VINTAGE PRO

Optimised Leucite-reinforced
Feldspathic Metal Ceramic

Instructions for Use

SHOFU

Contents

VINTAGE PRO

VINTAGE PRO

VINTAGE PRO is a feldspar-based metal ceramic system for the time-efficient production of dental restorations characterised by professional aesthetics and advanced material properties.

To create VINTAGE PRO, the excellent handling of the VINTAGE porcelains was systematically optimised, and combined with new materials. The result is an easy-to-use and time-saving porcelain system featuring high firing stability and naturally opalescent shades.

VINTAGE PRO is particularly suitable for veneering non-precious alloy frameworks, thanks to its firing temperature of approx. 900 °C and finely tuned physical properties. It can also be safely used to veneer precious, semi-precious and palladium-based PFM alloys within the conventional CTE range of 13.5 - 14.8 x $10^{-6}K^{-1}$. Besides, VINTAGE PRO is very suitable for use on metal frameworks made by CAD/CAM or sintering.
The system and all its components have been matched to the VITA* Classical shades.

Indications

- Full veneering of metal frameworks
- Partial veneering of metal frameworks

Contraindications

- Bruxism
- Veneering of titanium and zirconia frameworks

Notes on Use

- Do not use VINTAGE PRO PASTE OPAQUE LIQUID in conjunction with any materials other than VINTAGE PRO Paste Opaque.
- Do not use VINTAGE PRO POWDER OPAQUE LIQUID in conjunction with any materials other than VINTAGE PRO Powder Opaque.
- Do not use VINTAGE Mixing Liquid and VINTAGE Mixing Liquid-HC for Opaque porcelains.
- Use distilled water when the porcelain mixture with VINTAGE Mixing Liquid or VINTAGE Mixing Liquid-HC is dried.
- VINTAGE CPM Modelling Liquid must be used only for Margin and Correction porcelains.
- VINTAGE Margin Hardening Liquid must be used only for Margin porcelain.
- Avoid applying VINTAGE Margin Porcelain Isolation Liquid excessively.

Notes

Precautions and Warnings

For VINTAGE PRO porcelains

- If any inflammation or other allergic reactions occur on the operator while using this product, immediately discontinue use and seek medical advice.
- Avoid contact with skin or eyes. In case of accidental contact with eyes, immediately flush the eyes with plenty of water and seek medical advice.
- Use local dust extractor or mask etc, while grinding or polishing this product to avoid harmful influence of dust on the human body.
- Wear protective glasses etc, while grinding or polishing this product to avoid damage to the eyes.
- Tightly close the bottle cap after each use.
- Follow the instructions for use of each dental material, instrument or equipment to be used in conjunction with VINTAGE PRO porcelains.
- Use this product within the expiration date indicated on the package and container.
  Example: YYYY-MM-DD = Year-Month-Date of the expiration

For VINTAGE liquids

- Do not handle VINTAGE liquids or their mixture with porcelains with bare hands. VINTAGE liquids should not come in contact with patient's eyes or skin. In case of accidental contact with skin, immediately blot with alcohol moistened cotton ball. In case of contact with eyes, immediately flush the eyes with plenty of water and seek medical advice.
- If any inflammation or other allergic reactions occur on either the patient or operator, immediately discontinue use and seek medical advice.
- Avoid any source of ignition since VINTAGE liquids are flammable.
- Use VINTAGE liquids in well ventilated areas (several appropriate ventilations per hour are recommended).
- Do not leave VINTAGE liquids in areas of high temperature, such as near the heater etc. Avoid direct sunlight.
- Tightly close the cap after each dispensing.

For all items

- Do not use for any purposes other than specifically outlined in each instructions for use.
- All VINTAGE PRO items are intended for use by dental professionals only.

Storage

VINTAGE PRO porcelains

- Store at room temperature (1-30 °C / 34-86 °F).
- Avoid direct sunlight.

VINTAGE liquids

- Tightly close the cap and store at room temperature.
- Keep away from direct sunlight and any source of ignition.
- Store VINTAGE Margin Porcelain Isolation Liquid horizontally. When you store it vertically, always keep the cap facing upward. The liquid might leak when placing it in an opposite way for a long period.

