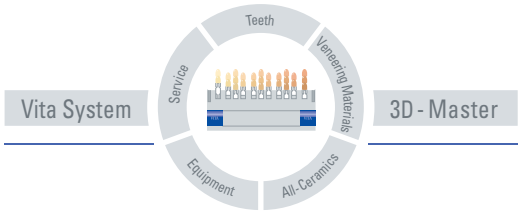
VITA All-Ceramics

VITA In-Ceram® 2000
YZ CUBES for inLab®

yttrium partially stabilized zirconium oxide blocks
for high-temperature sintering

Working Instructions
Manufacturing the Crown/Bridge Substructures

Date of issue: 04-05



VITA

VITA In-Ceram® 2000 YZ CUBES for inLab® Contents

VITA In-Ceram YZ single crown 36 veneered with VITA VM 9.
Photograph courtesy of Dr. A. Devigus
Restorative work G. Lombardi

VITA In-Ceram YZ bridge 35-37.
Photograph courtesy of Dr. A. Devigus
Restorative work G. Lombardi

VITA In-Ceram® Classic/2000 Indications

Indication / IC-Material										
VITA In-Ceram® Classic **SPINELL**	○ [1]	○ [1]	–	–	●	○	–	–	–	–
VITA In-Ceram® Classic **ALUMINA**	–	–	–	–	●	●	●	–	–	–
VITA In-Ceram® Classic **ZIRCONIA**	–	–	–	–	○	●	●	●	–	–
VITA In-Ceram® 2000 **AL-CUBES**	–	–	–	●	●	●	●	–	–	–
VITA In-Ceram® 2000 **YZ-CUBES**	–	–	–	●	●	●	●	●	● [2]	● [2]

● recommended
○ possible

[1] slip-casting technique only
[2] larger bridges possible (e.g. free-end bridges), but never with a span wider than 2 bridge units

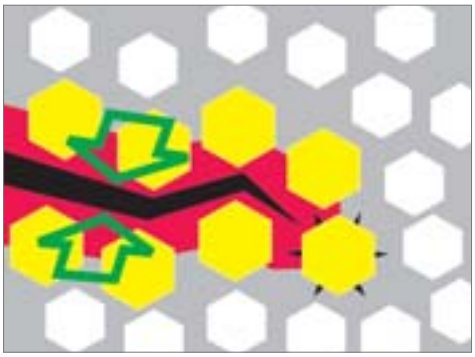


Fig. 1: Schematic diagram of the phase transformation process of ZrO_2

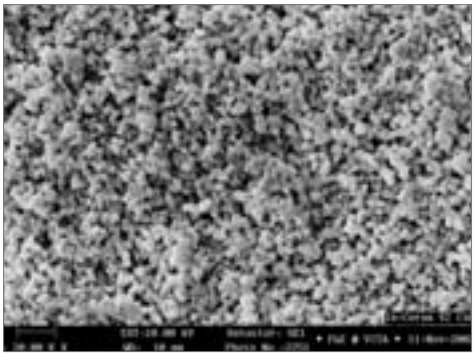


Fig. 2: SEM photo of the microstructure of unsintered VITA In-Ceram 2000 YZ CUBES (magnification 20,000 x)

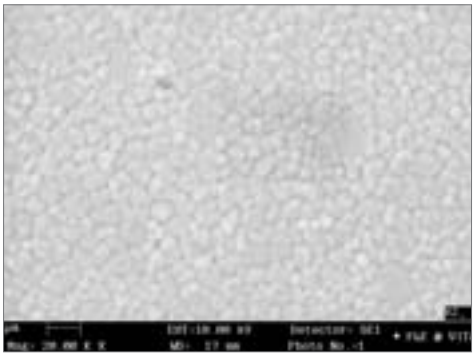
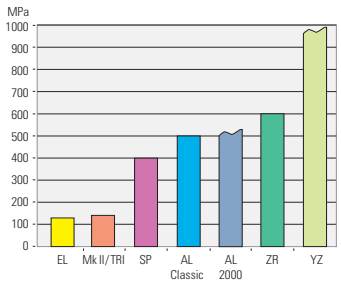
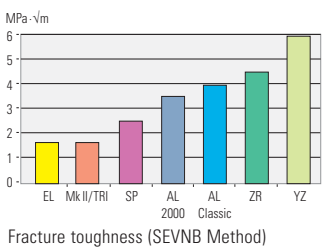


Fig. 3: SEM photo of the microstructure of sintered VITA In-Ceram 2000 YZ CUBES (magnification 20,000 x)



Flexural fracture strength



Fracture toughness (SEVNB Method)

Zirconium oxide (ZrO_2) is an oxide ceramic with many fascinating properties, such as its translucency in the case of thin wall thicknesses, its bright color and its outstanding biocompatibility. It is no co-incidence that this material frequently finds application in the field of implantology. In addition to this, it features a high degree of crack resistance which distinguishes it among oxide ceramics.

