VITA ENAMIC® HYBRID CERAMIC
Information for dental technicians

Date of issue: 02.19

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

VITA – perfect match.
CONCEPT AND BENEFITS

**VITA ENAMIC®** simplifies the fabrication of esthetic restorations, as the material can be processed efficiently and precisely, while maintaining high reliability. Read on to learn more.
The VITA ENAMIC formula for success: 
elasticity + strength = reliability²
VITA ENAMIC® HYBRID CERAMIC – SIMPLE, PRECISE AND ESTHETIC

What?
- VITA ENAMIC is the world’s first and only tooth-colored hybrid dental ceramic featuring a dual ceramic-polymer network structure.
- The material combines enormous load capacity with high elasticity, allowing simple, efficient and precise fabrication of dental restorations.

What for?
VITA ENAMIC is particularly suited for:
- delicate, esthetic monolithic reconstructions and implant-supported restorations that benefit from high load capacity.

With what?
VITA ENAMIC is available in several different variations and translucency levels:
- VITA ENAMIC, VITA ENAMIC multiColor
- T (Translucent), HT (High Translucent), ST (Super Translucent)
VITA ENAMIC® variations

- Monochromatic CAD/CAM blanks in three translucency levels for delicate, minimally invasive monolithic reconstructions.
- Multichromatic CAD/CAM blanks with integrated tooth color gradient for esthetic monolithic reconstructions at the push of a button.
- Mono- and multichromatic CAD/CAM blanks for the fabrication of implant-supported restorations with integrated "buffer function."*

* For Sirona inLab MC XL users, special monochromatic VITA ENAMIC IS blanks with an integrated interface to an adhesive/titanium base are available to enable the fabrication of implant-supported reconstructions.
THE ADVANTAGES

- **Time-efficient**
  - Highly efficient completion of restorations by polishing or glazing and avoiding complex reworking steps or crystallization/sintering firing.

- **Natural and esthetic**
  - The ability to simply achieve natural and esthetic results, since the tooth-colored hybrid ceramic blanks feature outstanding light optical properties.

- **Minimally invasive**
  - Fabricating detailed, minimally invasive restorations, since the material allows for thin walls and thinning marginal areas.

- **Reliable**
  - The ability to produce durable implant-supported restorations with integrated buffer function from the enormously resistant hybrid ceramic.
VITA ENAMIC: Just polish and deliver immediately!
VITA ENAMIC®: MORE POSSIBILITIES FOR DIGITAL DENTAL TECHNOLOGY

- Esthetic restorations
- Implant-supported restorations
- Minimally invasive restorations
- Esthetic restorations
**VITA ENAMIC** opens up new possibilities for the efficient and highly precise digital fabrication of esthetic reconstructions.

**VITA ENAMIC**: Recommended indications
- minimally invasive reconstructions with reduced wall thicknesses
- posterior crowns that offer high load capacity in cases with limited space availability
- precise repair of small defects (e.g., delicate inlays)
- non-/minimally-invasive reconstruction of occlusal surfaces (table tops)
- monolithic veneering structures for digital hybrid bridges
- Implant-supported abutment crowns and mesostructures

**VITA ENAMIC multiColor**: Recommended indications
- esthetic crown restorations with vivid play of color/light
- delicate (non-prep) veneers for cosmetic reconstructions
1. Shade determination

Tooth-colored hybrid ceramic blanks in numerous VITA shades (0M1 – 4M2) enable fast and reliable reproduction of the natural tooth shade.

Thanks to excellent light refraction properties and blanks available in three translucency levels, numerous esthetic challenges can be efficiently solved with VITA ENAMIC.
Using the unique material concept

- With VITA ENAMIC, the proven concept of reinforced ceramic-polymer materials, which has already been tried and tested in construction and aircraft construction, is now available for dental applications.

- In VITA ENAMIC, the dominant ceramic network is reinforced by a polymer network to ensure improved mechanical properties.

