

# VITAVM<sup>®</sup>LC

Working Instructions



VITA shade determination

VITA shade communication

VITA shade reproduction

VITA shade control

Date of issue: 04.15

VITA shade, VITA made.

**VITA**

Light-curing microparticle composite for fixed and removable restorations for extraoral use. Available in VITA SYSTEM 3D-MASTER and VITA classical A1–D4 shades.

VITA VM LC is a light-curing microparticle composite for fixed and removable restorations for extraoral fabrication.

All alloys and resin framework materials may be used which are suitable for veneering with composite according to the manufacturer's instructions.

The Alloy Primer from Kuraray has been tested and approved by VITA for optimum bonding between metal and composite.

**Indication:**

Full and partial veneering of metal frameworks: crowns, bridges, telescopic crowns, implant superstructure

Individualization of and layering on VITA ENAMIC

Layering-over long-term temporaries made from VITA CAD Temp

Individualization of acrylic teeth

Reproduction of gingival components

Metal-free crowns and three-unit anterior bridges as long-term temporary restorations

Veneering of removable and partially removable dentures (according to the manufacturer's information) made from polyether ether ketone (PEEK) with a ceramic filler content of up to 20 %, such as Bio HPP/bredent PEEK-OPTIMA<sup>®</sup> LT1 polymer, such as. Juvora, InnoBlanc Medical

Veneering of yttrium partially stabilized ZrO<sub>2</sub>-frameworks (CTE 10.5 •10<sup>-6</sup> K<sup>-1</sup>) as for example VITA YZ for long-term temporary restoration

Inlays/ Veneers

**Note:** In the posterior area, a minimum thickness of the veneer of 1.5 mm in the central fissure and perfect occlusion must be ensured.

**Contraindication**

- Occlusal dysfunctions or parafunctions, such as bruxism

### **How does light curing work?**

Radiation with light of certain wavelengths starts radical polymerization in the opaque or the composite owing to the photoinitiators contained in them. During this process the short-chain monomers are linked to form a polymer network. At the same time especially treated inorganic fillers are integrated into this network.

As a result, the previously plastic, mouldable composite is transformed into a hard, insoluble material.

### **What must be considered during light curing?**

The effect of the photoinitiators is only ensured if light with a suitable wavelength and sufficient intensity is used. The maximum layer thicknesses should not be exceeded. To polymerize VITA VM LC, the units must be equipped with lamps emitting light in a wavelength range of 350 nm to 500 nm. The maximum intensity of the lamps should be 470 nm. There are various light sources which can be used for this purpose: e.g. fluorescent lamps, xenon flashlight bulbs and halogen lamps. As with all chemical reactions, polymerization takes place more rapidly at increased temperatures. Fluorescent lamps are therefore less suitable since their heat emission is minimal. In the polymerization chamber temperatures of 60-80°C contribute to achieving fast and accurate polymerization. Temperatures above 120 °C must be avoided.

### **Consequences of insufficient light curing**

Insufficient activation by unsuitable or old lamps results in defective networks in the composite. Lack of mechanical stability and poor surface quality lead to premature failure of the restoration. Flaking and secondary discoloration are the consequences.

They can be avoided through regular maintenance of the light-curing units by the dental professional.

Photo 1 shows the consequences of insufficient light curing:

Storage of the restorations in red wine over eight weeks causes hardly recognizable discolorations in the completely cured restoration (to the left in the photo).

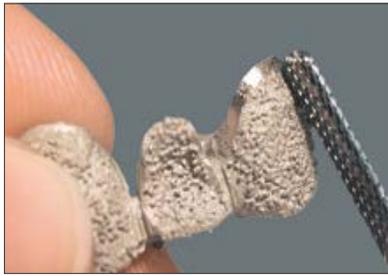
The crown that has been polymerized too shortly (i.e. insufficiently cured) (to the right in the photo) reveals strong discolorations.



Photo 1:  
to the left: completely polymerized, hardly any discoloration  
to the right: polymerized too shortly, strong discolorations



Generally, microretentions increase the bond strength. Their use is urgently recommended for high-gold content alloys. The information provided by the manufacturer of the bonding system must always be observed. When veneering electroplated secondary elements, microretentions or undercuts must be attached to the tertiary structures or suprastructures.



The framework is prepared with cross-cut tungsten carbide burs according to the instructions of the alloy manufacturer. Surfaces not to be veneered, in particular occlusal surfaces, are polished with rubber polishers.



Depending on the type of alloy, all surfaces to be veneered must be sandblasted with 110–250 µm aluminium oxide (disposable abrasive material) at a pressure of 2.5–3.5 bar. Generally, the instructions of the alloy manufacturers should be adhered to.



The metal framework is cleaned after sandblasting. Use only dry compressed air (with water separator) or a clean dry brush for cleaning.

The bonding system, for example Alloy Primer, Kuraray, is applied after cleaning. The procedure is based on the current version of the manufacturer's processing instructions. PRE OPAQUE or OPAQUE /OPAQUE PASTE are applied immediately after cleaning.



### **Contact with water and moisture must be avoided!**

In the event of contact with the skin, the surface must be sandblasted again.

The **Alloy Primer** from **Kuraray** has been tested and approved by VITA for optimum bonding between metal and composite.

### **Note on the use of other bonding systems**

The following bonding systems are also suitable:

- Heraeus Kulzer Signum Metal Bond I + II
- GC Metalprimer II Shofu Primer
- 3M Espe Rocatec mit Espesil

The materials/systems are processed in accordance with the current version of the manufacturer's instructions for use. VITA VM LC can be processed with bonding systems which condition the framework material for subsequent application of a light curing opaque based on methyl methacrylate.

In all cases, however, the suitability for processing with VITA VM LC must be checked before using bonding systems of other manufacturers. This applies also to the bonding systems listed above.

VITA Zahnfabrik does not assume any liability for damage resulting from lack of suitability of bonding systems of other manufacturers for processing with VITA VM LC and from any product modifications or quality defects of the bonding system in use.

The same shall apply to damage resulting from improper handling or processing as well as for damage resulting from inappropriate or faulty working instructions for the bonding systems of other manufacturers.

VITA VM BOND is **not** a suitable bonding system for the new VITA VM LC OPAQUE PASTE and is therefore no longer available.

### **Recommended procedure for the use of Alloy Primer, Kuraray**

Sandblast metal framework with aluminium oxide as described. Use only dry compressed air (with water separator) or a clean brush for cleaning the framework. Skin contact and contact with moisture (for example steam) must be avoided. Use a little sponge or a brush to apply Alloy Primer and allow to dry for at least 1 minute. The information included in the current version of the manufacturer's instructions for use must be observed. Then VITA VM LC PRE OPAQUE or OPAQUE PASTE / OPAQUE are applied.



If polymerization and layering are to be carried out on the model, the plaster needs to be separated with VITA VM LC SEPARATOR.

VITA VM LC SEPARATOR is a hazardous material. Observe information on pages 38-41.



PRE OPAQUE is a flowable additional component which increases the bond strength of metal frameworks with and without retentions. Thanks to its translucency, it hardens independent of the layer thickness even in dark zones with a small amount of light. Therefore the use of PRE OPAQUE is particularly recommended for retentions.

The material also allows a uniform opaque layer to be obtained.

PRE OPAQUE is applied immediately after the application of the bonding system.

Add the required quantity of PRE OPAQUE onto a ceramic mixing plate.

PRE OPAQUE is a hazardous material. Observe information on pages 38-41.



PRE OPAQUE is applied onto the framework with a disposable brush.

A thin layer is sufficient to fill undercuts adequately.

Polymerize subsequently.

**Observe polymerization times and information on pages 32-33!**

**⚠ Note:** Do not remove the dispersion layer to achieve perfect bonding of PRE OPAQUE and the opaque material. Avoid skin contact and moisture.

To ensure a perfect result, either OPAQUE or OPAQUE PASTE must be applied immediately after polymerizing PRE OPAQUE. Both opaque materials have a layer thickness of approx. 0.2 mm each after polymerizing.



VITA VM LC CLEANER is a **cleaning liquid** to remove non-polymerized VM LC materials from instruments. Hardened material residues can be partially dissolved with VM LC OPAQUE LIQUID.

VITA VM LC CLEANER is a hazardous material. Observe information on pages 38-41.



## Application of VITAVM<sup>®</sup>LC OPAQUE PASTE

Add the required amount of OPAQUE PASTE into the depression of a black ceramic mixing plate.

**⚠ Note:** Turn back the syringe of the light-sensitive OPAQUE PASTE by one turn after dispensing some material and seal it again immediately.

The consistency of OPAQUE PASTE has been optimally adjusted. OPAQUE LIQUID is exclusively suitable for use with OPAQUE powder and must not be used together with OPAQUE PASTE.

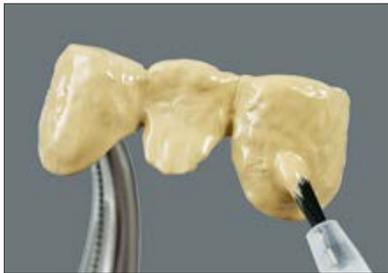
VITA VM LC OPAQUE PASTE is a hazardous material. Observe information on pages 38-41.



Thin layers of the opaque paste are applied onto the framework using a disposable brush and each layer is polymerized. The first layer is applied in a way to avoid complete coverage – similar to a wash opaque for ceramics.

## Observe polymerization times and information on pages 32-33!

**⚠ Note on the application of OPAQUE PASTE without PRE OPAQUE:** Frameworks that were heated up after polymerization must be cooled down. OPAQUE PASTE may become liquid and come off the retentions.



As many layers of opaque paste are applied (at least 2) as required to ensure complete coverage of the metal. Thanks to its visco-elastic consistency, OPAQUE PASTE exhibits perfect stability at edges and retentions. OPAQUE PASTE on the mixing plate must be protected against light (dark cover) between the individual polymerization steps.



The opaque pastes can be mixed with one another to individualize the shade. Alternatively, PAINT materials can be applied to polymerized OPAQUE PASTE or added once the first layer has been completed.

If non-mixed PAINT materials are applied to OPAQUE PASTE, they are fixed using a hand-held curing light. Then OPAQUE PASTE is cured two times.