The latter is a result of the ability of zirconium dioxide to be stabilized in its tetragonal high-temperature phase by means of suitable additives, e.g. yttrium oxide. Only when applying anexternal source of energy, as for example in the case of abeginning crack (see fig. 1), individual zirconium oxide grains are transformed, locally and accompanied by an increase in volume, to their stable monoclinic form at room temperature. This procedure is described as transformation strengthening. The compressive stresses arising within the structure (see green arrows in fig. 1) prevent the unhindered growth of a crack, and hence the failure of the ceramic. This behavior results in a so-called tension expansion, a phenomenon known only in the case of steel. For this reason zirconium oxide is also referred to as “ceramic steel”. This property is also reflected in the long life of zirconium dioxide under permanent loading.

VITA In-Ceram 2000 YZ CUBES for inLab are porously presintered zirconium dioxide (YTZ-P = yttria stabilized Zirconia polycrystal) blocks (see fig. 2) partially stabilized with yttrium oxide. From these blocks, which are easy to process in this condition,enlarged crown and bridge substructures are milled in the inLab unit by Sirona.

Substructures made of VITA In-Ceram 2000 AL CUBES must be veneered with the fine structure ceramic VITA VM 9.

The shrinkage which takes place during the subsequent sintering process (see fig. 3) in a special high-temperature furnace (the ZYrcomat) is precisely calculated. The end result: substructures with a high degree of strength and marginal accuracy which demonstrate all the advantages of the physical properties of zirconium dioxide.

VITA Materials for CEREC and inLab®

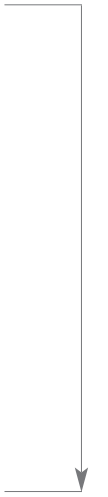
VITABLOCS ESTHETIC LINE	Fine-structure feldspar ceramic
VITABLOCS Mark II / TriLuxe	
VITA In-Ceram Classic SPINELL BLANKS	Oxide ceramic, glass-infiltrated
VITA In-Ceram Classic ALUMINA BLANKS (AL Classic)	
VITA In-Ceram Classic ZIRCONIA BLANKS	
VITA In-Ceram 2000 YZ CUBES	Oxide ceramic, densely sintered
VITA In-Ceram 2000 AL CUBES (AL 2000)	

Technical Data of the VITA In-Ceram® 2000 YZ CUBES for inLab®

CTE (25 °C - 500 °C):	$10.5 \cdot 10^{-6} \cdot K^{-1}$
Flexural strength:	> 900 MPa
Fracture toughness (K_{IC}):	5.9 $MPa \cdot m^{1/2}$
Modulus of elasticity (E):	210 GPa
Composition:	Zirconium dioxide (ZrO_2), yttrium oxide (Y_2O_3) 5 wt %, Hafnium oxide (HfO_2) < 3 wt %, aluminium oxide (Al_2O_3) and silicon dioxide (SiO_2) < 1 wt %

Manufacturing process for a VITA In-Ceram® 2000 YZ restoration With the FrameWork / WaxUp software

- Manufacturing the master model
- Manufacturing the scan model *or modeling in wax*
- Attaching the scan model to the scan bracket *or fixing the wax modeling to a special WaxUp holder*
- Scanning
- Designing the substructure (CAD, only FrameWork software)
- Inserting the VITA In-Ceram 2000 YZ CUBE and scanning the bar code
- Milling the contour (CAM)
- Adjusting / finishing the substructure
- Removing grinding dust from the substructure
- Cleaning firing and coloration (optional)
- Sintering firing
- Seating of the substructure
- Veneering with VITA VM 9



* working time: approx. 0.5 hrs
waiting time: approx. 9 hrs

The calculation is based on the manufacture of the substructure for a 3-unit VITA In-Ceram 2000 YZ bridge manufactured with the inLab FrameWork software. The working steps in *italics* are those procedures which apply especially to the WaxUp method.

☞ ***Note:***

We urgently recommend participation in an inLab / VITA In-Ceram course. Please contact VITA or Sirona for further information.

What are the advantages of the VITA In-Ceram® 2000 YZ CUBES in conjunction with the inLab system?

