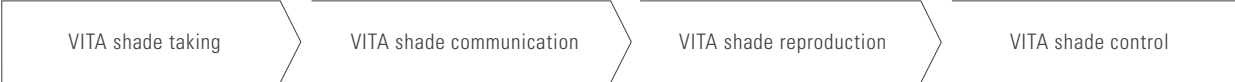
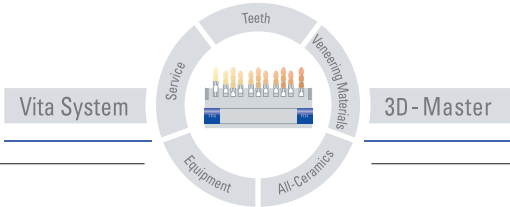


VITABLOCS®

The concept



Date of issue: 02.09



VITA

VITABLOCS® – 20 years of success

The material

- Feldspar ceramic
 Al_2O_3 - SiO_2 - Na_2O - K_2O
- The first fine-structure dental ceramic worldwide
- Antagonist friendly
- Clinically proven a million times over

The profitability

- VITABLOCS – multi-talented: Numerous indications - one solution
- Reduces tool wear



The potential

- Can be individualized
- Outstanding esthetics in one session
- Clinical survival rate corresponds to the gold standard

The success

- When using VITABLOCS, you will benefit from the combination of the
- material
 - profitability
 - wide product range

A unique story of success continues

Can a product in the innovative dental market be successful over 20 years? Of course it can – if it is good. It is no coincidence that VITABLOCS produce convincing results in laboratories, practices and in science: dental technicians particularly appreciate the fact that VITABLOCS are available in 3 shades and 2 sizes and cover a wide spectrum of applications and ensure excellent esthetics, quality and long-term results.

VITABLOCS® – Advantages and benefits

Technical

- Simple milling – and you're done. No thermal refinement processes, such as stain, glaze or crystallization firing required
- Optionally, simple time- and cost-saving characterization and individualization can be carried out:
 - Characterization (with VITA Shading Paste and VITA Akzent) or individualization (with VITA VM 9) using the current range of VITA products
 - No special products and special firing trays are required
 - A washbake is not required when individualizing restorations with VITA VM 9
 - Very high firing stability of the base material
- Superior machinability since VITABLOCS were especially developed for the CAD/CAM technology and matched with the respective CAD/CAM system
- Utmost material homogeneity thanks to the industrial sintering process and the fine-particle structure to ensure enamel-like behavior and natural abrasion characteristics.

Clinical

- Excellent clinical results over more than 20 years
- Final results with outstanding esthetics and a clearly arranged range of block shades
- Very good translucency characteristics, distinctive chameleon effect
- Excellent abrasion characteristics to protect antagonist teeth
- Can be easily polished with standard polishing sets
- Superior adhesive bonding thanks to excellent etchability

Indication		Fine-structure feldspar ceramic
		VITABLOCS Mark II
	Inlays (only with wax-up)	●
	Anterior crowns	●
	Posterior crowns	●
	Characterization	VITA VM 9

- recommended

Chemical composition*

Oxides	Percent by weight
SiO ₂	56–64
Al ₂ O ₃	20–23
Na ₂ O	6–9
K ₂ O	6–8
CaO	0.3–0.6
TiO ₂	0.0–0.1

Chemical elements (oxides) which are contained in very low concentration and required, for example, for firing, are not listed in the table.

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

Physical properties*

Properties	Unit of measure	Value
CTE (25–500°C)	10 ⁻⁶ · K ⁻¹	9.4 ± 0.1
Density	g/cm ³	2.44 ± 0.01
Flexural strength (Schwickerath) (ISO 6872)	MPa	154 ± 0.5
Modulus of elasticity (resonance method)	GPa	45 ± 0,5
Transformation range	°C	780–790

* The technical / physical values are typical measuring results and refer to internal samples and measurements carried out with measurement equipment available on site. When samples are produced using a different method and different measuring equipment, different measuring results may be obtained.

**Multi-talented:
numerous indications – one solution**

Over 15 million successful restorations to date are the best proof of this.

VITABLOCS have also been available for the KaVo Everest System since 2008.