- Since 2013, VITA ENAMIC hybrid ceramic has been used to fabricate approximately 1.5 million units in numerous laboratories and practices all over the world.
THE RESTORATIVE CONCEPT

Using a two-step restorative concept, VITA ENAMIC® hybrid ceramic allows the efficient fabrication of esthetic restorations. Learn more now.
VITA ENAMIC:
For efficient fabrication of dental restorations at an ideal price-performance ratio.
THE MONOLITHIC TWO-STEP RESTORATIVE CONCEPT – EFFICIENT AND NATURAL

Workflow example: VITA ENAMIC posterior crown, monolithic – 2 steps (block blank, tooth-colored)

1. CAM FABRICATION* → approx. 15 – 30 min.
2. REWORKING → approx. 2 min.
3. SINTERING PROCESS → approx. 80 min. (= speed sintering process)

*) Note: Exemplary representation of the system; grinding/milling times may vary depending on the CAM system, software, processing strategy and blank geometry.

**) Instead of polishing, staining and glazing with light-curing stains is also an option.

Workflow example: posterior crown made of zirconia ceramic, monolithic - 5 steps (disc blank, precolored)

1. CAM FABRICATION* → approx. 5 – 20 min.
2. REWORKING/Polishing** → approx. 5 min.

*) Note: Exemplary representation of the system; grinding/milling times may vary depending on the CAM system, software, processing strategy and blank geometry.

**) Instead of polishing, staining and glazing with light-curing stains is also an option.
natural and esthetic

FINAL RESULT!

4. CHARACTERIZATION/GLAZING
→ approx. 2 min.

5. GLAZE FIRING/STAINS FIRING
→ approx. 10 – 15 min.

FINAL RESULT
FACTS AND FEATURES

VITA ENAMIC® is the material for efficient fabrication of detailed and reliable restorations. Read all the facts and features.
En

VITA ENAMIC:
The hybrid ceramic enables very delicate and precise restorations!
TWO BENEFITS FOR EFFICIENT AND COST-EFFECTIVE FABRICATION

1. Time-efficient fabrication, thanks to unique material structure

VITA ENAMIC
• enables the fabrication of restorations within a short period of time and avoids complex reworking or a crystallization/sintering firing process
• is finalized by polishing/glazing immediately after CAM fabrication and can be delivered to the practice immediately afterwards

1. CAM fabrication: approx. 5 - 20 minutes*

2. Reworking: approx. 2 minutes

3. Polishing: approx. 3 minutes
   or Glazing: approx. 3 minutes

*) Note: Exemplary representation of the system; grinding/milling times may vary depending on the CAM system, software, processing strategy and blank geometry.
2. Cost-effective CAD/CAM fabrication, thanks to long tool life!

VITA ENAMIC

- enables cost-effective processing with numerous systems
  the hybrid ceramic allows long tool life
- milling tools last up to seven times longer when tested
  compared to glass ceramics, when fabricating crowns with Sirona MC XL

Source: Internal study VITA R&D, Schleiferstandzeitversuche zur CAM-Fertigung von Molarenkronen aus o. g. Materialien mit jeweils einem neuen Schleiferpaar mittels Sirona MC XL-Schleifeinheit, Software 3.8 x, report 03/10 ([1] see back of brochure)
TWO BENEFITS FOR RESTORATIONS WITH PARTICULARLY SMALL DIMENSIONS

1. Minimally invasive restorations, thanks to reduced wall thickness!

**VITA ENAMIC**
- enables minimally invasive restorations
  - reduced wall thickness is possible, thanks to high resilience
- is especially advantageous in cases of limited space
  - where natural tooth structure must be preserved

**Traditional Ceramic**
- 0.4 – 0.6 mm
- 0.5 – 0.7 mm
- 1.5 mm

**VITA ENAMIC**
- 0.2 mm
- 0.3 mm
- 1 mm
- 0.8 mm
2. Delicate reconstructions, thanks to integrated elasticity!

VITA ENAMIC
- enables CAM fabrication of extremely delicate reconstructions thanks to the low brittleness of the material
- exhibits excellent CAM machinability in the test
  - the veneer geometry (approx. 0.2 mm) could only be achieved with hybrid ceramic-polymer materials*

*) Important! The manufacturer has not approved the use of IPS Empress CAD and IPS e.max CAD for a wall thickness of approx. 0.2 mm.
TWO BENEFITS FOR HIGH-PRECISION RESULTS

1. Detailed morphology, thanks to ideal CAM machinability!

VITA ENAMIC: The CAD/CAM material to achieve accurate and detailed results!