All-ceramic restorations made of VITA In-Ceram YZ CUBES for CEREC offer the following advantages:

Advantages for the patient

Excellent aesthetics and biocompatibility:

Zirconium dioxide has been used for 30 years in the medical sector for hip-joint prostheses. It is distinguished by an outstandingly high resistance to functional loading, a high degree of corrosion resistance, excellent light conduction properties and low thermal conductivity. Both the substructure and the veneering material do not give rise to allergies. This means that

- there is no retraction of the gingiva, and
- the material has the thermal behavior of a natural tooth (reaction to warm / cold), and therefore feels natural.

Advantages for the dentist

- High degree of clinical safety
- Suitable for adhesive and non-adhesive cementation
- Radiopacity

Advantages for the dental technician

- Use of the high-tech zirconium oxide ceramic from VITA
- By using VITA VM 9, a fine-structure veneering ceramic especially matched to zirconium dioxide substructures of the newest generation, outstanding aesthetic results using a new layering technique can be achieved efficiently.
- Milled substructures can be partially or completely colored in 5 different degrees of lightness with a special fluid prior to sintering – and these are matched to the VITA SYSTEM 3D-MASTER.
- The extremely compact, space-saving and well-designed CAD / CAM system represents a comparatively low investment volume. The Sirona inLab system offers the option of designing substructures (CAD FrameWork 3D software) or modeling in wax and scanning (CAD WaxUp software). No less than 8 different VITA materials can be processed using this system, which offers yet further potential for future developments in the domain of materials technology and areas of application.
- Precise definition and complete reproducibility of wall thicknesses of substructures thanks to inLab CAD / CAM software.
- Documentation of substructure design by means of data storage.
- Minimization of processing risks also with regard to determining the indications required by a Wax-Up with the inLab WaxUp 3D software since the corresponding software automatically recognizes the areas in the substructure which were too thinly modeled and corrects these before the milling procedure starts.
- Excellent marginal accuracy thanks to high-precision milling and exact calculation of sintering shrinkage using the inLab 3D high-performance software.
- Full productivity in the dental laboratory since no working procedures need to be outsourced.

Table of indications

Indication										
VITA In-Ceram® 2000 **YZ-CUBES**	–	–	–	•	•	•	•	•	• [1)]	• [1)]

• recommended

[1)] Larger bridges also possible (e.g. free-end bridges), but never with a span of more than 2 bridge units

- Primary telescopes for conus and telescopic crowns
- Anterior and posterior crown substructures
- Anterior and posterior bridge substructures with up to 2 pontics
- Free-end bridge substructures with max. 2 pontics (free-end unit max. premolar size)

Contraindications

- Inadequate oral hygiene
- Inadequate results of preparation
- Insufficient remaining natural tooth substance
- Bruxism

General notes on preparation

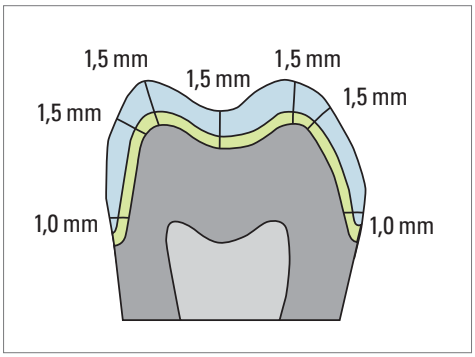
- A chamfer or shoulder with a rounded inner angle is suitable. The aim should be a circumferential depth of one millimeter.
  The vertical preparation angle should be at least 3°. All transitions from the axial to the occlusal or incisal surfaces should be rounded. Homogeneous, smooth surfaces are recommended.

shoulder preparation

chamfer preparation

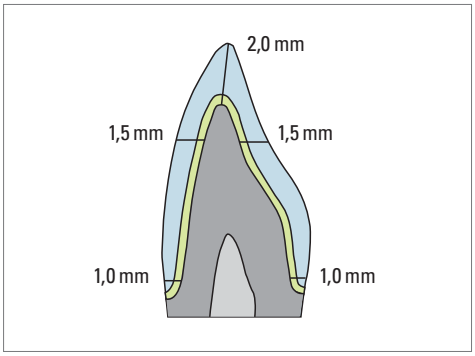
incorrect chamfer preparation

tangential preparations are not recommended



Preparation of premolars and molars

- In the case of posterior teeth a simplified occlusal relief is to be recommended in order to ensure sufficient space for the veneering ceramic. Occlusal reduction should be at least 1.5 mm.



Preparation of anteriors

- Incisal reduction should be 2 mm.