Framework completed with VITA VM LC OPAQUE PASTE.



To ensure perfect bonding between opaque and dentine, processing should be continued immediately after polymerizing the opaque material or the substructure must be protected against dust and moisture.

**⚠ Note:** After curing, VITA VM LC OPAQUE PASTE must exhibit a lustrous surface with a thin dispersive layer. Avoid contamination with dust and contact with moisture.

For perfect shade reproduction of concave pontics we recommend leveling them out with adjacent crown frameworks using BASE DENTINE and then curing the material in a final polymerization process. Then 2-3 thin layers of OPAQUE PASTE are applied and polymerized.



### Application of VITAVM<sup>®</sup>LC OPAQUE

First add the liquid into the depression of a black ceramic mixing plate. Then add the powder and stir with a plastic spatula for approx. 30 sec to obtain a homogeneous, thin mixture. Mixing ratio: 5 drops of liquid and 1 measuring spoon of powder (to obtain approx. 4 units). The use of a metal spatula is not recommended since it may result in color changes.



**Note:** The bottle of the light-sensitive liquid must be sealed immediately after dispensing any liquid. OPAQUE LIQUID is exclusively suitable for the use with OPAQUE powder and must not be used together with OPAQUE PASTE.

VITA VM LC OPAQUE LIQUID is a hazardous material. Observe information on pages 38-41.

**Note:** To avoid contaminations and premature polymerization of the opaque, the use of a black mixing plate with lid is recommended.



It is recommended to wet the brush with OPAQUE LIQUID before the opaque is applied. To achieve complete polymerization, the opaque is applied in thin layers onto the framework. Polymerization is carried out after each layer. As many layers of OPAQUE are applied (at least 2) as required to ensure complete coverage of the metal. The mixed opaque must be protected against light (dark cover) between the individual polymerization steps. COLOR OPAQUE materials can be used to individualize the shade.

**Note:** The opaque layer needs to exhibit a wet-lustrous surface **before** the polymerization!

**Observe polymerization times and information on pages 32-33!**



Framework completed with VITA VM LC OPAQUE.

To ensure perfect bonding between opaque and dentine, processing should be continued immediately after polymerizing the opaque material or the substructure must be protected against dust and moisture.

**Note:** After curing, VITA VM LC OPAQUE powder must exhibit a dry and silky matte surface. Avoid contamination with dust and contact with moisture.

For perfect shade reproduction of concave pontics we recommend leveling them out with adjacent crown frameworks using BASE DENTINE and then curing the material in a final polymerization process. Then 2-3 thin layers of OPAQUE are applied. Afterwards final polymerization is carried out.

VITA VM LC OPAQUE PASTE / OPAQUE

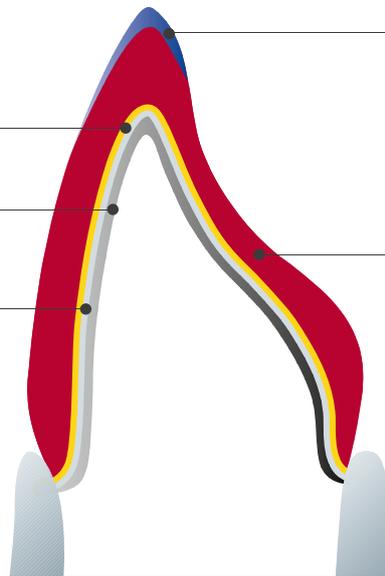


VITA VM LC ENAMEL



metal framework prepared with bonding system

VITA VM LC PRE OPAQUE

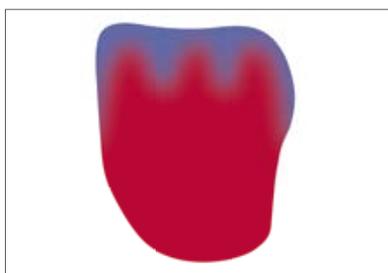


VITA VM LC BASE DENTINE



After applying PRE OPAQUE, OPAQUE / OPAQUE PASTE, VITA VM LC BASIC layering consists of the application of BASE DENTINE and ENAMEL.

The color-bearing BASE DENTINE materials provide the perfect precondition for the preparation of veneers with intensive shades. With this two-layer alternative, VITA offers an ideal solution for the reproduction of optimal shade results in the case of thin walls.



The user is able to prepare a natural restoration with a life-like appearance with only two layers.

**For perfect shade reproduction, the minimum layer thickness of the veneer should not be less than 0.5 mm.**

**⚠ Note:** Compared to VITA VM ceramic layering, ENAMEL is exclusively layered in the incisal area when using VITA VM LC.

For less translucent results, VM LC EE12 can also be used as an alternative for incisal applications (bleach shades are excluded).

The use of CHROMA PLUS materials or EFFECT LINER materials helps to achieve perfect shade reproduction in the cervical area or to intensify the basic shade.

The VM LC PROFESSIONAL KIT and the VM LC PAINT KIT are available for individualizing and characterizing VITA VM LC.

**Layering in cases of limited space available, see page 12.**



Framework prepared with VITA VM LC OPAQUE or OPAQUE PASTE ready for veneering.

**Note:** The syringes must be sealed immediately after some material has been dispensed.

VITA VM LC Modelling Liquid is a hazardous material. Observe information on pages 38-41.



**Application of VITAVM<sup>®</sup>LC BASE DENTINE**

The desired shade of BASE DENTINE is applied starting from the neck. Adequate space must be provided for the enamel and BASE DENTINE must be applied and shaped or reduced according to the layering pattern. The centric, lateral and protrusive occlusion should be checked in the articulator already during this stage. To accentuate the neck area or to intensify the basic shade, the use of CHROMA PLUS or EFFECT LINER materials is recommended. See also page 12. Classification table on page 34.

**Note:** The VITA VM LC materials (BD, EN, EE, NT, EL, CP, G) are adjusted thixotropically. This means that their consistency can be changed – from firmer to softer - by slightly pressing onto them with an instrument. Make sure to avoid inclusion of bubbles.



**Application of VITAVM<sup>®</sup>LC ENAMEL**

Apply small amount of ENAMEL in the upper third of the veneer surface to complete the crown mould. The classification tables for the ENAMEL materials can be found on page 34.

Then final polymerization is carried out. To facilitate finishing, VITA Oxyprevent gel (Prod. No. FOP3) can be applied, in particular in interdental spaces of bridges, prior to final polymerization. As a result, the inhibition layer is reduced. After final polymerization, VITA Oxyprevent gel is thoroughly removed under running water; finish and polish subsequently.

**Information on polymerization:** Prepolymerization units may be used for the fixation of the materials during layering. If a layer thickness of 2 mm is reached during layering, final polymerization must be carried out. The layering process is continued immediately afterwards.

**Observe polymerization times and information on pages 32-33!**

Corrections of the shape during layering: Corrections are carried out after intermediate or final polymerization using fine-cut tungsten carbide burs. For completion, apply desired material onto the cleaned surface wetted with MODELLING LIQUID.

Wet the modelling instrument with VITA VM LC MODELLING LIQUID to facilitate application. Use sparingly! The liquid can also be used for wetting the veneering materials after adjustments made by grinding. The liquid must not be used to thin the powders.



VITA VM LC MODELLING LIQUID is a hazardous material. Observe information on pages 38-41.



**Grinding and polishing:**

Finishing is carried out with fine-cut tungsten carbide burs at a speed of 15,000 rpm.



Then prepolishing is carried out using a suitable silicone polisher and a small natural haired rotary brush. A polishing material for veneering composites and a cotton/leather buff or a felt wheel are used for high-luster polishing. Avoid generating excessive heat.

**⚠ Note:** Carefully performed polymerization and polishing are urgent requirements to obtain a perfect result and avoid the formation of deposits and resulting adverse effects on the shade.



Completed restoration on the model.

**Cleaning in the ultrasonic unit:**

Leaving the restoration in the ultrasonic unit over an extended period may affect the quality of the material.

Residence time in the ultrasonic unit: approx. 1 minute

Content of the alkaline cleaning solution: max. 10%

Temperature: max. 40°C.

Cleaning with steam results in heat and compressive stress and must generally be avoided.



**Corrections after polishing:**

Use a fine-cut tungsten carbide bur for grinding the surface and then carefully remove any grinding dust.

The completely dry surface is wetted with MODELLING LIQUID and BASE DENTINE or ENAMEL are used for subsequent corrections. Complete as described.

VITA VM LC MODELLING LIQUID is a hazardous material. Observe information on pages 38-41.



Secondary element of a cover denture prepared with VITA VM LC OPAQUE PASTE.



**Application of EFFECT materials**

Owing to limited space available, a thin layer of EFFECT LINER is applied to the entire veneer surface and fixed to intensify the base shade. Exposed cervical areas or highly chromatic tooth shades require the use of the CHROMA PLUS materials.

Classification tables for EFFECT LINER and CHROMA PLUS, see page 34.



**Application of VITAVM®LC BASE DENTINE**

The desired shade of BASE DENTINE is applied starting from the neck. Adequate space must be provided for the enamel and BASE DENTINE must be applied and shaped or reduced according to the layering pattern. The centric, lateral and protrusive occlusion should be checked in the articulator already during this stage.



**Application of VITAVM®LC ENAMEL**

Apply small amount of ENAMEL in the upper third of the veneer surface to complete the crown mould.

The classification tables for the ENAMEL materials can be found on page 34. Then final polymerization is carried out.

**Observe polymerization times and information on pages 32-33.**

Finishing and polishing are carried out according to the BASIC layering, page 11.



Completed veneer, prepared for completion of the cover denture.



Example of an aged tooth with lifelike appearance and effect of depth. This tooth was layered with BASE DENTINE, ENAMEL and individual additional materials.