VITA ENAMIC
- enables CAM reconstructions with high accuracy
  for exact reproduction of the function
2. Precise results for exact marginal fit, thanks to edge stability!

IPS e.max CAD

VITA ENAMIC

Source: Internal study VITA R&D, Untersuchung von standardisierten Dreiecksformkörpern (30° Keil, Aufsicht) aus o. g. Materialproben mittels REM nach CAM-Fertigung mit Sirona MC XL-Schleifeinheit, 200-fache Vergrößerung, report 05/10 [1], see back of brochure.

VITA ENAMIC

- enables precise and thinning marginal areas for exact marginal fit, thanks to high edge stability
- produces high marginal precision when tested for objects with marginal areas and limited space
THREE REASONS FOR HIGH RELIABILITY

1. Reliability, thanks to durable material structure!

VITA ENAMIC: material with integrated "crack-stop function"

VITA ENAMIC exhibits outstanding reliability and durability
- the polymer network is able to stop crack propagation
- reveals plastic deformation after prior damage in the test
  whereas, traditional ceramics reveal noticeable cracks

Source: Internal study VITA R&D, Analyse des Querschnitts der Bruchflächen o. g. Materialproben nach Vorschädigung mit einer Wolframcarbid-Kugel, report 11/13 (§1; see back of brochure)
2. Clinical stability, thanks to enormous load capacity!

**VITA ENAMIC**
- indicates very good clinical stability since the material offers enormous load capacity after adhesive bonding
- reaches the highest average fracture load value of 2,766 N of all CAD/CAM materials examined in the test

Source: Boston University, Prof. Dr. Russell Giordano, Boston, USA; Statische Bruchlastuntersuchung zu monolithischen, CAD/CAM-gefertigten und adhäsiv befestigten Kronen aus o. g. Materialien, report 07/13 [3], see back of brochure.
Thanks to its polymer network, VITA ENAMIC offers an integrated “buffer function.”

3. Excellent resilience – hybrid ceramic features high fracture load capacity and extraordinary elasticity.
VITA ENAMIC

- enables reconstructions with excellent resilience since the material features an integrated "buffer function"
- is able to absorb 70 percent of the forces in the test compared to very rigid zirconia material

Source: University of Genoa, Dr. Maria Menini et al., Genoa, Italy; Messungen zur Kraftübertragung auf den simulierten periimplantaren Knochen mittels monolithischen Kronen aus o. g. Materialien auf einem stilisierten Implantatabutment, report 01/15, [2], see back or brochure.
ALLOWS FOR NUMEROUS ESTHETIC POSSIBILITIES

Natural esthetics, due to efficient characterization/individualization

VITA ENAMIC
- can be efficiently characterized with light-curing stains for natural and esthetic restorations

VITA ENAMIC
- can be individualized with veneering composite after the cut-back for lifelike results in the anterior area
2. Glazing

2. Individualizing
SYSTEM AND COMPONENTS

VITA ENAMIC® is available in a variety of geometries, translucency levels and shades. Perfectly matched system components enable efficient processing. Read on to learn more.
VITA ENAMIC: Suitable for various applications and efficient processing.
**TYPES, GEOMETRIES, TRANSLUCENCY LEVELS**

**VITA ENAMIC**
For minimally invasive, delicate reconstructions and implant-supported restorations

- **Translucency**
  - Translucent T
  - High Translucent HT
  - Super Translucent ST*

- **Geometry**
  - **Block****: EM-10, EM-14
  - **Disc**: Ø 98.4 x 12, Ø 98.4 x 18

- **Chroma**
  - mono-chromatic

**VITA ENAMIC multiColor**
For esthetic reconstructions and implant-supported restorations

- **Translucency**
  - High Translucent HT

- **Geometry**
  - **Block**: EMC-14, EMC-16***

- **Chroma**
  - multi-chromatic

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* The ST type is only offered in the geometry EM-14.
** The additional geometries IS-14 (in T) and IS-16 (in HT) are available for Sirona inLab MC XL users. These already have an integrated interface to an adhesive/titanium base. For more information visit www.vita-zahnfabrik.com.
*** Available from spring 2019
### AVAILABLE SHADES