Examples of suitable preparation kits:

- Preparation kit according to Baltzer and Kaufmann, including abrasives with axial guiding pin for pre-defined preparation of chamfers and shoulders. (Hager & Meisinger, art. no. 2531).

- Preparation set according to Küpper for crown and bridge prosthetics. (Hager & Meisinger, art. no. 2560)

Notes on cementation

- Restorations made of VITA In-Ceram 2000 YZ CUBES for inLab can be cemented non-adhesively with glass ionomer or zinc phosphate cements or adhesively with self-curing composite PANAVIA 21 TC or the dual curing composite PANAVIA F (Kuraray). Both products contain the special MDP monomer which enters into a durable chemical bond with the sandblasted surface of the zirconium oxide substructures without the need for silication and silanization of the surfaces. It is not advised to use resin-reinforced or modified glass ionomer cements, since no sufficient clinical data are available on this subject to date.

- Etching with hydrofluoric acid does not result in a retentive surface. Silanization is not necessary.*

Please heed the instructions for use of the corresponding adhesive cement manufacturers.

☞ **Removal of seated restorations**

- In order to remove a fixed zirconium oxide restoration it is recommended to use cylindrical diamond instruments under **maximum water cooling** cooling at a speed of 120,000 r.p.m. in order to remove the restoration.

Trepanation

- The veneering ceramic is removed with a diamond instrument. The substructure can then be trepanated with a coarse-grained, spherical diamond under maximum water cooling at a speed of 120,000 r.p.m. When boring through the substructure it is recommended to hold the instrument at an angle of 45°.

* see the brochure "Clinical Aspects" for further details (art. no. 808E).

VITA In-Ceram® 2000 YZ CUBES for inLab®

CUBES for crown substructures **Art. No.**
Dimensions: 14 x 15 x 20 mm ECYZ205
Designation: YZ-20/15

Pack of 5

Large pack of 25 ECYZ2025

CUBES for large crown substructures * ECYZ20194
Dimensions: 15.5 x 19 x 20 mm
Designation: YZ-20/19

Pack of 4

* Available as from August 2005

Large pack of 24 * ECYZ201924

* Available as from August 2005

CUBES for small bridge substructures ECYZ402
with max. 2 pontics
Dimensions: 14 x 15 x 40 mm
Designation: YZ-40/15

Pack of 2

Large pack of 10

Art. No.
ECYZ4010

CUBES for large-span bridge substructures* ECYZ40192
with max. 2 pontics
Dimensions: 15.5 x 19 x 40 mm
Designation: YZ-40/19
Pack of 2

* Available as from August 2005

Large pack of 10 ECYZ401910

* Available as from August 2005

Cubes for large-span bridge substructures ** ECYZ551
with max. 2 pontics
Dimensions: 15.5 x 19 x 55 mm
Designation: YZ-55

Pack of 1

COLORING LIQUID for VITA In-Ceram® 2000 YZ CUBES ECCLKIT
Special fluid for the coloration of substructures made of VITA In-Ceram 2000 YZ CUBES in 5 lightness levels (LL1-LL5) matched to the VITA SYSTEM 3D-MASTER

Complete assortment

** For YZ-55 CUBES an inLab 3D software version from V2.30 R1800 and a hardware adjustment (gear-head) is required in the case of units with a serial no. < 11200.

One-colour assortment

Art. No.
ECCL1KIT-
ECCL5KIT

VITA**VM**®**9 Veneering ceramic**
Fine-structure veneering ceramic for all-ceramic substructure materials in the CTE range of approx. 10.5, such as VITA In-Ceram 2000 YZ CUBES for inLab

VITA ZYrcomat DZY220
High-temperature sintering furnace for sintering the VITA In-Ceram 2000 YZ CUBES.
4 molybdenum silicate thermocouples ensure homogeneous temperature distribution.
Temperature in the firing chamber: max. 1600 °C

Sintering accessories E38002
Pack of 150 g zirconium oxide spherical firing supports for supporting the restorations during the sintering procedure

Complete set consisting of sintering bowl and sintering container for VITA ZYrcomat E38011

Single pack sintering container for VITA ZYrcomat 30 mm x 80 mm E38010

Single pack sintering container for VITA ZYrcomat 10 mm x 74 mm E38006

Manufacture of a VITA In-Ceram® 2000 YZ substructure with the inLab FrameWork Software

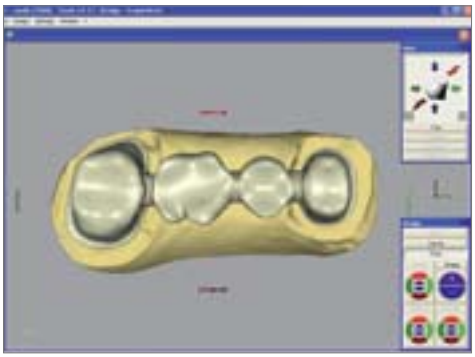
☞ ***Note:***
When using the WaxUp design procedure please heed the instructions in the CEREC inLab 3D manual from version 2.1X from 11.2003 onwards or the CD CEREC 3D manual from version V2.10 R1500 onwards.