**VITAVM®LC ENAMEL**

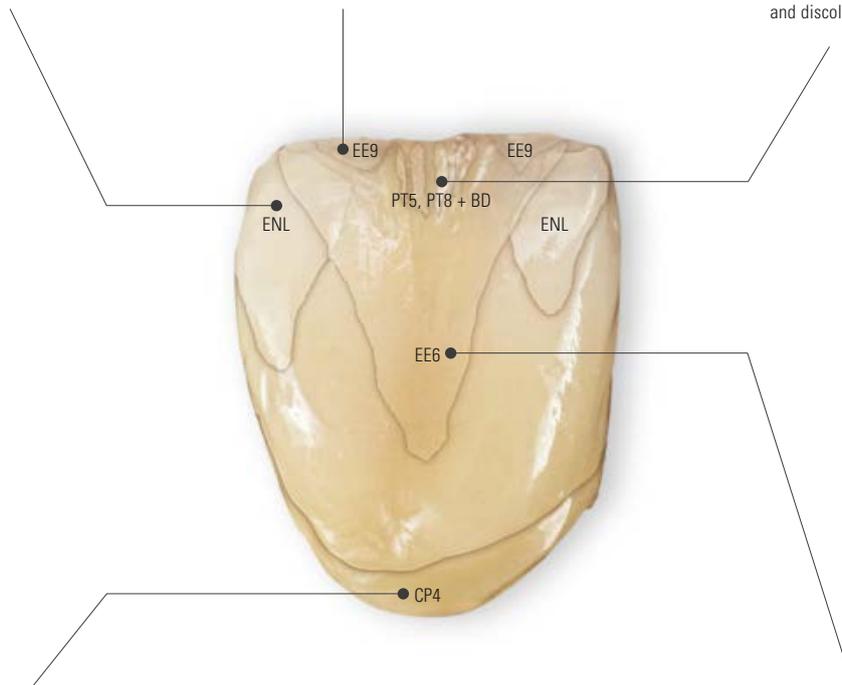
For brightening the mesial and distal areas

**VITAVM®LC EFFECT ENAMEL**

To create a bluish-translucent incisal area

**VITAVM®LC BASE DENTINE colored with PAINT**

To create incisal characteristics and discoloration



**VITAVM®LC CHROMA PLUS**

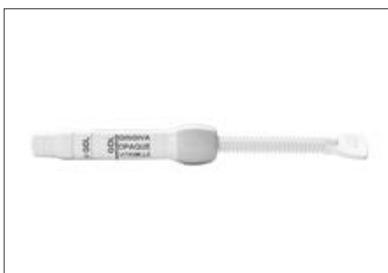
Intensified shade of the cervical area with yellowish effect

**VITAVM®LC EFFECT ENAMEL**

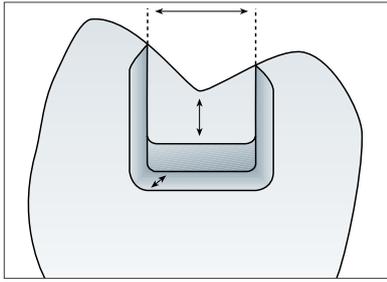
For reddish-translucent discoloration in the central and incisal areas



The VITA VM LC GINGIVA materials were developed especially to restore the original gingival situation. The range of shades of the gingiva materials enables the reproduction of gingiva with a natural appearance for patients from all cultural backgrounds.

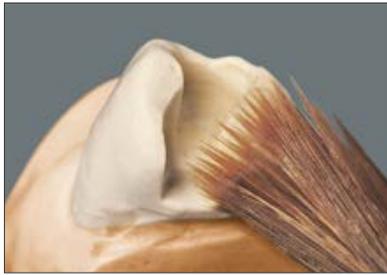


VITA VM LC GINGIVA OPAQUE and GINGIVA OPAQUE PASTE are perfectly suited for covering retentions of partial restorations. Smears are avoided!



**Preparation information**

- Box-shaped preparation without sharp edges
- The cavity margins must be entirely in the etchable enamel and outside articulation points
- Minimum depth on the bottom of the fissure: 1.5 mm
- Minimum isthmus width: 2 mm
- Minimum width of the approximal shoulder: 1.5 mm
- The entire design of the preparation is similar to ceramics



**Preparation of the model:**

Undercuts should be blocked out first. Additionally, a thin spacer layer can be applied.

**Separating:**

The die of the inlay is coated with SEPARATOR beyond the preparation border. The procedure must be repeated twice.

VITA VM LC SEPARATOR is a hazardous material. Observe information on pages 38-41.



**Layering:**

Build up the inlay bottom with BASE DENTINE materials; then polymerization is carried out.

**Observe polymerization times and information on pages 32-33!**



Build up the inlay to achieve the desired tooth shape using ENAMEL materials. The classification tables for the VITA VM LC ENAMEL materials can be found on page 34.

Finishing and polishing should be carried out on a duplicate die. Prior to the integration, all inner surfaces must be sandblasted with 50–110 µm aluminium oxide while exerting only little pressure.

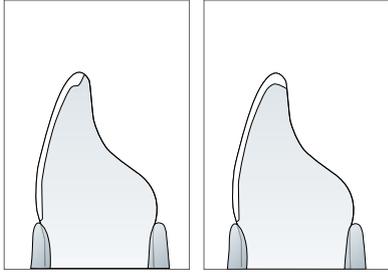


Completed inlay.

**Cementing:**

The harmoniously matched components of the VITA LUTING SET are recommended for cementing.

This set allows adhesive bonding of composite restorations and etchable ceramic restorations. Please adhere to the working instructions.



**Preparation information**

- Labial, anatomical reduction of the hard tooth substance by 0.7 – 1.0 mm
- Supragingival preparation
- Slightly rounded shoulder in the cervical area parallel to the gingival margin
- Chamfer-like approximal margins, saddle-shaped embracing
- Retain approximal, natural contact points
- Chamfer-like embracing of the incisal edge (1) or incisal reduction with rounded edge (2), minimum incisal thickness of the veneer: 1 mm



**Preparation of the model:**

Undercuts should be blocked out first. Additionally, a thin spacer layer can be applied.

**Separating:**

The die is coated with SEPARATOR beyond the preparation border. The procedure must be repeated twice.

VITA VM LC SEPARATOR is a hazardous material. Observe information on pages 38-41.



**Layering:**

Building up with BASE DENTINE materials; then polymerization is carried out.

**Observe polymerization times and information on pages 32-33!**



Building up the tooth with ENAMEL materials.

The classification tables for the VITA VM LC ENAMEL materials can be found on page 34.

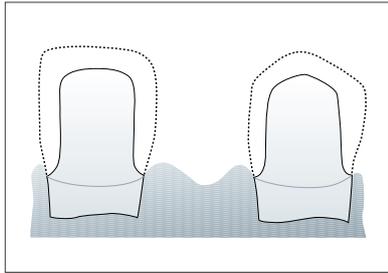
Finishing and polishing should be carried out on a duplicate die. Prior to the integration, all inner surfaces must be sandblasted with 50-110 µm aluminium oxide while exerting only little pressure.



Completed veneer.

**Cementing:**

The harmoniously matched components of the VITA LUTING SET are recommended for bonding. This set allows adhesive bonding of composite restorations and etchable ceramic restorations. Please adhere to the working instructions.



### Metal-free crowns and three-unit bridges made from VITA VM LC

#### Preparation:

A circumferential chamfer is required for adequate material thickness at the preparation margins.

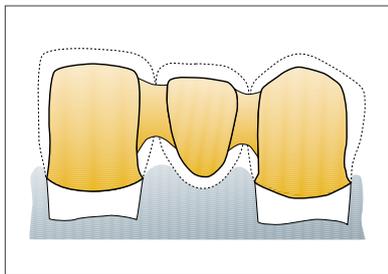
#### Preparation of the model:

Undercuts should be blocked out first.

#### Separating:

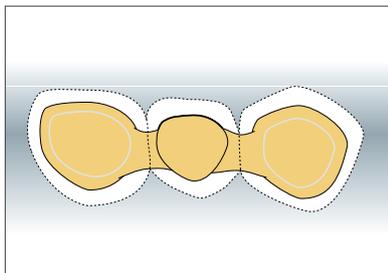
The die is coated with VITA VM LC SEPARATOR beyond the preparation border. The procedure must be repeated at least twice.

VITA VM LC SEPARATOR is a hazardous material. Observe information on pages 38-41.



Use BASE DENTINE to model the copings and the pontic in reduced tooth size. The approximal connections must have a diameter of at least 3.5 mm (10 mm<sup>2</sup>).

#### Observe polymerization times and information on pages 32-33!



Build up the labial side of the pontic with BASE DENTINE until the build-up level of the copings of the abutment teeth is reached.

Further layering and completion of the entire bridge according to VITA VM LC BASIC layering (see page 9).

### Veneering partially yttrium-stabilized ZrO<sub>2</sub> frameworks (CTE approx. 10.5 · 10<sup>-6</sup> · K<sup>-1</sup>), such as VITA YZ

Prepare framework for veneering. Please refer to the Working Instructions VITA YZ T / VITA YZ HT (No. 10166) for detailed information. Sandblast surfaces to be veneered with Al<sub>2</sub>O<sub>3</sub> (at least 50 µm) and a pressure of <2.5 bar.

Then condition the framework with one of the following bonding systems:

#### – Signum zirconia bond, Heraeus

Apply Signum zirconia bond I and II in accordance with the manufacturer's instructions. Then VITA VM LC PRE OPAQUE or OPAQUE PASTE / OPAQUE are applied (see pages 6-8).

#### – Clearfil Ceramic Primer, Kuraray

Apply Clearfil Ceramic Primer in accordance with the manufacturer's instructions. Then it is mandatory to immediately apply VITA VM LC PRE OPAQUE or VITA VM LC OPAQUE PASTE to achieve adequate bonding. Further layering and completion of the entire veneer according to VITA VM LC BASIC layering (see page 9).

### Veneering substructures made of polyether ketone (PEEK) with a filler content of up to 20%

Fabrication of the framework, for example from BioHPP (bredent), in accordance with the manufacturer's instructions.

Sandblast surfaces to be veneered with 130 µm Al<sub>2</sub>O<sub>3</sub> (pressure: 2.5-3.5 bar).

Then condition the veneer surfaces with visio.link (bredent) according to the manufacturer's instructions.

Then VITA VM LC PRE OPAQUE or OPAQUE PASTE / OPAQUE are applied (see pages 6-8).

Further layering and completion of the entire veneer according to VITA VM LC BASIC layering (see page 9).