Physical Properties

VINTAGE PRO	CTE [x $10^{-6}K^{-1}$] (25-500 °C) 2nd firing	CTE [x $10^{-6}K^{-1}$] (25-500 °C) 4th firing	TG Glass transition temperature (°C)
Base Opaque Powder	11.5	11.5	598
Shade Opaque Powder	12.4	12.4	594
Base Opaque Paste	11.5	11.5	598
Shade Opaque Paste	12.4	12.4	594
Margin	13.0	13.0	594
Cervical, Body, Opaque Dentin, Opal, Incisal, Opal Effect, Enamel Effect, Color Effect, Gum	13.0	13.0	580
ADD-ON / Correction	11.0	11.0	585

VINTAGE PRO porcelain complies with ISO 6872:2015 (Type I, Class 1 ceramic) and ISO 9693-1:2012. VINTAGE PRO porcelain meets the requirements of the standards: flexural strength of ≥ 50 MPa, chemical solubility of < 100 µg/cm^2 and debonding / crack initiation strength ≥ 25 MPa.

Firing Temperature / Firing Degree

When firing dental porcelains, the results depend not only on the design of the porcelain furnace, but also to a great extent on the type and size of the workpiece, the individual firing schedule and the framework design. Additional factors influencing the correct firing degree include:

- Predrying temperature / preheating temperature and time
- Temperature increase per minute
- Ideal final temperature
- Holding time of the ideal firing temperature
- Level and duration of the vacuum
- Position of the object to be fired in the furnace
- Firing tray (light or dark honeycomb tray)

Hint: To finetune the firing parameters of your porcelain furnace, it is advisable to carry out test firings before using the porcelains for actual restorations!

For test firing, preferably mix T-Glass porcelain with VINTAGE Mixing Liquid-HC and place the specimen on a platinum foil.
If the specimen looks clear and slightly shiny, the firing schedule has been correct (Fig. 1). If it looks dull and inhomogeneous, the correct firing degree has not been reached (Fig. 2). In this case, increase the firing temperature in steps of 5 °C to come closer to the correct value. If the final temperature is too high, the specimen shows a high shine and lacks any sharp edges.

Fig. 1

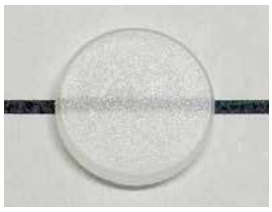


Fig. 2

System Components

Paste Opaque / Powder Opaque - 21 shades
Opaque porcelains designed to mask metal frameworks; available as pastes and powders

Margin - 12 shades
Porcelains for the creation of shoulders showing higher opacity and fluorescence than the dentine (Body) porcelains

Cervical - 4 shades
Porcelains designed to intensify the shades of cervical areas by mixing with the dentine (Body) porcelains

Body - 20 shades
Dentine-coloured, fluorescent porcelains designed to reproduce the dentine shade selected

Opal Effect - 9 shades
Opalescent Incisal and Translucent porcelains showing various colour nuances

Enamel Effect - 13 shades
Non-opalescent, Translucent Effect porcelains showing various colour nuances and transparencies

Gum - 6 shades
Special shades designed to reproduce gingival areas of porcelain restorations

Opaque Modifier - 7 shades
Opaque, intense shades designed to individualise the opaques; also available as pastes and powders

Margin Effect - 7 shades
Intense shades designed to individualise the Margin porcelains

Opaque Dentin - 18 shades
High-opacity dentine-coloured porcelains designed for use in areas requiring low layer thicknesses

Opal - 6 shades
Opalescent Incisal porcelains designed to reproduce the dynamic light-optical characteristics of natural enamel

Incisal - 4 shades
Non-opalescent Incisal porcelains without any dynamic characteristics

Color Effect - 11 shades
Intense shades designed for individualisation by mixing with Body or Opaque Dentin porcelains

Correction - 4 shades
Special porcelains designed for the correction of Body, Translucent or Margin porcelains after glaze firing

Liquids

VINTAGE PRO POWDER OPAQUE LIQUID / LIQUID-L*
Mixing liquid for use with VINTAGE PRO Powder Opaque. Opaque Liquid-L provides a longer working time and pasty consistency.