Manufacturing the scan model

- Manufacture the model from a high-quality, dimensionally stable and scannable plaster (e.g. CAM base by Dentona).
- Mount the model on the scan bracket.

Scanning

- Scan the model in the CEREC inLab unit.



Designing

- Designing the model in the CEREC inLab unit.

Minimum wall thicknesses in mm and minimum connector surfaces in mm²

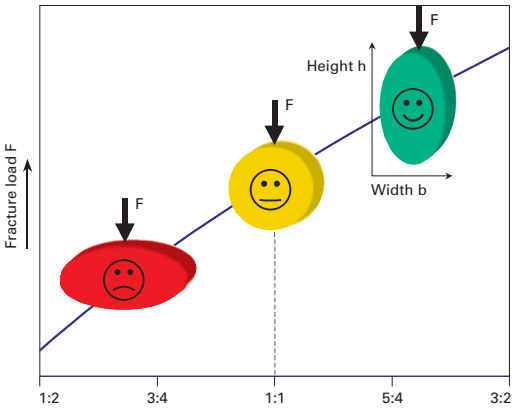
VITA In-Ceram 2000 YZ – Indication		mm/mm²
Incisal/occlusal wall thickness Primary parts for telescopic crowns		0.7
Incisal/occlusal wall thickness Single crown substructure		0.7
Incisal/occlusal wall thickness Abutment crowns of bridge substructure with 1pontic		0.7
Incisal/occlusal wall thickness Abutment crowns of bridge substructure with 2 pontics		1.0
Circumferential wall thickness Primary parts for telescopic crowns		0.5
Circumferential wall thickness Single crown substructure		0.5
Circumferential wall thickness Abutment crowns of 3-unit bridge substructure		0.5
Circumferential wall thickness Abutment crowns of 4-unit bridge substructure		0.7
Connector surface[1] Anterior bridge substructure with 1 pontic		7
Connector surface[1] Anterior bridge substructure with 2 pontics		9
Connector surface[1] Posterior bridge substructure with 1 pontic		9
Connector surface[1] Posterior bridge substructure with 2 pontics		12
Connector surface[1] [2] Free-end bridge substructure		12

[1] connector surface: connector surface abutment crown/pontic or between 2 pontics.

[2] free-end bridge unit should be modeled approx. 1/3 narrower in its vestibular/oral dimension.

☞ ***Note:***

The WaxUp 3D software automatically recognizes the areas of the modelation which are less than the minimum wall thicknesses and corrects these automatically before the grinding process.



Aspects which should be taken into account when designing the connector surfaces of bridge substructures:

1. The height (h) of the connector surfaces should be as large as possible.
2. The height (h) should be larger than, or at least equal the width (b).

Stability and function should be given priority over esthetics!

Seating the VITA In-Ceram® 2000 YZ CUBES and reading the printed bar code

- The VITA In-Ceram YZ CUBES for CEREC display a two identical printed bar codes which can be read by the scanner. This enables the shrinkage factor of the batch used to be automatically read and taken into account for the grinding process in order to ensure the marginal accuracy of the end result.

Note:

☞ *Should the bar codes not be readable, they can be entered manually on the computer keyboard. The following should be observed particularly in the case of the YZ-55 CUBE: Select in the display window YZ-55. First insert the side of the block on which the 2 bar codes are printed.*

Milling the restoration

⚠ ***Important:***

Please use the appropriate grinding instruments for VITA In-Ceram 2000 YZ CUBES for CEREC (cone-shaped Diamond XL,or for YZ-55 CUBES the long cone LK 14*). Particularly in the case of the YZ-55 CUBE the following must be observed:*
The inLab unit first mills a part of the restoration and then interrupts the procedure without the intervention of the operator. Then carefully remove the CUBE from the machine and carefully separate the block holder at the milled side. Do not grind the restoration. Then mount the CUBE in the in the remaining block holder and continue the grinding process. The machine recognizes the area that has already been milled via the calibration unit mounted on the side. After the milling procedure remove the calibration unit from the milling chamber to avoid clogging up the connections. When bulk milling the crown substructures must be removed after every separate grinding procedure, since otherwise they can be crushed in the course of subsequent milling procedures of the gear head.