To achieve enhanced esthetic appearance, the shade of long-term temporary restorations made from VITA CAD-Temp can be individualized with VITA VM LC especially in the translucent incisal area of anterior restorations or in the vestibular area of posterior restorations. Even thin layers of VITA VM LC allow to achieve very good results.

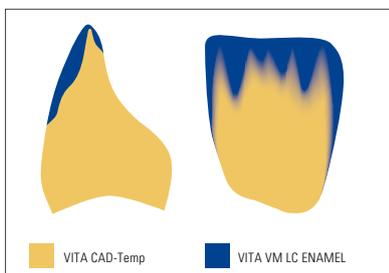
The VITA VM LC CREATIVE KIT is available for layering-over.



When using the cut-back technique, controlled grinding or reducing of border areas is the precondition for a smooth transition between the VITA CAD-Temp temporary restoration and VITA VM LC.



To ensure reliable bonding of VITA CAD-Temp and VITA VM LC, fine-cut tungsten carbide burs should be used.



**⚠ Note:** Maximum reduction of VITA CAD-Temp to ensure sufficient stability of the temporary restoration:  
translucent area of temporary anterior restoration: max. 0.5 mm.  
Vestibular area of posterior temporary restoration: max. 0.3 mm.



The ground surface must be carefully cleaned and wetted with VITA VM LC MODELLING LIQUID to achieve reliable bonding to the VITA CAD-Temp base material.

Layering-over is easier if a small quantity of VITA VM LC MODELLING LIQUID is added onto the modelling instrument. Use sparingly.

**⚠ Note:** The liquid must not be used to thin the materials.

VITA VM LC MODELLING LIQUID is a hazardous material. Observe information on pages 38-41.



Depending on which type of individualization is to be achieved, the suitable shade is applied:  
Ten different VITA VM LC PAINT materials are available for this purpose.  
For fixation of the materials, intermediate polymerization must be carried out.

**Observe polymerization times and information on pages 32-33!**

⚠ **Note:** VITA VM LC PAINT must not be on the surface and must be completely coated with dentine or enamel materials. When applying the materials, air inclusions must be avoided.



Apply a small quantity of VITA VM LC ENAMEL, EFFECT ENAMEL or NEUTRAL in the upper third of the veneer surface (translucent or vestibular area).  
Intermediate polymerization can be carried out any time during layering.  
Then final polymerization is carried out.

**Observe polymerization times and information on pages 32-33!**



Fine-cut tungsten carbide burs must be used for corrections of contours during individualization.



### Polishing

Then prepolishing is carried out using a suitable silicone polisher and a small natural haired rotary brush. A polishing material for veneering composites and a cotton/leather buff are used for high-luster polishing. Avoid generating excessive heat.

⚠ **Note:** Carefully performed polymerization and polishing are important requirements to obtain a perfect result and avoid the formation of deposits and resulting adverse effects on the shade.



**Cleaning**

Leaving the completed restoration in the ultrasonic unit over an extended period may affect the quality of the material or bonding of VITA VM LC to VITA CAD-Temp.

Residence time in the ultrasonic unit: approx. 1 min.  
Content of the alkaline cleaning solution: max. 10 %.  
Temperature: max. 40 °C.

Cleaning with steam results in heat and compressive stress and must generally be avoided.

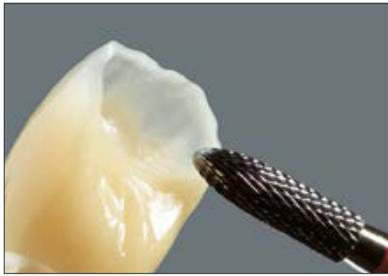


Completed VITA CAD-Temp temporary bridge individualized with VITA VM LC on the working model.





The use of VITA VM LC materials allows you to shape VITA acrylic teeth within a short time while retaining the vivid surface structure and basic shape of the teeth. This way patient-specific esthetics can be achieved using simple and easily reproducible characterization techniques.



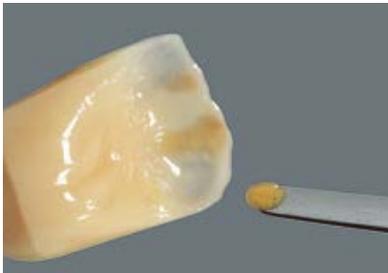
Palatal reduction of the VITA acrylic anterior tooth is required for individualization in the incisal area. In this way the structure of the labial surface is retained – subsequent, time-consuming contouring of a natural surface relief can be omitted. However, it must be kept in mind that if the remaining layer thickness decreases, the intensity of the materials which are subsequently applied will increase.



Sufficient grinding of border areas is the precondition for a smooth transition between the acrylic teeth and VITA VM LC. Fine-cut tungsten carbide burs are used for grinding.

The ground surface is cleaned carefully and wetted with VITA VM LC MODELLING LIQUID.

MODELLING LIQUID is a hazardous material. Observe information on pages 38-41.



Depending on which type of individualization is to be achieved, the suitable shade is applied: Ten different VITA VM LC PAINT materials are available for this purpose. For fixation of the materials, intermediate polymerization is required.

To ensure perfect application, a thin layer of WINDOW is applied.

**⚠ Note:** VITA VM LC PAINT and WINDOW materials must not be on the surface. They must be completely coated with dentine or enamel materials. When applying the materials, air inclusions must be avoided.



The tooth is built up with ENAMEL, EFFECT ENAMEL or NEUTRAL materials and polymerized.

**Observe polymerization times and information on pages 32-33!**



After final polymerization, the restoration is finished with suitable abrasive tools and polished.



The completed restoration.

**⚠ Note:** The VM LC CREATIVE KIT and the VM LC PAINT KIT are available for individualizing and characterizing VITA acrylic teeth and VITA CAD-Temp.

The current application range of VITA VM LC is extended by adding the following

- Individualization of and layering on VITA ENAMIC
- Veneering of removable and partially removable dentures (according to the manufacturer's information) made from polyether ether ketone (PEEK) with a ceramic filler content of up to 20 %, such as Bio HPP/bredent
- PEEK-OPTIMA<sup>®</sup> LT1 polymer, such as. Juvora, InnoBlanc Medical

### VITAVM<sup>®</sup>LC individualization and veneering of VITA ENAMIC<sup>®</sup>

The cut-back is carried out using CAD software or manually as a preparatory step for individualizing or veneering. The following minimum layer thicknesses for ENAMIC must be adhered to.

#### Anterior crowns

Incisal: at least 1.5 mm  
Circumferential: at least 0.8 mm

#### Posterior crowns

At the bottom of the fissure: at least 1.0 mm  
In the area of the cusps: at least 1.5 mm  
Circumferential: 0.8–1.5 mm

#### Conditioning the surface

- The surface of the VITA ENAMIC restoration to be individualized must be roughened and oil-free to ensure perfect bonding to the composite.
- Adhesion of residue such as milling liquid or lubricant (such as Dentatec) to the surface is not permitted. Remove these either by spraying off or using an ultrasonic bath.
- The level of surface roughness immediately following CAM processing is sufficient for individualization.

**If subsequent reworking of the surface has reduced the level of roughness, the following three alternative methods can be used to increase roughness again:**



1. Roughening with a diamond bur.
2. Sandblasting using Al<sub>2</sub>O<sub>3</sub> at max. 50 µm and a blasting pressure of max. 1 bar.
3. Extraorally only (!): etching with a 5% hydrofluoric acid gel such as VITA CERAMICS ETCH as follows:

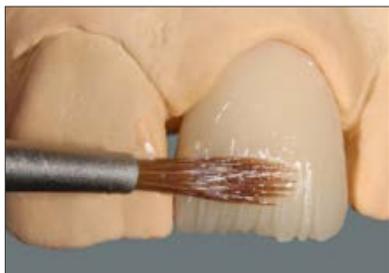
Using a small disposable brush, apply VITA CERAMICS ETCH to the surfaces to be etched.

Etching time: 60 sec. Once the application time has come to an end, completely remove any residual acid from the etched surface by rinsing off with copious amounts of water, by cleaning thoroughly using a steam jet device, or by cleaning in an oil-free ultrasonic bath using distilled water.

Do not brush off, as this would lead to significant surface contamination.

- Surfaces sandblasted with Al<sub>2</sub>O<sub>3</sub> must also be cleaned thoroughly.
- After cleaning, the surface should no longer be touched.





- Apply silane solution, e.g. VITASIL, to the roughened surface.
- Apply VITA VM LC MODELLING LIQUID.



**Application of VITA VM LC or VITA VM LC flow**

Restoration prepared for individualization.



Incorporating incisal translucent effects, with e.g. EFFECT ENAMEL flow EE9 and EE2. If required, set by curing briefly.



Layering mamelons with e.g. EFFECT ENAMEL flow EE2 and EE5. If required, set by curing briefly.



Building up the tooth shape using ENAMEL flow and / or EFFECT ENAMEL flow.



Option: Coating the entire crown with WINDOW flow.

All veneered surfaces are set by curing briefly.



To prevent formation of an inhibition layer and facilitate finishing, we recommend the use of VITA VM LC GEL during final polymerization.

Apply a coat of gel that covers the entire veneer surface but is not too thick.

Perform final polymerization.

Then completely remove VITA VM LC GEL using running water.

Finishing and polishing: see basic layering on page 11. The restoration is finished with a fine diamond instrument (marked with red ring, grit size 27 - 76 µm).

Note: VITA ENAMIC must not be milled with carbide milling tools.

Then the instruments of the VITA ENAMIC polishing set technical are used for pre- and high-gloss polishing.