VINTAGE PRO PASTE OPAQUE LIQUID
Mixing liquid for use with VINTAGE PRO Paste Opaque, to adjust the pasty consistency

VINTAGE Mixing Liquid
Standard mixing liquid for use with all VINTAGE layered porcelains. The plasticity and stackability of porcelains mixed with this liquid will be lower, compared to VINTAGE Mixing Liquid-HC.

VINTAGE Mixing Liquid-HC
Mixing liquid for use with all VINTAGE layered porcelains. For remixing, VINTAGE Mixing Liquid or distilled water should be used.

VINTAGE Margin Hardening Liquid
Mixing liquid for VINTAGE Margin porcelains with hardening effects after drying

VINTAGE CPM Modelling Liquid
Mixing liquid for VINTAGE PRO ADD-ON and CPM porcelains

VINTAGE MARGIN Porcelain Isolation Liquid
Isolation liquid available in a convenient dosing pen, helps to properly separate porcelain from models and dies

* VINTAGE PRO POWDER OPAQUE LIQUID-L is not available in Europe!

Framework Design and Preparation

VINTAGE PRO

Design

Proper metal framework design is an important factor contributing to a strong bond between porcelain and alloy. Special care should be taken to create a reduced anatomical tooth shape with a supporting design in the cusp and incisal edge areas. In this way, occlusal stresses will not be borne directly by the porcelain, but transmitted to the framework.
A uniform porcelain layer thickness of no more than 2.0 mm will reduce the risk of high stress development. Undersized metal frameworks will lead to increased shrinkage. Oversized frameworks will not adequately support the porcelain build-up.

The wall thicknesses of metal frameworks after pretreatment should be at least 0.3 mm for crowns and 0.5 mm for bridge units. The transition from metal framework to porcelain build-up has to be clearly defined and should be rectangular, if possible.

Note: Please be sure to observe the handling recommendations given by the alloy manufacturer!

Preparation

Before applying any porcelain, the framework has to be free from cavities and porosities. Preferably, it should be pretreated with crosscut carbide burs or ceramic-bonded abrasives. Sharp edges on the framework surface should be avoided and need to be rounded.

Metal framework after grinding

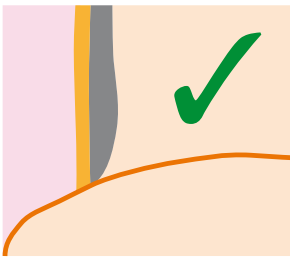
Then the framework should be carefully sandblasted with single-use alumina (Al_2O_3, 50-120 µm) at an angle of 45°. The correct particle size and blast pressure depend on the type and hardness of the alloy used. Sandblasting improves the micro-mechanical retention provided by the surface. The framework may be sandblasted before or after oxide firing, depending on the alloy manufacturer's recommendations. After steamcleaning and drying, the framework is ready for porcelain build-up.

Metal framework after completed preparation

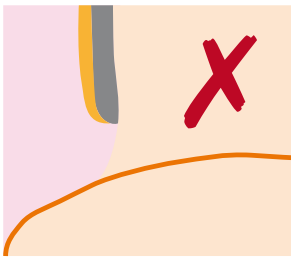
Framework Design and Preparation

Framework Design for a Porcelain Margin

When creating a porcelain margin, make sure that the framework supports the porcelain on the tooth stump. Reduce the framework down to the inner edge of the chamfer or shoulder preparation. It is especially important to adequately reduce the framework in the interdental spaces, in order to optimally integrate the restoration in the aesthetically relevant areas and to avoid any shadow zones. Any metal edges produced by this reduction process need to be rounded and thin. The porcelain margin must be uniformly supported by the metal framework.