VITABLOCS® – Quality and profitability

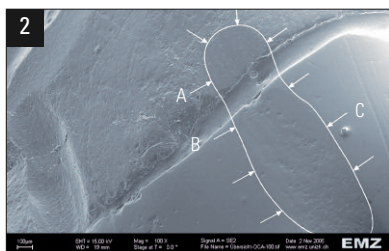
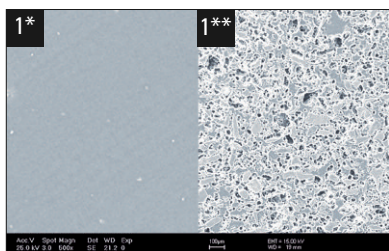


Fig. 1: SEM of the VITABLOCS® surface (Magnification x 1000), to the left: polished, to the right: etched for 60 seconds.

The homogeneous and highly retentive etching pattern due to the homogeneous distribution of the crystal and glass phase can be observed.

* Prof. Dr. Russel A. Giordano II,
Boston University

** VITA Zahnfabrik

Fig. 2: Enamel-like abrasion properties of the VITABLOCS®.

Clinical case Prof. Dr. W. H. Mörmann,
University of Zurich.

Fig. 3: In-vitro abrasion of enamel antagonists.

* Prof. Dr. I. Krejci, University of Geneva¹⁸

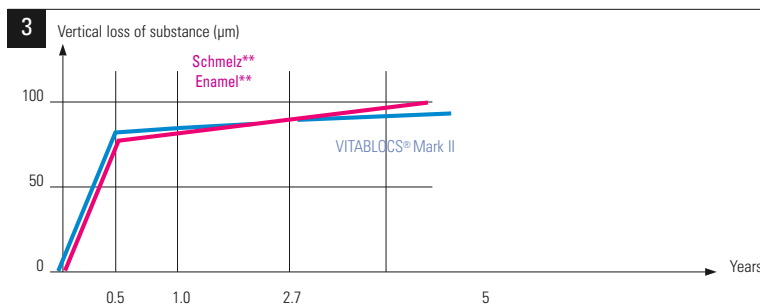
** Prof. Dr. I. Krejci et. al.,
University of Geneva¹⁹

High quality and antagonist friendly

The unique fine structure of the VITABLOCS ceramic and the industrial sintering process at over 1100 °C create ideal conditions for distinct advantages such as the good polishing properties and the excellent abrasion resistance of restorations. Restorations made of VITABLOCS are so "soft" that the antagonist polishes the ceramic and thereby undergoes as little abrasion as natural tooth enamel. Harmful "sandpaper effects" are thereby avoided.

Fig. 2 shows an inlay made of VITABLOCS Mark II (A) with an adhesive margin (B) and tooth enamel (C) after 10 years of function in situ. The abraded facet (arrows) shows identical abrasion behavior on tooth enamel and VITABLOCS. The smooth surface in the area of the abraded facet indicates the chemical durability of the material. The inlay surface (A) outside the abraded faced shows the different surface polishing and traces of processing by contouring diamonds. The adhesive cementation groove (B) is essentially well preserved.

Enamel-like abrasion behavior of VITABLOCS Mark II



VITABLOCS Mark II The first fine-structure dental ceramic worldwide

The special feature of VITABLOCS is that they are made of the first fine-structure dental ceramic. The average particle size of the feldspar powder used is only 4 µm. Traditional ceramics feature considerably larger grain sizes. This is why VITABLOCS are so antagonist-friendly, durable and reduce wear on grinding tools.

VITABLOCS® – Quality and profitability



Fig. 4: Molar crowns made of VITABLOCS® Mark II (after seating)

Fig. 5: Molar crowns made of VITABLOCS® Mark II (after 8 years),

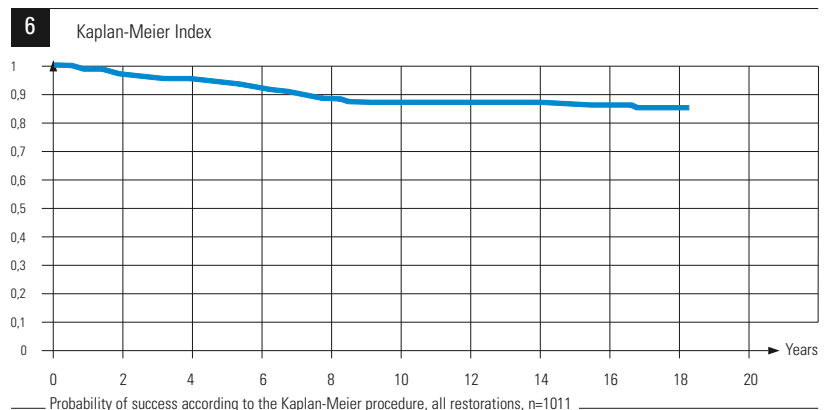
Dr. A. Bindl, University of Zurich,
G. Lombardi, Dental Technician, Dübendorf

