine-structure feldspar ceramic blocks in four different shade intensity levels with a finely nuanced shade transition from the enamel to the neck layer.

VITABLOCS RealLife®
Fine-structure feldspar ceramic blocks with a three-dimensional block structure that matches the structure of natural dentition, including an arched shade gradient from the dentine to the incisal edge, especially for highly esthetic anterior restorations.

Materials for individualization of the shade

VITA**VM**®9 ESTHETIC KIT for VITABLOCS®
Assortment containing a selection of VITA VM 9 materials, which are perfectly suitable for individualizing restorations made of VITABLOCS.

VITA AKZENT® Plus PASTE KIT
Assortment of 19 ready-to-use, fine-grained stain pastes for shade characterization of restorations made of VITABLOCS, particularly for use in dental practices.

VITA AKZENT® Plus POWDER KIT
Assortment of 19 ceramic stain powders for characterizing restorations made of VITABLOCS. The stains have good stability characteristics, as well as shade stability and can be mixed with one another.

VITA AKZENT® Plus SPRAY KIT
Assortment containing five BODY SPRAYS and one GLAZE SPRAY.
Especially suited for staining large surfaces, particularly for monolithic restorations.

VITA AKZENT® Plus GLAZE SPRAY
Easy to apply, spray-on ceramic powder for simple and time-saving glazing of ceramic restorations. Ideal for glazing monolithic restorations made of VITABLOCS in the dental practice.

VITA FIRING PASTE
Ready-to-use, fire-resistant paste for the fabrication of individual firing trays.
The material enables secure attachment of objects on the firing tray.
The paste can be easily removed again after firing.

Standard pack, 1 syringe cont. 12 g
Large pack, 3 syringes cont. 12 g each

Shade determination

VITA Linearguide 3D-MASTER®/ VITA Toothguide 3D-MASTER®
With the VITA Linearguide 3D-MASTER, you can determine the correct tooth shade quickly and precisely. The modern design and the linear arrangement enable quick determination of the suitable tooth shade. The VITA Linearguide 3D-MASTER is an alternative to the proven VITA Toothguide 3D-MASTER and features different (linear) arrangements of the shade sample teeth.

VITA Easyshade® V
The digital shade measurement device VITA Easyshade V, allows users to determine the shade of natural teeth, or to verify restorations in a matter of seconds, regardless of available lighting. The tooth shade measured is indicated in VITA classical A1-D4, VITA SYSTEM 3D-MASTER and in VITABLOCS shades. Seamless design, Bluetooth®, communication software for PC, smartphone and tablet, inductive charging and many new features guarantee maximum precision, quality and ease of use.

Materials for the optical impression

VITA Powder Scan Spray
Bottle containing 75 ml of blue, titanium dioxide-free spray-on pigment suspension with mint flavor for direct application (tooth surface) and for indirect use (plaster die/plaster model) for the opto-electronic impression of CAD/CAM restorations.

Materials for the adhesive technique

VITA ADIVA FULL-ADHESIVE LUTING SET
Assortment includes all materials for full-adhesive bonding of restorations fabricated using VITABLOCS.

VITA ADIVA F-CEM
Dual-curing, full-adhesive luting composite in four shades (A2 Universal, A3, White opaque and Translucent). Automix syringe cont. 5 ml, with material-saving T-mixers.

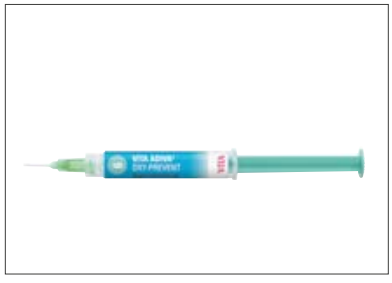
VITA ADIVA IA-CEM
Dual-curing full-adhesive, ultra-opaque bonding composite for severely discolored preparations, metal post and core structures, etc., in Automix syringe cont. 5 ml with material-saving T-mixers.

VITA ADIVA T-BOND SET
Dual-curing dentine/enamel bonding system.
Content: 1 bottle cont. 5 ml of VITA ADIVA T-BOND I,
1 bottle cont. 5 ml of VITA ADIVA T-BOND II.

VITA ADIVA TOOTH-ETCH
35% orthophosphoric acid gel for etching tooth substance,
blue colored, good stability characteristics
Contents: Two syringes of 3 ml each, cannulas

VITA CERAMICS ETCH (for extraoral use only!)
Hydrofluoric acid gel, 5%, for etching silicate ceramics, red colored.
Syringe containing 3 ml or bottle containing 6 ml.

VITA ADIVA C-PRIME
Single-component silane bonding agent, syringe of 5 ml



VITA ADIVA OXY-PREVENT
Neutral-colored glycerine gel to prevent the formation of an oxygen inhibition layer.
It is also suitable for use as a try-in paste.
Syringe of 3 ml

Polishing

VITA Karat diamond polishing set*
Assortment containing 5 g of diamond polishing paste, 20 diamond felt wheels (Ø 12 mm) and one nickel-plated mandrel.

*For indirect use only

VITABLOCS® storage boxes

VITABLOCS®-Box
Metal-reinforced box made of high-quality acrylic for storing up to 12 VITABLOCS bars.

Storage box
Storage box made of high-quality acrylic for storing up to 36 VITABLOCS bars.