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<tr>
<th>Translucency levels</th>
<th>VITA SYSTEM 3D-Master range of shades</th>
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<tr>
<td></td>
<td>0M1</td>
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<tr>
<td>Super Translucent*</td>
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<tr>
<td>High Translucent**</td>
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<tr>
<td>Translucent***</td>
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* | Super Translucent (ST) is available in the EM-14 type.
** | Limited range of shades for VITA ENAMIC multiColor EMC-14, IS-16 and discs: available in 1M1-HT, 1M2-HT, 2M2-HT, 3M2-HT and 4M2-HT.
*** | Limited range of shades for VITA ENAMIC IS-14/Discs: IS-14 available in 1M1-T, 1M2-T, 2M2-T, 3M2-T and 4M2-T; discs available in 1M2-T, 2M2-T and 3M2-T.

### RECOMMENDED INDICATIONS (for each type/level of translucency)

<table>
<thead>
<tr>
<th>Degree of translucency</th>
<th>VITA ENAMIC</th>
<th>VITA ENAMIC multiColor</th>
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<tr>
<td></td>
<td>T Translucent</td>
<td>HT High Translucent</td>
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<td>Indication</td>
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* | Due to the comparatively high opacity, Translucent is recommended when metal structures or discolored natural tooth substance need to be masked.
** | VITA ENAMIC is exclusively approved for the fabrication of veneering structures (VITA Rapid Layer Technology).
AVAILABLE GEOMETRIES

<table>
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<tr>
<th>VITA ENAMIC</th>
<th>VITA ENAMIC multiColor</th>
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<tr>
<td><strong>EM-14</strong></td>
<td>12 x 14 x 18 mm</td>
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<td><strong>EM-10</strong></td>
<td>8 x 10 x 15 mm</td>
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*EMC-16*: 18 x 16 x 18 mm

Disc: Ø 98.4 x h 12 mm, Ø 98.4 x h 18 mm

*) Erhältlich ab Frühjahr 2019

AVAILABLE SYSTEM COMPONENTS

Characterization with VITA ENAMIC stains

(self)adhesive bonding with VITA ADIVA LUTING SOLUTIONS

Individualization with VITA VM LC flow

VITA ENAMIC polishing instruments
DESCRIPTION OF COMPONENTS

VITA ENAMIC blanks
Pack of five VITA ENAMIC hybrid ceramic blanks.
Pack of 1 VITA ENAMIC hybrid ceramic disc

VITA ENAMIC Starter Set technical
10 packs of five VITA ENAMIC blanks in five shades and two translucency levels and one VITA ENAMIC Polishing Set technical.

VITA ENAMIC Polishing Set technical
Two-stage polishing system with a total number of eight pre- and high-gloss polishers for the handpiece.

VITA ENAMIC STAINS KIT
Includes six light-curing stains and accessories for the reproduction of natural shade nuances of VITA ENAMIC restorations.

VITA VM LC flow
Light-curing, low-viscous composite materials for individualizing restorations, including VITA ENAMIC.

VITA ADIVA LUTING SOLUTIONS
Luting system for full-adhesive, self-adhesive and temporary luting of restorations.
SYSTEM COMPATIBILITY

CAD/CAM systems

VITA ENAMIC – SYSTEM SOLUTIONS*

VITA offers VITA ENAMIC with specific holder systems for these CAD/CAM systems:
- inLab (Dentsply Sirona)
- Ceramill mikro IC/Ceramill Motion 2 (Amann Girrbach AG)
- KaVo ARCTICA/Everest (KaVo Dental GmbH)
- Planmill 40/PlanMill 40S (Planmeca)
- TS150 (Glidewell Laboratories)
- MyCrown Mill (FONA Dental s.r.o.)