**The completed ENAMIC restoration veneered with VITA VM LC flow.**

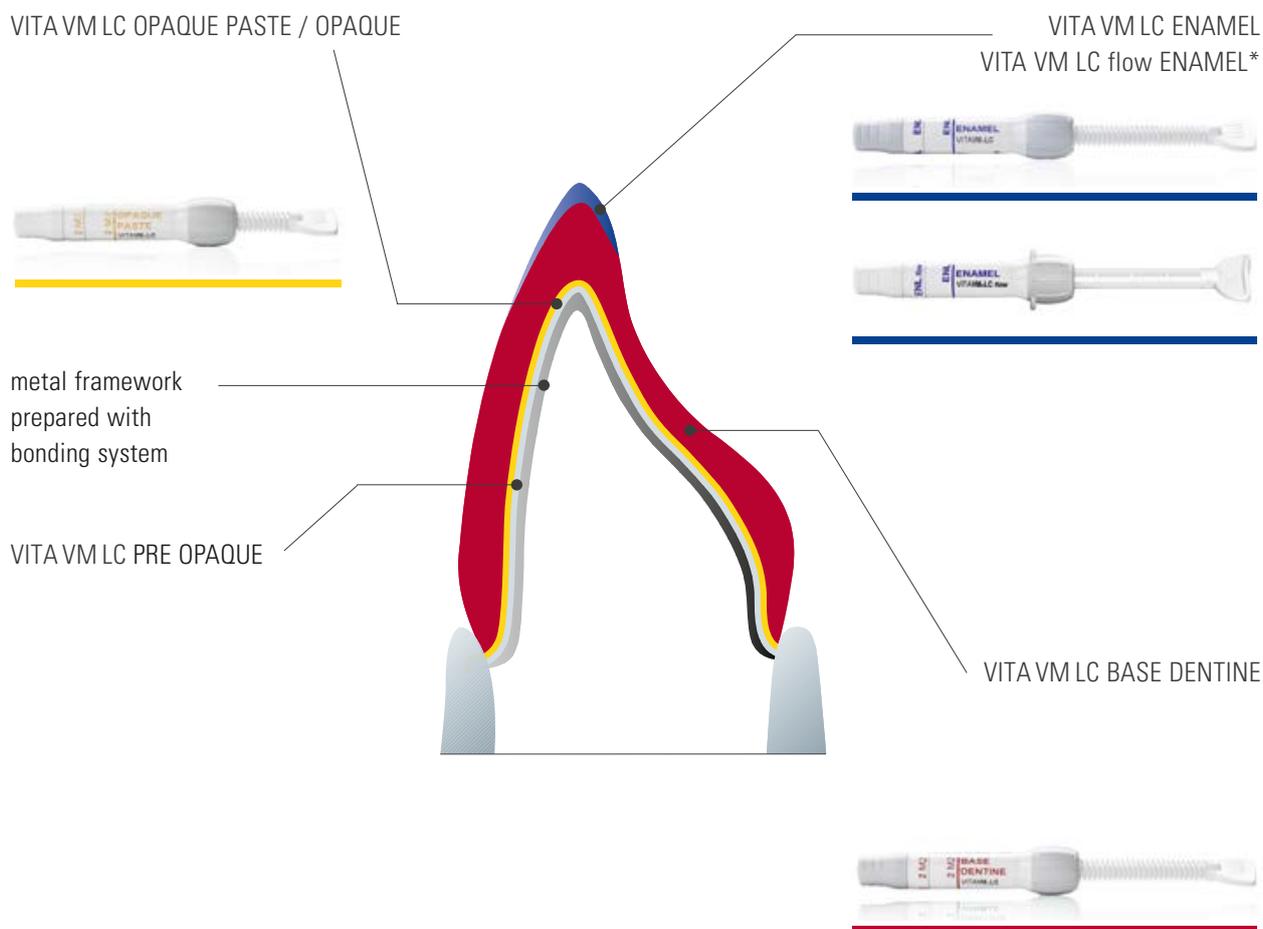
For information on cleaning and correction, see page 11.

- The restoration is fabricated and the surfaces are prepared in accordance with the instructions of the corresponding PEEK manufacturer.
- To achieve optimal bonding of VITA VM LC to polyether ether ketone (PEEK) with a filler content of up to 20 % and PEEK OPTIMA<sup>®</sup> LT1 Polymer, visio.link bonding agent (bredent) has been tested and approved by VITA.
- Subsequent use of the transparent VITA VM LC PRE OPAQUE is highly recommended; the viscosity of this product ensures superior coating of the surfaces and perfect curing.
- Afterwards, the opaquer is applied and the VITA VM LC layering is carried out as described on page 9.

VITA VM LC flow materials are low-viscosity materials that can be used together with VITA VM LC pastes such as BASE DENTINE.

### Application areas

- for layering on VITA VM LC BASE DENTINE materials (polymerized/non-polymerized)
- for individualization of VITA acrylic teeth, VITA CAD-Temp and VITA ENAMIC
- individualization of VITA VM CC restorations
- characterization of dentures
- reproduction of gingival components in the case of implant restorations



After applying PRE OPAQUE, OPAQUE / OPAQUE PASTE, VITA VM LC BASIC layering consists of the application of BASE DENTINE and ENAMEL/ENAMEL flow.

\*ENAMEL flow materials can be applied more generously than ENAMEL paste materials. This can be attributed to the new filler composition of the VITA VM LC flow materials.



A framework for veneering prepared using VITA VM LC OPAQUE PASTE or OPAQUE.

To facilitate layering, separate the plaster on the model using VITA VM LC SEPARATOR.



If space is at a premium or in the case of chromatic tooth shades, the use of flow Chroma Plus materials is recommended.

Application can be carried out cervically or across the entire surface.

Then set by curing briefly.

Observe the information on polymerization provided on pages 32-33.



Layer the BASE DENTINE paste in a reduced tooth shape and where required, set all veneered surfaces by curing briefly.

Alternative:

Perform fully anatomical layering, and carry out intermediate polymerization followed by cut-back.

Then clean the veneer surface (brush/pressurized air) and coat with VITA VM LC MODELLING LIQUID.



Build up the tooth using ENAMEL flow and / or EFFECT ENAMEL flow.

Then set by curing briefly.



To prevent formation of an inhibition layer and facilitate finishing, we recommend the use of VITA VM LC GEL during final polymerization.

Apply a coat of gel that covers the entire veneer surface but is not too thick.

Perform final polymerization.

Then completely remove VITA VM LC GEL using running water.



Finishing is carried out using fine-cut carbide milling tools (for the maximum speed for composite, refer to the manufacturer's specifications)  
Minor corrections and finishing work can also be done using a fine diamond instrument (marked with red ring, grit size 27 - 76 µm).

*Prepolishing* using a suitable silicone polisher and a small goat-hair brush.



*High-gloss polishing* using a polishing material for veneering composites and a wool/leather buff or a felt wheel.

Avoid generating excess heat (for the maximum polisher speed, refer to the manufacturer's specifications)

**The finalized veneer.**

#### **Cleaning in the ultrasonic unit**

Length of time in the ultrasonic unit: approx. 1 min.

Percentage of alkaline cleaning solution: max. 10%.

Temperature: max. 40°C.

Please note:

- Leaving the restoration in the ultrasonic unit for an excessive length of time may affect the quality of the material.
- Steam cleaning results in the development of extreme levels of heat and pressure and is therefore generally to be avoided.



#### **Corrections of the shape**

*during layering,*

after intermediate or final polymerization are carried out using fine-cut carbide milling tools; milling particles are carefully removed.

Then coat the surface using VITA VM LC MODELLING LIQUID.

*After polishing:*

Roughen the surface using a fine-cut carbide milling tool and thoroughly remove any dust from milling.

Coat the fully-dry surface with VITA VM LC MODELLING LIQUID and then perform corrections. Complete as described.



A framework for veneering prepared using VITA VM LC OPAQUE PASTE or OPAQUE.

To facilitate layering, separate the plaster on the model using VITA VM LC SEPARATOR.

Apply CHROMA PLUS flow CP2:

- Cervical
- Mesial/distal ridges

Set by curing briefly.

Observe the information on polymerization provided on pages 32-33!

Apply CHROMA PLUS flow CP3 in the central area.

Layer the mamelons using CP1 (mesially / distally) and CP3 (centrally)

If required, set by curing briefly.



Layer the BASE DENTINE paste 2M2 in a reduced tooth shape.

To do so, apply larger amounts of BASE DENTINE.

If required, set all veneered surfaces by curing briefly.

Alternatively, perform fully anatomical layering of BASE DENTINE, and carry out intermediate polymerization followed by cut-back.



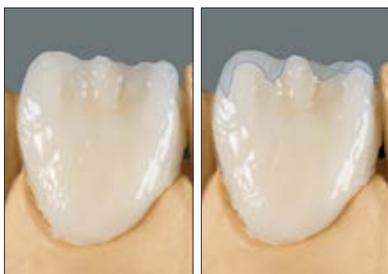
Apply ENAMEL flow ENL distally and mesially in the incisal edge area, as well as centrally in the upper third of the veneering surface.

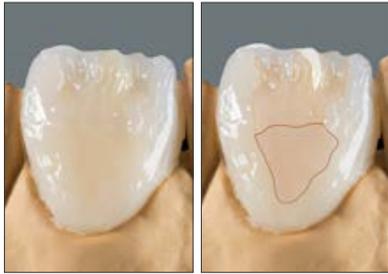
If required, set by curing briefly.



Layer EFFECT ENAMEL flow EE 9 in the mesial, distal and incisal area.

If required, set by curing briefly.





Layering EFFECT ENAMEL flow  
EE1 – incisal  
EE5 – upper half  
and EE6 – lower half

If required, set by curing briefly.



Completion of the tooth shape using WINDOW flow.

Then set all veneered surfaces by curing briefly.

To prevent formation of an inhibition layer and facilitate finishing, we recommend the use of VITA VM LC GEL during final polymerization.



Apply a coat of gel that covers the entire veneer surface but is not too thick.

Perform final polymerization.

Then completely remove VITA VM LC GEL using running water.

Finishing and polishing: see basic layering on page 11 or 26.



**The finalized individual veneer.**

For information on cleaning and correction, see page 11 or 26.

**Individualization of VITA acrylic teeth, VITA CAD-Temp, VITA VM CC restorations, reproduction of gingival components and individualization of dentures using VITA VM LC GINGIVA flow**

- In order to ensure a secure bond between VITA VM LC flow and the acrylic or composite to be individualized, the affected surfaces must be milled using a fine-cut carbide milling tool. Transition areas must be adequately milled!
- The milled surface must be cleaned carefully and coated with VITA VM LC MODELLING LIQUID in order to facilitate a secure bond with the base material.
- Depending on the type of individualization to be achieved, the appropriate Effect material is inserted / used; there are a variety of VITA VM LC flow materials available for this purpose.  
To set the materials, cure briefly.
- To prevent formation of an inhibition layer and facilitate finishing, we recommend the use of VITA VM LC GEL during final polymerization.
- Apply a coat of gel that covers the entire veneer surface but is not too thick.
- Then perform final polymerization and finishing as described for basic layering (page 25-26).
- Then completely remove VITA VM LC GEL using running water.