* Sirona art. no. 593 566 8, Cone-shaped Diamond XL
no. 599 977 1, Long-cone Flip-Block LK 14

Processing the milled restoration

- After completion of the milling process and **before sintering** the restoration must be separated with a diamond cutting instrument, the separated edge ground and the more thickly milled margins reduced.

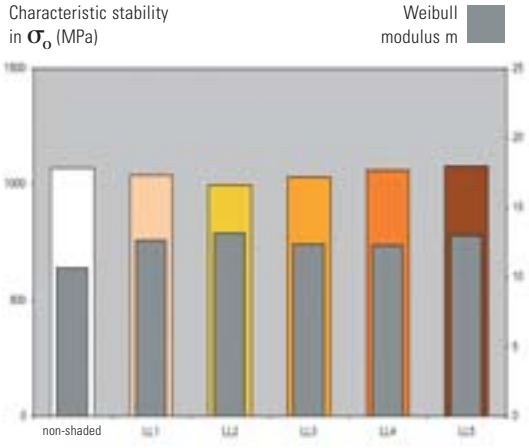
- **After the sintering firing no more adjustments should be made by grinding.**

Important:
On account of dust formation, wear a protective face mask when grinding, or grind while the material is wet. Furthermore, work behind a safety screen and use an extractor.

Shading the substructures with COLORING LIQUID for VITA In-Ceram® 2000 YZ CUBES

Areas of application

- Fluid for the complete or partial coloration of milled VITA In-Ceram 2000 YZ CUBE substructures before sintering. **VITA COLORING LIQUID is suitable for coloring substructures made of VITA In-Ceram 2000 YZ CUBES only.** COLORING LIQUID is available in 5 lightness levels (LL1-LL5) which are matched to the VITA SYSTEM 3D-MASTER: This shading is in accordance with the exact shade reproduction of VITA VM 9. Please see the instructions on p. 18.



Influence of COLORING LIQUID on the 3-point bending strength according to DIN ISO 6872 and the Weibull's modulus of VITA In-Ceram 2000 YZ

⚠ ***Important:***
COLORING LIQUID has no negative effects on the physical material properties such as flexural strength, fracture toughness and Weibull's modulus of VITA In-Ceram 2000 YZ.

Application

- The restorations should be cleaned in distilled water and grinding dust removed before use. To this purpose, a cleansing firing in aceramic furnace (e.g. VITA VACUMAT) should be carried out in order to remove the CEREC cooling and lubricating liquid DENTATEC from the porous substructure. Place substructure on a fibrous pad firing support.

Cleansing firing in the VITA VACUMAT

Pre-drying °C	→ min.	↗ min.	↗ °C/min.	Temp. approx. °C	→ min.	VAC min.
600	3.00	3.00	33	700	5.00	0.00

- The restoration can be immersed in COLORING LIQUID according to the required lightness level LL1 (light) to LL5 (dark). The recommended immersion time is 2 minutes. During immersion vacuum or air pressure (2 bar) can additionally be used.

⚠ ***Important:***
Only acrylic tweezers must be used for immersion

- Then carefully dry excess COLORING LIQUID with a paper handkerchief and allow to dry. Do not sinter in a wet state.
- COLORING LIQUID can also be sprayed on using the VITA SPRAY-ON system or applied with a brush in a thin, homogeneous layer onto the areas of the restoration to be coloured. Avoid the formation of puddles. The liquid is absorbed rapidly.

- The substructure can be colored from without and from within at the margins in order to ensure complete penetration of the color.

⚠ ***Important:***
The application brush should be used only for the application of COLORING LIQUID. We recommend the flat brush for PASTE OPAQUE (VITA art. no. B297). Do not use for layering the ceramic – danger of discoloration! Clean the brush only with distilled water.

- The sintering firing can take place after coloration.

⚠ ***Important:***
Restorations coloured with COLORING LIQUID must be sintered only using a crucible with air vent (Art no. E38011). Another possibility is to omit the lid of the crucible. This permits the unhindered burning out of organic components.

Sintering in the high-temperature furnace VITA ZYrcomat

⚠ ***Important:***
The sintering firing is authorized only in the high-temperature furnace authorized by VITA. Only in this furnace is correct sintering with the resulting physical properties of the sub-structures guaranteed.