Fig. 6: Clinical survival rate of restorations made of VITABLOCS® for CEREC®,
Dr. B. Reiss, Malsch¹¹

In the long term – Gold standard

Clinical studies confirm the long life of restorations made of VITABLOCS. This is particularly thanks to the excellent adhesive bond: a homogeneous and retentive etching pattern permits durable bonding between fine-structure ceramic and tooth substance. Clinical survival rates of 97% after 5 years for crowns, 95.5% after 9 years for inlays and 84.4% after 18 years for inlays are otherwise attributed only to cast inlays^{3,9,12}.

Survival rates of VITABLOCS of more than 84% after periods of up to 18 years



VITABLOCS, often copied – never equaled

Restorations made of VITABLOCS show clinically proven survival rates which correspond to the gold standard. The outstanding adhesive bond between dentine and ceramic is a decisive factor for the high durability of the restorations. This clinically durable adhesive bond is guaranteed by the excellent etching pattern that results from the fine structure of the VITABLOCS.

VITABLOCS® – Superior esthetics with VITABLOCS®



Fig. 7: VITABLOCS® Mark II anterior crowns,
individualized with VITA VM₉
Dr. A. Devigus, Bülach

Fig. 8: Initial situation

Fig. 9: Veneer made of VITABLOCS® Mark II,
individualized with stains and glaze spray
Dr. A. Bindl, University of Zurich
G. Lombardi, Dental Technician, Dübendorf

VITABLOCS Mark II: The chameleon among the ceramics

The high translucency of VITABLOCS Mark II ceramic in conjunction with the VITA SYSTEM 3D-MASTER guarantees excellent shade matching with the patient's remaining natural tooth substance (known as the 'chameleon effect').

Moreover, the restorations can be individualized in shade and esthetically perfected with the porcelains of the VITA VM 9 ESTHETICS KIT, VITA SHADING PASTE or VITA AKZENT.

Clinically proven a million times over

The advantages of the material and working properties of the VITABLOCS documented by scientific studies¹⁻¹⁵ have been confirmed by over 15 million clinically successful restorations made of this material to date. The VITABLOCS Mark II were

elected as the best material in the CRA Newsletter (06/2006)¹⁶. The clinical success rate of inlays and full crowns made of VITABLOCS Mark II after 7 years is 94%. In contrast, only 71% of the restorations manufactured from a competitor's glass ceramic were error-free. It was also shown that the clinical abrasion of the restorations made of VITABLOCS Mark II corresponded to that of natural tooth enamel.

VITABLOCS® – For even more esthetics

Finishing and polishing

For contouring the restorations made of VITABLOCS, standard fine-grained diamond abrasives (40 µm) are used, and finishing diamonds (8 µm) are used for prepolishing. Polish with flexible, Al₂O₃-coated discs with decreasing grain size, polishing brushes and diamond polishing paste.



VITA AKZENT Glaze Spray

Easy-to-apply, spray-on ceramic powder for simple, time-saving glazing of ceramic restorations, especially in the dental practice.

- Enables homogeneous application, a defined degree of glaze and efficient glazing of several units simultaneously.
- With VITA AKZENT Glaze Spray all VITA ceramic restorations with a sintering temperature >850°C can be glazed.



VITA SHADING PASTE

Ready-to-use, fluorescent staining pastes in 9 different shades for individualizing the shade of restorations made of VITABLOCS especially in the dental practice.

- The pastes are very fine-grained and achieve a natural coloration through their fluorescence. They are distinguished by their balanced consistency and homogeneous pigmentation.
- The pastes can be easily mixed with one another to obtain the desired shade effects. Additional adjustments can be made to the shade intensity by mixing with AKZENT finishing agent.
- The pastes can be fired atmospherically, e.g. with the VITA ATMOMAT.



VITA AKZENT

A comprehensive assortment of ceramic stains. Suitable for natural surface effects in the cervical area and / or the reproduction of natural discoloration effects.

- The stains have good stability characteristics as well as shade stability, and can be mixed with one another to quickly and simply reproduce the effects found in a natural tooth.



VITA VM 9 ESTHETIC KIT

A selection of VITA VM 9 porcelains which are perfect for individualizing restorations made of VITABLOCS.

- The CTEs of VITABLOCS and VITA VM 9 are precisely matched to one another.
- No distortion of the VITABLOCS ceramic during firing since the sintering temperature of the veneering ceramic is considerably lower.
- Since both the substructure ceramic and the veneering ceramic have a fine structure, restorations made of VITABLOCS individualized with VITA VM 9 also have excellent enamel-like properties.