**Reproduction of gingival components using metal retentions**

In the case of gingival reproduction with metal retentions, first coat the metal with primer and with gingival opaquer (for details of how to apply primer and opaquer, see pages 5-8).

Then layer the Gingiva and/or Gingiva flow materials in accordance with the procedure described above.

In the case of thin GINGIVA/GINGIVA flow layers, a mixture of GINGIVA OPAQUE PASTE GOL and PAINT is recommended for the GINGIVA shades G1, G4 and G5.

A higher content of GINGIVA OPAQUE PASTE GOL is required in the mixture.

<b>GINGIVA</b>	<b>Mixture GINGIVA OPAQUE PASTE GOL / PAINT</b>
GINGIVA G1	GOL / PT 13*
GINGIVA G4	GOL / PT 19*
GINGIVA G5	GOL / PT 15*

\* Mixing ratio 2:1 (two parts of GOL, 1 part of PT)

The information given is only intended to provide reference values.

Company Unit	Polymerization PRE OPAQUE OPAQUE PASTE	Polymerization OPAQUE powder	Intermediate polymerization up to max. 1.5 mm	Final polymerization and pontics up to max. 2 mm	Information
<b>Bredent</b>					
<b>Brelux Power Unit</b>	180 sec.	360 sec.	180 sec.	360 sec.	<b>OPAQUE powder:</b> COLOR OPAQUE CO 1-3 and GINGIVA OPAQUE must be polymerized 2 x 360 sec.
<b>DeguDent/Dentsply</b>					
<b>Triad 2000</b>	4 min. (rotating plate situated on the floor of the unit) Use of PRE OPAQUE is recommended.	2 min. (rotating plate situated at approx. 3 cm above the floor of the unit)	6 min. (rotating plate situated on the floor of the unit)	10 min. (rotating plate situated on the floor of the unit)	Halogen lamp 275 watts
<b>Espe</b>					
<b>Visio Beta</b>	7 min. 1 x 7 min. per layer, incl. 10 sec. vacuum	<b>OPAQUE A1-D3, OM1-5M3:</b> 1 x 7 min. per layer, incl. 10 sec. vacuum  <b>COLOR &amp; GINGIVA OPAQUE:</b> 2 x 7 min. per layer, incl. 10 sec. vacuum	2 x 7 min. incl. 10 sec. vacuum	2 x 7 min. incl. 10 sec. vacuum	<b>OPAQUE powder:</b> Please observe the longer polymerization times for COLOR & GINGIVA OPAQUE. To avoid the formation of bubbles, the opaque must be applied thinly.
<b>Hager &amp; Werken</b>					
<b>Speed Labolight</b>	3 min.	5 min.	5 min.	10 min.	Object must be placed in the center of the chamber. The object must not be placed on the floor! <b>Lamps:</b> 8 x Osram Dulux S 9W/71 1 x Halogen Osram HLX 15 V/150 W
<b>Heraeus Kulzer</b>					
<b>Dentacolor XS</b>	90 sec.	180 sec.	90 sec.	2 x 180 sec.	The object must be placed in the center of the chamber. The object must not be placed on the floor!
<b>UniXS</b>	90 sec.	2 x 180 sec.	90 sec.	2 x 180 sec.	
<b>Heraflash</b>	90 sec.	2 x 180 sec.	90 sec.	3 x 180 sec.	
<b>HiLite Power</b>	90 sec.	2 x 180 sec.	90 sec.	3 x 180 sec.	

Company Unit	Polymerization PRE OPAQUE OPAQUE PASTE	Polymerization OPAQUE powder	Intermediate polymerization up to max. 1.5 mm	Final polymerization and pontics up to max. 2 mm	Information
<b>Ivoclar Vivadent</b>					
<b>Lumamat 100</b>	Heating level 0 VB = 0 VG = 3:00 min. (BP = 3:00 min.)	Heating level 1 VB = 0 VG = 2:00 min. (BP = 3:40 min.)	Heating level 1 VB = 0 VG = 4:30 min. (BP = 6:10 min.)	Heating level 3 VB = 0 VG = 7:00 min. (BP = 10:10 min.)	<b>Times and heating levels must be programmed by the user!</b>  VB = Precuring VG = Tempering BP = Resulting curing time
<b>Schütz Dental</b>					
<b>Spectra LED</b>	3 min.	10 min.	10 min.	15 min.	The object must be placed in the center of the chamber. The object must not be placed on the floor!
<b>Shofu Dental</b>					
<b>Solidilite EX</b>	3 min.	10 min.	10 min.	15 min.	The object must be placed in the cone of light in the center of the chamber! The object must not be placed on the floor.
<b>Solidilite V</b>	3 min.	5 min.	10 min.	15 min.	
<b>Sirio Dental</b>					
<b>SR 620 Sibari</b>	3 min.	5 min.	5 min.	10 min.	Object must be placed in the cone of light, in the center of the rotating plate! Veneer surfaces must face outwards.

### Polymerization information

The values given on pages 32-33 are exclusively based on correctly functioning equipment. When using light-curing composites, the polymerization result mainly depends on the power of the unit in use (see page 3 "Facts worth knowing about light-curing").

Our application-technical recommendations for polymerizing (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 polymerization result does not correspond to the result that is achieved under perfect conditions, the polymerization unit must be checked with regard to the lamp function, operating hours and the degree of contamination. The manufacturers' maintenance instructions must be observed.

### Information on polymerization:

- For **fixation** of the materials during layering, additional prepolymerization units may be used.
- **Intermediate polymerization** can be carried out at any time during layering. However, it is only mandatory if grinding is to be performed during layering.
- If a layer thickness of 2 mm is reached during layering, final polymerization must be carried out.
- If the dispersive layer is retained, layering can be continued immediately after polymerizing.
- For complete curing of multi-unit constructions, additional polymerization of the approximal spaces (dark zones) is required.
- The object must be aligned accordingly.
- To facilitate finishing, VITA Oxyprevent gel (Prod. No. FOP3) can be applied, in particular in approximal spaces of bridges, prior to final polymerization. As a result, the inhibition layer is reduced. After final polymerization, VITA Oxyprevent gel is thoroughly removed under running water; finish and polish subsequently.

## VITAVM<sup>®</sup>LC Classification tables and additional materials

The classification tables are only intended to provide reference values.

VITA SYSTEM 3D-MASTER	OPAQUE	OPAQUE PASTE	EFFECT LINER	CHROMA PLUS	ENAMEL
0M1	OP 0M1	–	EL2	–	ENL
1M1	OP 1M1	OP 1M1	EL2	CP1	ENL
1M2	OP 1M2	OP 1M2	EL4	CP1	ENL
2L1.5	OP 2L1.5	OP 2L1.5	EL6	CP2	ENL
2L2.5	OP 2L2.5	–	EL4	CP2	ENL
2M1	OP 2M1	OP 2M1	EL2	CP2	ENL
2M2	OP 2M2	OP 2M2	EL4	CP2	ENL
2M3	OP 2M3	OP 2M3	EL4	CP2	ENL
2R1.5	OP 2R1.5	–	EL2	CP2	ENL
2R2.5	OP 2R2.5	–	EL4	CP2	ENL
3L1.5	OP 3L1.5	OP 3L1.5	EL6	CP2	ENL
3L2.5	OP 3L2.5	–	EL4	CP3	ENL
3M1	OP 3M1	–	EL6	CP2	ENL
3M2	OP 3M2	OP 3M2	EL3	CP3	ENL
3M3	OP 3M3	OP 3M3	EL3	CP3	ENL
3R1.5	OP 3R1.5	–	EL6	CP2	ENL
3R2.5	OP 3R2.5	OP 3R2.5	EL3	CP3	ENL
4L1.5	OP 4L1.5	–	EL3	CP5	END
4L2.5	OP 4L2.5	–	EL3	CP3	END
4M1	OP 4M1	–	EL3	CP5	END
4M2	OP 4M2	OP 4M2	EL3	CP5	END
4M3	OP 4M3	–	EL3	CP4	END
4R1.5	OP 4R1.5	–	EL3	CP5	END
4R2.5	OP 4R2.5	–	EL3	CP4	END
5M1	OP 5M1	–	EL3	CP5	END
5M2	OP 5M2	–	EL3	CP5	END
5M3	OP 5M3	–	EL3	CP5	END

VITA classical A1–D4 shades	OPAQUE	OPAQUE PASTE	EFFECT LINER	CHROMA PLUS	ENAMEL
A1	OP A1	OP A1	–	CP1	ENL
A2	OP A2	OP A2	EL3	CP4	ENL
A3	OP A3	OP A3	EL3	CP4	ENL
A3.5	OP A3.5	OP A3.5	EL3	CP4	END
A4	–	OP A4	EL3	–	END
B2	–	OP B2	EL6	CP2	ENL
B3	OP B3	OP B3	EL4	CP3	END
B4	–	OP B4	EL3	CP3	END
C1	–	OP C1	EL6	CP5	END
C2	–	OP C2	EL6	CP5	ENL
C3	–	OP C3	EL6	CP5	END
C4	–	OP C4	EL3	CP5	END
D2	–	OP D2	EL3	CP2	END
D3	OP D3	OP D3	EL3	–	END
D4	–	OP D4	EL3	CP2	END

The EFFECT Liner and CHROMA PLUS materials can also be mixed with each other.

When mixing them, make sure to avoid the formation of bubbles.

<b>VITAVM<sup>®</sup>LC COLOR OPAQUE</b> – shade-intensive opaque powder materials for characterization, especially in case of thin walls – not suitable for the use with OPAQUE PASTE		C01	gold	orange	
		C02	brown	brown	
		C03	lilac	lilac	

The classifications are only intended to provide reference values.