- Switch on the VITA ZYrcomat furnace and control unit.
- Move the lift downwards ↓ to its lowest position using the lift key.
- Ensure that the temperature in the firing chamber is less than 200 °C.
- Place anterior crowns and anterior bridge substructures into the sintering bowl either on the labial or lingual surface, and posteriorcrowns and posterior bridge substructures on the occlusal surface.

☞ ***Note:***
It is recommended to sinter bridge substructures in the sintering bowl (VITA art. no. E380002). Ensure that the entire surface of the substructure is supported by the firing support. This avoids deformation. Care should be taken to prevent sintering spheres becoming "jammed" in the connector areas.

- Place the sintering bowl in the centre of the firing tray and cover with sintering containers. "Two-storied" sintering by stacking the containers is possible.
- Close the lift using the lift key ↑ . Hold the key pressed until the firing chamber is completely closed.
- Start the sintering firing by pressing the "START" key.

- The sintering program will then run automatically; the duration of the program run is approx. 7.5 hours including the cooling phase.

⚠ ***Important:***
Do not open the firing chamber until the temperature has cooled down to less than 200 °C! This leads to a longer life of the sintering bowl and crucible.

- After the sintering process the fit of the substructure can be checked on the die.

Reworking the sintered substructures

The surface structure of ceramic materials is decisive for their flexural strength. The subsequent processing of sintered VITA In-Ceram 2000 YZ substructures with abrasive instruments is to be avoided, particularly in the connector area. Mechanical surface processing can add over-critical quantities of energy to the substructure. This can lead to a phase transformation over a large surface area of the ZrO_2 and to surface tensions due to distortion of the crystal lattice (see also p. 2 and the working instructions VITA VM 9 p. 9).

Corrections of the milled substructure should therefore be made, if possible, before the sintering firing. Should subsequent corrections be required, however, the following general rules apply:

- Corrections after sintering should be made only with a rotary instrument for wet grinding, and in the case of primary telescopes with a grinding unit, under water cooling and at a low pressure. It is also possible to process the substructure using soft, diamond rubber polishers and a handpiece with slow speeds and low pressure. The instrument must lie flat on the surface and must not “rattle about”.

- The use of fine-grained diamonds in a nearly-new condition with red color coding (fine = 27-76 µm) or less (extra-fine, yellow 10-36 µm or ultra-fine, white 4-14 µm).

- Areas which are subjected to tensile stress in clinical use, i.e. mainly the connectors in bridge constructions, should not be ground.

- After grinding we recommend thermal treatment (regeneration firing) of the substructure in order to reverse any phase transformations which may have taken place at the surface. This can be combined with the VITA VM 9 EFFECT BONDER firing provided that the EFFECT BONDER is fired at over 980 °C.

Pre-drying °C	→ min.	↗ min.	↗ °C/min.	Temp. approx.°C	→ min.	VAC min.
500	-	5.00	100	1000	15.00	-

⚠ ***Important:***

In order to achieve an optimum adhesive bond the areas of the restoration to be veneered must not be sandblast. Please heed the corresponding working instructions VITA VM 9, art. no. 1190E.