VITA ENAMIC – UNIVERSAL SOLUTIONS*

VITA offers VITA ENAMIC with a universal holder system for these CAD/CAM systems:
- CORITEC line (imes-icore GmbH)
- DGSHAPE DWX line (DGSHAPE Corporation)
- CS 3000 (Carestream Inc.)
- N4/R5/S1/S2/Z4/R5 (vhf camfacture AG)
- DMG ULTRASONIC line (DMG Mori AG)
- Röders RXD line (Röders GmbH)
- Zfx Inhouse5x (Zfx GmbH)
- MILLING UNIT M line (Zirkonzahn S.r.l.)
- Organical Desktop line (R+K CAD/CAM Technologie GmbH & Co. KG)

BONDING SYSTEMS**

VITA ENAMIC restorations can be fully and self-adhesively bonded. Bonding is carried out based on the proven protocol for feldspar ceramics. The hybrid ceramic is etched (60 sec) with hydrofluoric acid (VITA ADIVA CERA-ETCH), cleaned and then silanized (VITA ADIVA C-PRIME). Information on bonding is available at www.vita-zahnfabrik.com/adiva

Recommended system
- VITA ADIVA LUTING SOLUTIONS (full-/self-adhesive)

Other systems
- Variolink Esthetic (Ivoclar Vivadent), Vitique (DMG)
- NX3 (KerrHawe), Calibra Ceram (DENTSPLY), RelyX Ultimate (3M ESPE), Bifix QM (VOCO)
- PANAVIA F2.0/PANAVIA V5 (Kuraray), DuoCem (Coltène/Whaledent)

*) The range of geometries/shades of VITA CAD/CAM materials available may vary for the individual CAD/CAM system partners or systems.

**) Self-adhesive systems may only be used for crown restorations.
IDEAL SOLUTIONS IN THE PROCESS

Shade determination

- For digital shade determination, use VITA Easyshade V, and for visual shade determination, the VITA Linearguide 3D-MASTER.

CAD/CAM fabrication

- Various geometries, translucency and chroma levels of VITA ENAMIC blanks are available for CAD/CAM fabrication.

Shade modification*

- Use the light-curing VITA ENAMIC STAINS for the hybrid ceramic and VITA VM LC flow veneering composite for individualization.

Polishing

- Use the recommended VITA ENAMIC Polishing Sets for the hybrid ceramic.

Luting

- Practitioners use VITA ADIVA LUTING SOLUTIONS for full-adhesive or self-adhesive bonding of the hybrid ceramic.

* Note "Optional process steps": The hybrid ceramic can be seated directly after milling and polishing. Characterization with light-curing stains and individualization with veneering composite are optional process steps.
Hotline Sales Support
Mr. Udo Wolfner and his team (Internal Sales Department) will be glad to assist you with orders or questions about the delivery, product data and marketing materials.

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VITA CAD/CAM MATERIALS – for ideal solutions. Proven a million times over.

Ideal solutions for temporary restorations/auxiliaries

Ideal solutions for implant-supported restorations

Ideal solutions for substructures/fully anatomical bridges

Ideal solutions for single-tooth restorations

Over the course of 30 years, more than 20 million single-tooth restorations have been fabricated using esthetic tooth-colored VITA CAD/CAM ceramics. Today, laboratories can choose the perfect material solution for their individual needs, from highly esthetic feldspar ceramics, high-strength glass ceramics and innovative hybrid ceramics to treat a variety of single-tooth indications. In addition, these CAD/CAM ceramics are distinguished by simple and efficient processing.
More information about VITA ENAMIC is available at www.vita-enamic.com

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: 02.19

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 C E 0124:

VITA ENAMIC®

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Bibliography:

1. Internal studies, VITA R&D:
   VITA Zahnfabrik H. Rauter GmbH & Co. KG
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   Spitalgasse 3, 79713 Bad Säckingen, Germany
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   Dr. Berit Müller, project manager for VITA R&D, VITA Zahnfabrik, Bad Säckingen
   Prof. Dr. Dr. Jens Fischer, R&D division director, Bad Säckingen

2. Menini M.
   In-vitro-Test zur Fähigkeit der Hybridkeramik, Kräfte zu absorbieren, January 2015.
   Investigator: Dr. Maria Menini, Department for fixed and implant-prosthetic restorations, University of Genoa, Italy

3. Giordano R.
   Development of Novel All-Ceramic Restorations and Wear, Strength, and Fatigue of Restorative Materials
   Research Report, Juli 2013
   Principal Investigator: Russell Giordano, D.M.D., D.M.Sc., Director of Biomaterials Boston University, Goldman School of Graduate Dentistry, Department of Biomaterials, Boston MA, USA

   For detailed test data, see Technical and scientific documentation VITA ENAMIC®.Download at www.vita-enamic.com