VITA SYSTEM 3D-MASTER	CHROMA PLUS
0M1	–
1M1	CP1/CP2*
1M2	CP2
2L1.5	CP2
2L2.5	CP2
2M1	CP2
2M2	CP1/CP3*
2M3	CP3
2R1.5	CP1/CP5*
2R2.5	CP1/CP3*
3L1.5	CP2/CP5*
3L2.5	CP3
3M1	CP1/CP5*
3M2	CP3/CP5*
3M3	CP3/CP4*
3R1.5	CP4/CP5*
3R2.5	CP4/CP5*
4L1.5	CP5
4L2.5	CP4/CP5*
4M1	CP5
4M2	CP3/CP5*
4R1.5	CP5
4R2.5	CP4
5M1	–
5M2	–
5M3	–

VITA classical A1–D4 shades	CHROMA PLUS
A1	CP1
A2	CP2
A3	CP2/CP3*
A3.5	CP3
A4	CP4/CP5*
B2	CP2
B3	CP2/CP3*
B4	CP3
C1	CP1/CP5*
C2	CP1/CP5*
C3	CP1/CP5*
C4	CP5
D2	CP2
D3	CP2/CP5*
D4	CP2/CP5*

\* Mixing ratio approx. 1:1

When mixing CHROMA PLUS flow materials, ensure that air bubbles are not created.

<b>VITAVM<sup>®</sup>LC CHROMA PLUS</b> – materials with very intensive shades – when applied thinly, they enhance the shade in the neck area – shades perfectly matched with 3D-MASTER shades		CP1	ivory	ivory	<b>CP1</b> <b>CHROMA PLUS</b> VITAVM <sup>®</sup> LC 
		CP2	almond	beige	
		CP3	moccasin	light orange-brown	
		CP4	caramel	orange	
		CP5	burlywood	green-brown	
<b>VITAVM<sup>®</sup>LC EFFECT LINER</b> – universally suitable to support and intensify the base shade – can be used in the cervical and dentine areas		EL2	cream	beige	<b>EL2</b> <b>EFFECT LINER</b> VITAVM <sup>®</sup> LC 
		EL3	tabac	brown	
		EL4	golden fleece	yellow	
		EL5	papaya	orange	
		EL6	sesame	green-yellow	
<b>VITAVM<sup>®</sup>LC EFFECT ENAMEL</b> – can be used for all enamel areas of the natural tooth – universally suitable translucent enamel effect material – to achieve a natural effect of depth		EE2	pastel	pastel	<b>EE3</b> <b>EFFECT ENAMEL</b> VITAVM <sup>®</sup> LC 
		EE3	misty rose	pink-translucent*	
		EE6	navajo	reddish translucent**	
		EE9	water drop	bluish translucent***	
		EE12	warm grey	greyish-beige	
				* for discoloration in the cervical and/or enamel area ** for discoloration, especially in older teeth *** for subcoating in the enamel area for bluish incisal areas	
<b>VITAVM<sup>®</sup>LC PAINT</b> – low viscosity materials for shade effects and individual characteristics, such as calcifications, enamel cracks and smoke stains – VITAVM <sup>®</sup> LC PAINT materials must not be on the surface due to the low filler content – for individualizing OPAQUE PASTE		PT1	birch	white	<b>PT1</b> <b>PAINT</b> VITAVM <sup>®</sup> LC 
		PT3	sun kiss	yellow	
		PT5	gold earth	light orange-brown	
		PT8	almond	almond-colored	
		PT9	burnt clay	green-brown	
		PT12	redwood	bordeaux	
		PT13	shak	grey	
		PT15	brown stone	chestnut brown	
		PT17	niagara	blue	
	PT19	fumo 2	light brown		
<b>VITAVM<sup>®</sup>LC GINGIVA OPAQUE / OPAQUE PASTE</b> – for coating the metal framework prior to the application of the GINGIVA materials		GOL	light flesh	light pink	<b>GOL</b> <b>GINGIVA OPAQUE</b> VITAVM <sup>®</sup> LC 
<b>VITAVM<sup>®</sup>LC GINGIVA</b> – to restore the original gingiva situation		G1	rose	dusky pink	<b>G1</b> <b>GINGIVA</b> VITAVM <sup>®</sup> LC 
		G2	nectarine	orange-pink	
		G4	rosewood	brown-red	
		G5	cherry brown	dark red	
<b>VITAVM<sup>®</sup>LC WINDOW</b> – low-viscosity material to vary the intensity of the shade of the PAINT-materials – WINDOW must not be on the surface due to the low filler content		WIN	transparent		<b>WIN</b> <b>WINDOW</b> VITAVM <sup>®</sup> LC 

<b>ENAMEL</b> – translucent enamel materials	ENL	light
	END	dark
<b>NEUTRAL</b> – universal translucent material	NT	translucent
<b>WINDOW</b> – transparent material, for crystal-clear effects in the enamel area – for mixing and layering of VITA VM LC PAINT stains on VITA VM LC, VITA acrylic teeth and VITA CAD-Temp – for mixing the VITA VM LC flow materials – for coating the finished veneer and for covering fissures	WIN	transparent
<b>CHROMA PLUS</b> – shade-intensive materials. The intensity can be controlled through the thickness of the layer. – to be applied in the tooth-neck area or across the entire surface of the opaquer – stronger fluorescent effect – is suitable as a correction material, depending on the shade	CP1	 ivory
	CP2	 beige-yellow
	CP3	 light orange-brown
	CP4	 orange
	CP5	 green-brown
<b>EFFECT ENAMEL</b> – translucent enamel effect material for all enamel areas – to achieve a natural effect of depth	EE1	 whitish
	EE2	 pastel
	EE5	 yellowish-translucent
	EE6	 reddish-translucent
	EE7	 orange-translucent
	EE9	 bluish-translucent
	EE11	 greyish-translucent
	EE12	 grey-beige
<b>GINGIVA</b> – to restore the original gingival situation  *when a layer thickness of 1 mm is reached, final polymerization is required	G1	 dusky pink
	G2	 orange-pink
	G3	 pink
	G4	 brown-red
	G5*	 dark red

**The VITA VM LC flow materials can be mixed with one another. Moreover, the VITA VM LC flow materials can be shaded by combining with VITA VM LC PAINT materials.** In order to prevent bubbles during mixing, an instrument should be used for mixing rather than a brush.

<p><b>Safety at work, health protection, environmental protection</b></p>	<p>When working with the product, wear suitable safety goggles/ face protection, gloves and safety clothing.</p> <p>Work under an extraction unit.</p> <p>Avoid contact with skin.</p> <p>In case of contact with eyes, rinse immediately with water and seek medical advice.</p> <p>In case of contact with skin, rinse immediately with copious amount of water.</p> <p>Substances hazardous to water must not be allowed to enter the sewage system/to reach the environment.</p>	
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**Storage information**

Do not store above 25°C.

Do not expose to direct sunlight.

It is generally recommended to store composites under cold conditions.

To ensure perfect storage of the paste material in syringes, it should be stored in the firmly sealed container/syringe in a suitable refrigerator at 5-7 °C. To achieve proper consistency of the pastes for processing, they should be kept at room temperature for about one hour. The syringes should not be opened before the use!

**Explanation of the markings on the packaging**

**LOT** Symbol for "lot number"



Symbol for "can be used until"



Note! Read accompanying documents.

**Care instructions for removable restorations made from VITA VM LC**

- The restoration should be rinsed with water after each meal and cleaned mechanically at least once a day.
- Mechanical cleaning: hold the denture over a washbasin filled with water and clean from all sides.
- Use **a soft or medium-hard toothbrush or denture brush** and **a small quantity of abrasive toothpaste for cleaning**.
- Frequent consumption of coffee, tea, nicotine and, in some cases, medication may cause discoloration. In such cases the restoration should be cleaned repeatedly.
- It is strongly advised not to use cleaning tabs or cleaning solutions. The active substances damage the material surfaces and cause discoloration and plaque deposits.

The following products require hazard identification:		
<p><b>VITAVM<sup>®</sup>LC MODELLING</b> (contains triethylene glycol dimethacrylate)</p>	<p>Causes skin irritation. Causes severe eye irritation. May irritate the respiratory tract. May cause allergic skin reactions.</p>	
<p><b>VITAVM<sup>®</sup>LC SEPARATOR</b> (contains cyclohexane, toluene, methyltri- acetoxysilane)</p>	<p>Highly flammable liquid and vapor. Possible risk of harm to the unborn child.</p> <p>Prolonged or repeated exposure may cause damage to organs.</p> <p>May be fatal if swallowed and enters airways. Causes severe damage to eyes. Very toxic to aquatic organisms with long-term adverse effects. Causes skin irritation. May cause drowsiness and dizziness.</p>	    
<p><b>VITAVM<sup>®</sup>LC CLEANER</b></p>	<p>Highly flammable liquid and vapor.</p>	
<p><b>VITAVM<sup>®</sup>LC OPAQUE PASTE</b> <b>VITAVM<sup>®</sup>LC GINGIVA OPAQUE PASTE</b> (contains 2-dimethylaminoethyl metha- crylate)</p>	<p>Causes skin irritation. Causes severe eye irritation. May cause allergic skin reactions.</p>	
<p><b>VITAVM<sup>®</sup>LC OPAQUE LIQUID</b> (contains methyl methacrylate, ethylene glycol dimethacrylate, 2-dimethylaminoethyl methacrylate)</p>	<p>Highly flammable liquid and vapor. Causes skin irritation. May cause allergic skin reactions. May irritate the respiratory tract.</p>	 
<p><b>VITAVM<sup>®</sup>LC BASE DENTINE, ENAMEL, EFFECT ENAMEL, NEUTRAL, GINGIVA</b> (contains 2-dimethylaminoethyl metha- crylate, triethylene glycol dimethacrylate)</p>	<p>Causes skin irritation. Causes severe eye irritation. May cause allergic reactions.</p>	

The following products require hazard identification:		
<p><b>VITAVM®LC PAINT</b> (contains 2-dimethylaminoethyl methacrylate, triethylene glycol dimethacrylate)</p>	<p>Causes skin irritation. Causes severe eye irritation. May cause allergic reactions.</p> <p>Harmful to aquatic organisms with long-term adverse effects.</p>	
<p><b>VITAVM®LC CHROMA PLUS, EFFECT LINER</b> (contains 2-dimethylaminoethyl methacrylate)</p>	<p>May cause allergic reactions. Harmful to aquatic organisms with long-term adverse effects.</p>	
<p><b>VITAVM®LC WINDOW</b> (contains 2-dimethylaminoethyl methacrylate)</p>	<p>Harmful to aquatic organisms with long-term adverse effects. May cause allergic reactions.</p>	
<p><b>VITAVM®LC PRE OPAQUE</b> (contains 2-dimethylaminoethyl methacrylate)</p>	<p>Harmful to aquatic organisms with long-term adverse effects. May cause allergic reactions.</p>	