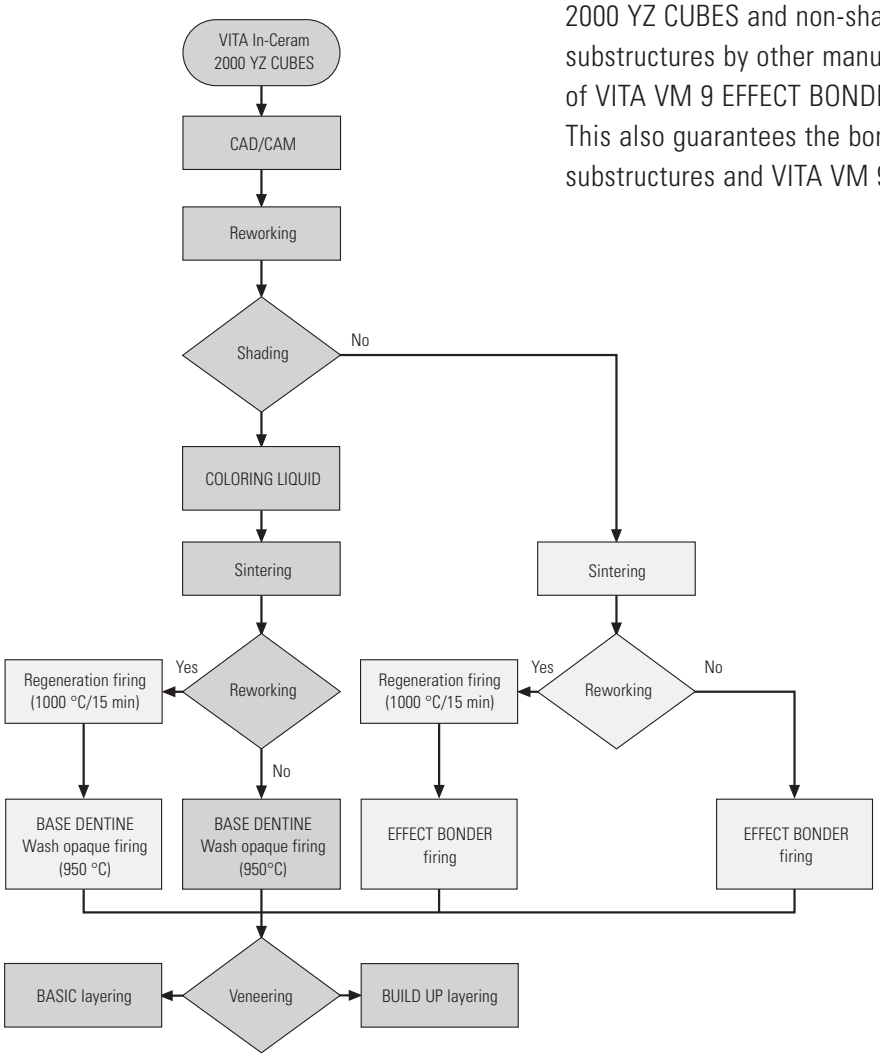
Veneering with VITA VM 9

- Substructures made of VITA In-Ceram, YZ CUBES for CEREC are veneered with VITA VM 9 fine-structure veneering ceramic [(CTE 25-500°), 8.8-9.2 $\cdot 10^{-6} \cdot K^{-1}$].
- COLORING LIQUID (1 shade per VITA SYSTEM 3D-MASTER lightness level) is used for shading milled substructures made of VITA In-Ceram 2000 YZ CUBES to the required lightness level. This coloration supports the exact shade reproduction with VITA VM 9. When COLORING LIQUID is used there is no need to use VITA VM 9 EFFECT BONDER.
- In order to guarantee good bonding between substructures made of shaded VITA In-Ceram 2000 YZ CUBES and VITA VM 9 we recommend a BASE DENTINE WASH OPAQUE firing with the following firing cycle:

Pre-drying °C	→ min.	↗ min.	↗ °C/min.	Temp. approx.°C	→ min.	VAC min.
500	2.00	7.27	60	950	1.00	7.27

- In the case of substructures made of non-shaded VITA In-Ceram 2000 YZ CUBES and non-shaded, densely sintered zirconium oxide substructures by other manufacturers we recommend the use of VITA VM 9 EFFECT BONDER.
  This also guarantees the bonding between the non-shaded substructures and VITA VM 9.

The procedure in the case of shaded and non-shaded zirconium oxide restorations is schematically depicted in the following flow chart:



Recommended instruments and materials

- **Modeling wax**
  Scan Wax (Sirona)

- **Turbines for grinding in a wet state**
  KaVo K-AIR plus (KaVo); Sirius high speed shaping turbine 890 sdi in connection with Sirius Aqua-Line and Projection-Line (Sirius Dental Innovations); NSK Presto Aqua (Girrbach); Turbo-Jet (Acurata)

- **Abrasive instruments for processing with the wet grinding turbine/with handpiece**
  Diamond abrasive set Ceramic-Line, Telescope-Line (Sirius Dental Innovations).
  Diamond porcelain polisher for handpiece, green/orange (Hager & Meisinger, art. no. HP 803 104 372 533 170).

- **Other**
  Fit-checker, lipstick for checking the fit of substructures

- **Preparation sets**
  Preparation set according to Küpper (Hager & Meisinger, art. no. 2560);
  Preparation set according to Baltzer and Kaufmann (Hager & Meisinger, art. no. 2531)

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Präparationsgrafiken auf S. 5 nach Dr. Andres Baltzer,
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With the unique VITA SYSTEM 3D-MASTER
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The VITA VM 9 veneering ceramic is available in the
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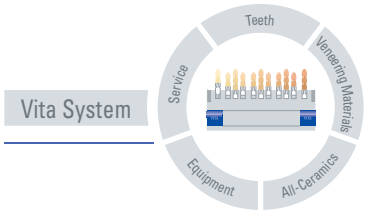

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VITA In-Ceram® 2000 YZ CUBES for inLab®
COLORING LIQUID for VITA In-Ceram® 2000 YZ CUBES

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