VITABLOCS® – Finishing and adhesive technique



Karat diamond polishing set

Assortment containing 5 g diamond polishing paste, 20 diamond felt wheels, diameter 12 mm, and a mandrel, nickel-plated. Prod. No. B068.



VITA VACUMAT 4000T

Furnace operation is safe, easy, self-explanatory and time-saving thanks to the well-structured touch-screen color graphics menu. The new microprocessor controlled, fully automatic furnace allows to view patient photos directly on the touch-screen with the VITA Photo Viewer. A state-of-the art furnace from VITA with the traditional, attractive stainless steel finish. Prod. No. 4000PT220.



Adhesive cementation

In order to ensure clinical success, restorations made of VITABLOCS should be cemented using a reliable and correctly used functional dentine-enamel adhesive system (total bonding). This is the only way to guarantee a secure and durable adhesive bond to the entire tooth substance, dentine and enamel.

VITA LUTING SET – an all-round solution

Allows step by step procedures and thus avoids incorrect use. It contains all materials necessary for the adhesive cementation of etchable ceramic restorations:

- VITA A.R.T. BOND Excellent, clinically proven, two-stage, light curing dentine-enamel adhesive
- VITA DUO CEMENT Dual-curing adhesive composite
- VITA ETCHANT GEL Orthophosphoric acid gel 35% for etching tooth enamel
- VITA OXY-PREVENT Neutrally shaded glycerin gel
- VITASIL® Silane bonding agent/try-in paste
- VITA CERAMICS ETCH Hydrofluoric acid gel 4.9% for etching ceramic restorations

VITABLOCS® – The assortment

VITABLOCS Mark II/VITA SYSTEM 3D-MASTER

Designation	Dimensions in mm	Content	Shades		
I12	10x12x15	5	1M2C	2M2C	3M2C
I14	12x14x18	5	1M2C	2M2C	3M2C

The following classical shades of the VITABLOCS can be replaced with the indicated 3D-MASTER shades:

A2C ~ 1M2C A3C ~ 2M2C B3C ~ 2M2C



VITABLOCS Guide 3D-MASTER

With the aid of the VITABLOCS Guide 3D-MASTER made of the original VITABLOCS Mark II ceramic you can very easily select the perfectly suited VITABLOCS for your restorations.

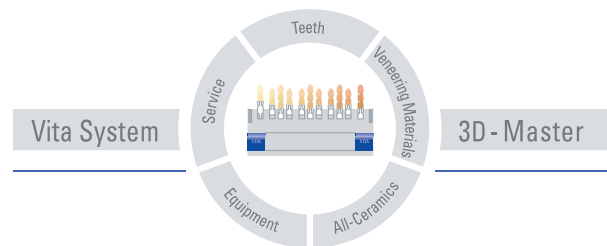
Clinical studies – an overview

Material	Type of restoration	Quantity	Period	Survival rate	Study carried out by	Reference
VITABLOCS	Inlays	51	5 years	94.2%	Berg	1
VITABLOCS Mark II	Inlays	18	4 years	94.4%	Bindl, Mörmann	2
VITABLOCS Mark II	Crowns	208	5 years	94-97%	Bindl et. al.	3
VITABLOCS Mark II	Endo crowns	19	2 years	95%	Bindl, Mörmann	4
VITABLOCS	Inlays	109	7 years	100%	Cerutti et. al.	5
VITABLOCS Mark II	Partial crowns	96	3 years	100%	Fassbinder et. al.	6
VITABLOCS	Inlays, onlays	187	10 years	95%	Otto, de Nisco	7
VITABLOCS Mark II	Inlays	32	8 years	90.7%	Pallesen, Van Dijken	8
VITABLOCS Mark II	Inlays, onlays	2328	9 years	95.5%	Posselt, Kerschbaum	9
VITABLOCS Mark II	Post-core constructions	58	3 years	100%	Reich et. al.	10
VITABLOCS	Inlays	1011	18 years	84.4%	Reiss	11
VITABLOCS Mark II	Inlays	1011	10 years	90%	Reiss, Walther	12
VITABLOCS	Inlays	2374	5 years	92%	Schaueremann	13
VITABLOCS	Veneers	617	9 years	94%	Wiedhahn et. al.	15

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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 this product information: 02.09.

After publication of this product information all previous versions become obsolete. The current version can be found at www.vita-zahnfabrik.com.

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