**Disposal: Proper disposal must be ensured. Disposal in accordance with the regulations of the authorities. Please refer to the safety data sheet for detailed information!**

The following products require hazard identification:		
<p><b>VITAVM<sub>6</sub>LC flow</b> (contains triethylene glycol dimethacrylate, 2-(Dimethylamino)ethyl methacrylate)</p>	<p>Causes skin irritation. Causes severe eye irritation. May cause allergic skin reactions. Harmful to aquatic organisms with long-term adverse effects.</p>	
<p><b>VITA CERAMICS ETCH (hydrofluoric acid ceramic etching gel)</b></p>	<p><b>Caustic / Toxic</b></p> <p>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 safety goggles/protective gloves/protective clothing. 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.</p>	 
<p><b>VITASIL<sup>®</sup> (Silane bonding agent)</b></p>	<p><b>Highly flammable</b></p> <p>Causes severe eye irritation. Highly flammable liquid and vapor. Store container well sealed at an adequately ventilated place. Keep away from ignition sources. - No smoking. Do not empty into drains. This material and its container must be disposed of as hazardous waste.</p>	 

**Disposal: Proper disposal must be ensured. Disposal in accordance with the regulations of the authorities. Please refer to the safety data sheet for detailed information!**

**Why does the PRE OPAQUE material improve bonding?**

The transparency of PRE OPAQUE ensures perfect curing with a small amount of light even in dark zones independent of the layer thickness.

**Detailed:**

The alloy surface is clean after sandblasting and exhibits countless fine pores and unevenness. PRE OPAQUE has been adjusted in a way to fill these fine pores. Due to the transparency, enough light penetrates into these pores during polymerization with the light curing unit and creates a hard network structure. The filled pores act similar to anchoring elements - identical to the effect of macroscopic retentions. This anchoring effect is also achieved for the OPAQUE PASTE. The transparent PRE OPAQUE allows to achieve a perfect result independent of the layer thickness. Hence reliable use and the application in undercuts or dark zones is improved.

**Why does VM LC OPAQUE PASTE have this particular consistency?**

The consistency of the opaque paste was deliberately adjusted to obtain a so-called visco-elastic liquid. As a result, OPAQUE PASTE exhibits unsurpassed stability at retention and edges.

**Detailed:**

Originally, the opaque paste features gel characteristics, which means that the flowability is very limited. This can be attributed to the development of a micro-fine structure. When the material is spread with the brush, this microstructure is easily destroyed and the paste acts like a viscous liquid which can be perfectly spread. The microstructure is recreated after spreading. The gel structure of the opaque paste is restored very quickly and optimal stability is achieved. This structure can be repeatedly recreated so that the material can be spread with the brush again at any time.

**Why does VM LC OPAQUE powder have to exhibit a wet-lustrous surface prior to polymerization? aufweisen?**

The wet-lustrous surface indicates that sufficient monomers are available to firmly integrate the powder components of the OPAQUE so that the surface will not fade (change in color) after polymerization.

**Detailed:**

OPAQUE LIQUID contains reactive monomers which form a stable network after polymerization; the pigments and powder components of the OPAQUE are firmly integrated into this network. If the time between the application and polymerization is too long, the monomers will partly evaporate on the surface. As a result, not enough network formers are available and the surface may fade (change in color) after polymerization.

**Why is it recommended to store VITA VM LC pastes in the refrigerator?**

Storage of the pastes in a cool place is recommended to keep the product quality and the excellent processing characteristics on an equally high level over an extended period.

**Detailed:**

All veneering resins (composites) contain large proportions of highly reactive monomers which form networks through polymerization. Polymerization can be triggered by various factors. In the case of VM LC, a light-sensitive initiator in the material starts the reaction in the light curing unit. In case of sustained elevated storage temperature, however, individual monomers may be slowly polymerized and affect the processing characteristics of the materials.

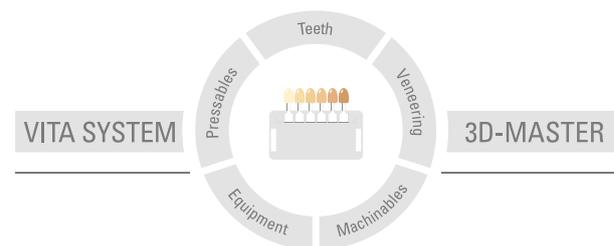
VITA stores both the monomers and the VM LC products under cool conditions to be able to guarantee high product quality and extended durability.

Problem	Cause	Solution
<b>Bonding</b>		
Inadequate bonding to metal	<ul style="list-style-type: none"> <li>• Metal surface contaminated with grease or water</li> <li>• Improper use of the primer</li> <li>• First opaque layer too thick</li> </ul>	<ul style="list-style-type: none"> <li>• Do not touch or steam clean the metal surface after sandblasting.</li> <li>• Processing according to the manufacturer's instructions.</li> <li>• Apply opaque in thin layers. Use of Pre Opaque is recommended.</li> </ul>
Cured composite materials do not bond adequately to each other	<ul style="list-style-type: none"> <li>• No dispersive layer</li> <li>• Moisture between layers caused by steam cleaning</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain dispersive layer after polymerization (do not touch) or wet surface with Modelling Liquid after removing the dispersive layer.</li> <li>• Generally, cured surfaces must not be cleaned with steam.</li> </ul>
<b>Opaque</b>		
Opaque comes off the retentions	<ul style="list-style-type: none"> <li>• Depending on the light curing unit, the framework becomes too hot, opaque liquefies</li> </ul>	<ul style="list-style-type: none"> <li>• Let framework cool down before the application of opaque. Use of Pre Opaque is recommended.</li> </ul>
<b>Composite</b>		
Bubbles	<ul style="list-style-type: none"> <li>• Inclusion of bubbles during layering</li> </ul>	<ul style="list-style-type: none"> <li>• Adapt the materials adequately during the application. Avoid inclusion of bubbles when mixing the materials.</li> </ul>
Softer consistency required	<ul style="list-style-type: none"> <li>• Consistency too firm</li> <li>• Very firm consistency</li> </ul>	<ul style="list-style-type: none"> <li>• Thixotropic consistency has been adjusted; firmer consistency is achieved by pressing with the spatula.</li> <li>• Incorrect storage temperature. Do not store above 25 °C; storage in the refrigerator is recommended.</li> </ul>
Consistency in the open syringe varies considerably	<ul style="list-style-type: none"> <li>• Partial polymerization of the material caused by ambient light</li> </ul>	<ul style="list-style-type: none"> <li>• Seal the syringe immediately after dispensing some material.</li> </ul>

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
<b>Polymerization</b>		
Materials not polymerized adequately	<ul style="list-style-type: none"> <li>• Incorrect placement of restoration</li> <li>• Lamps too old, polymerization chamber contaminated</li> <li>• Polymerization time too short</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure correct placement in the unit according to instructions on pages 32-33.</li> <li>• Replace lamp of curing-light, clean polymerization chamber incl. filter disc</li> <li>• Polymerize completely according to information on pages 32-33.</li> </ul>
<b>Polishing</b>		
No high luster	<ul style="list-style-type: none"> <li>• Inadequate polymerization</li> <li>• Too much Modelling Liquid used</li> </ul>	<ul style="list-style-type: none"> <li>• Observe information on polymerization on this page and on pages 32-33.</li> </ul>
<b>Shade effect</b>		
Shade too grey	<ul style="list-style-type: none"> <li>• Too much Enamel applied</li> </ul>	<ul style="list-style-type: none"> <li>• Use Modelling Liquid sparingly</li> </ul>
Shade too pale	<ul style="list-style-type: none"> <li>• Minimum layer thickness not observed</li> </ul>	<ul style="list-style-type: none"> <li>• Observe layering pattern</li> <li>• Use additional material in cases of limited space (see p. 12)</li> </ul>
<b>After completion</b>		
Plaque accumulation / discoloration	<ul style="list-style-type: none"> <li>• Inadequate polymerization:                             <ul style="list-style-type: none"> <li>– Lamps too old, polymerization chamber contaminated</li> <li>– Polymerization time not adhered to</li> </ul> </li> <li>• Insufficient polishing</li> <li>• Use of denture sealant</li> <li>• Use of an ultrasonic unit with needles (surface is perforated and prone to damage)</li> </ul>	<ul style="list-style-type: none"> <li>– Replace lamps of the light-curing unit, clean polymerization chamber</li> <li>– Polymerize completely</li> <li>• High-luster polishing of material according to instructions</li> <li>• Do not use denture sealant, polish to high luster!</li> <li>• Cleaning with ultrasonic unit <u>without</u> needles</li> </ul>
<b>Syringe</b>		
Low-viscosity material oozes out	<ul style="list-style-type: none"> <li>• Too much pressure inside the syringe</li> </ul>	<ul style="list-style-type: none"> <li>• After dispensing, turn plunger back one full turn</li> </ul>

VITA VM LC is available in the VITA SYSTEM 3D-MASTER and VITA classical A1–D4 shades. Shade compatibility with all VITA 3D-MASTER and VITA classical A1–D4 materials is ensured.

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 application. 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. Furthermore, our liability for the accuracy of this information is independent of the legal basis and, in as far as legally permissible, shall always be limited to the value as invoiced of the goods supplied, excluding value-added tax. In particular, as far as legally permissible, we do not assume any liability for loss of earnings, indirect damages, ensuing damages or for third-party claims 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 information: 04.15

After the publication of these information for use any previous versions become obsolete. The current version can be found at [www.vita-zahnfabrik.com](http://www.vita-zahnfabrik.com)

VITA Zahnfabrik has been certified in accordance to the Medical Device Directive and the following products bear the CE mark  0124 :

VITAVM<sup>®</sup>LC VITA CAD-Temp<sup>®</sup> VITA YZ T / VITA YZ HT

# VITA

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