VITA AKZENT Plus **EFFECT STAINS** POWDER 3 g or PASTE 4g – masking stains that offer superior coverage – for natural surface effects	ES01	white	
	ES02	cream	
	ES03	lemon-yellow	
	ES04	sunshine yellow	
	ES05	orange	
	ES06	russet	
	ES07	khaki	
	ES08	pink	
	ES09	dark red	
	ES10	lilac	
	ES11	blue	
	ES12	grey-blue	
	ES13	grey	
	ES14	black	
VITA AKZENT Plus **CHROMA STAINS** POWDER 3 g or PASTE 4 g – glazing stains for modifying the chromaticity of the base material within a shade or lightness group		**VITA classical shades**	
	CSA	Reddish-brownish	
	CSB	Reddish-yellowish	
	CSC	greyish	
	CSD	greyish-reddish	
		VITA 3D-MASTER shades	
	CSL	yellowish	
	CSM2	yellow-reddish	
	CSM3	yellow-red	
	CSR	reddish	
	CSIO	orange	
VITA AKZENT Plus **BODY STAINS** POWDER, 3 g or PASTE, 4 g or SPRAY, 75 ml – translucent glazing stains – for modifying the shade effect of the base material	BS01	yellow	
	BS02	yellow-brown	
	BS03	orange	
	BS04	olive-grey	
	BS05	grey-brown	

The following products require hazard identification:		
VITA ADIVA® CERA-ETCH **(hydrofluoric acid ceramic etching gel)**	**Caustic / Toxic** For extraoral use only! Contains hydrofluoric acid. Toxic if swallowed. Fatal in contact with skin. Causes severe skin burns and damage to eyes. Harmful by inhalation. Wear protective gloves/protective clothing/safety goggles. Keep locked up. If swallowed, call Toxicological Information Center immediately and provide safety data sheet. In case of contact with clothing/skin, remove contaminated clothing immediately and rinse with copious amount of water. Specific measures, see safety data sheet. In case of contact with eyes, rinse with water for a few minutes and consult a doctor/Toxicological Information Center. This material and its container must be disposed of as hazardous waste.	
VITA ADIVA® TOOTH-ETCH **(Phosphoric acid etching gel)**	**Caustic** Causes severe skin burns and eye damage. Contains phosphoric acid. When working with the product, do not eat or drink. Do not inhale gas/fume/vapor/aerosol. In case of contact with eyes, rinse thoroughly with water and consult a doctor. When working with the product, wear suitable protective clothing, protective gloves and safety goggles/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste.	
VITA ADIVA® C-PRIME **(Silane bonding agent)**	Highly flammable liquid and vapor. Keep away from heat/sparks/open flame/hot surfaces. No smoking.	

VITA Firing Paste	**Health hazard** Classification of the fiber according to EU Directive 97/69/EC: Carc. Cat 2 May cause cancer by inhalation. Avoid the release of dust; do not blow with compressed air. Use local extraction unit or particle filtering half mask during mechanical processing of the hardened paste. Irritates the skin. Avoid contact with skin and eyes. When working with the product, do not eat, drink and smoke. Keep out of children's reach.	
VITA AKZENT® Plus BODY SPRAY / GLAZE SPRAY	**Extremely flammable aerosol** Spray-on ceramic glaze material. For dental applications only. Not for direct use. Shake well before use. Pressurized container: do not puncture or burn. Protect from direct sunlight and temperatures above 50 C°. Do not pierce or burn even after use. Do not spray into flames or onto glowing objects. Keep away from ignition sources. - No smoking. Keep away from heat, sparks, open flames and hot surfaces.	

Protective clothing	While work is in progress, wear suitable safety goggles/ face protection, gloves and safety clothing. In case of formation of dust, use an extraction system or wear a face mask.	

The corresponding safety data sheets can be downloaded at www.vita-zahnfabrik.com/sds.

Note:

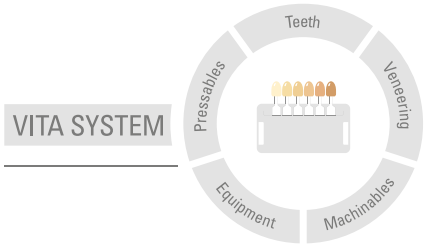
Information regarding general risks of dental treatments

- These risks are not specifically related to VITA products and their handling and are well known to all dental practitioners.
- Dental treatment and the integration of dental restorations entail the general risk of iatrogenic damage to hard tooth substance, pulp and/or oral soft tissue. The use of bonding systems and the integration of dental restorations involve the general risk of postoperative hypersensitivity.
- Product characteristics cannot be guaranteed if the instructions for use for the products are not followed. A product defect and an irreversible injury to the natural hard substance of the tooth, the dental pulp and/or the oral soft tissue may result.
- The success of a tooth restoration always depends on its fit onto the underlying tooth structure.
- The ability to produce a routinely smooth, sound and well-fitting restoration requires strict adherence to certain fundamentals.
- A deficient margin leads to plaque formation, resulting in gingival inflammation and marginal cracks, which can lead to secondary caries, sensitivity, gingival recession, cement dissolution and debonding or discoloration of the restoration.
- Our products must be used in accordance with the relevant valid version of the instructions for use.
- Any incorrect use may cause damage.
- 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.
- If serious incidents have occurred in connection with the product, they must be reported to VITA Zahnfabrik H. Rauter GmbH & Co. KG, and the competent authority of the Member State in which the user and/or patient is established.

Explanation of symbols

Medical device		Manufacturer	
For dental users only	Rx only	Date of manufacture	
Observe instructions for use		Expiration date	
Product number		Lot number (batch)	

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: 03.20

After the publication of this information for use any previous versions become obsolete. The current version can be found at www.vita-zahnfabrik.com

VITA Zahnfabrik has been certified and the following products bear the CE mark CE 0124:

VITA**VM®9 · VITABLOCS®** · VITA AKZENT® **Plus**

Rx only

RelyX® Unicem 2 und Sof-Lex® are registered trademarks of 3M Company or 3M Deutschland GmbH.

These working instructions were prepared with the kind cooperation of
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VITA

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