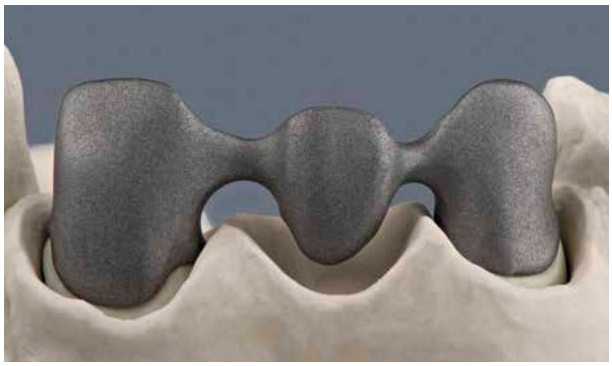


Correct framework design



Incorrect framework design

The framework before oxide firing



The framework after oxide firing

Then the framework should be carefully sandblasted with single-use alumina (Al_2O_3, 50-120 µm) at an angle of 45°. The correct particle size and blast pressure depend on the type and hardness of the alloy used. Sandblasting improves the micro-mechanical retention provided by the surface.

The framework may be sandblasted before or after oxide firing, depending on the alloy manufacturer's recommendations. After steamcleaning and drying, the framework is ready for porcelain build-up.

Opaques – General Remarks

Paste Opaque / Powder Opaque

Metal frameworks can be masked using either Paste Opaque or Powder Opaque.
Paste Opaque is available in a ready-to-use consistency. VINTAGE PRO PASTE OPAQUE LIQUID can be used to adjust the consistency, if necessary. If the paste cannot be stirred up any more after a prolonged period of time, the original consistency can be restored by carefully adding VINTAGE PRO PASTE OPAQUE LIQUID and mixing with a plastic spatula.

Note: Please avoid any contact of Paste Opaque with water, since this may produce bubbles or cracks in the opaque layer during firing!

Powder Opaque is mixed with VINTAGE PRO POWDER OPAQUE LIQUID at a ratio of 2:1 (Powder:Liquid) until it reaches a creamy consistency. The consistency and the firing behaviour of Powder Opaque and Paste Opaque are very similar.
The use of VINTAGE PRO POWDER OPAQUE LIQUID considerably extends the working time of Powder Opaque, compared to conventional mixing liquids.

Both opaque systems provide the necessary base shade and ensure a strong bond to the alloy.

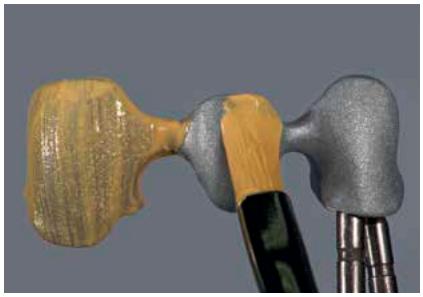
When the opaques are properly mixed, the consistency should be creamy and viscous, but not too thin.

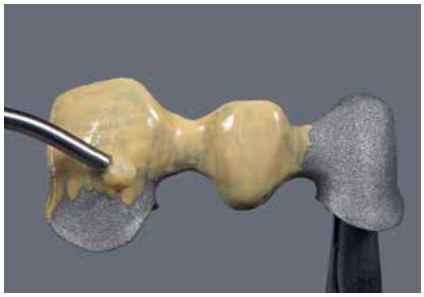
Note: The drying times and firing parameters of Powder Opaque mixed with VINTAGE PRO POWDER OPAQUE LIQUID are identical with the firing cycles of Paste Opaque! Please avoid any contact of the Powder Opaque / VINTAGE PRO POWDER OPAQUE LIQUID mixture with water, since this may produce bubbles or cracks in the opaque layer during firing!

Application of the Opaques

Base Opaque

Thanks to its fine particle structure and orange-golden colour, Base Opaque provides a pleasant warm hue and excellent bond strengths, especially when applied to non-precious alloys.
Carefully mix Base Opaque Paste or Powder with a clean spatula until it reaches the desired consistency. After mixing Base Opaque, dispense an adequate amount of the dedicated mixing liquid next to it onto the mixing slab, so that you can wet your brush or instrument.
Apply Base Opaque in a thin wash layer. The framework should be masked only approx. 30 %. Then fire the framework in accordance with the parameters of the 1st opaque firing.





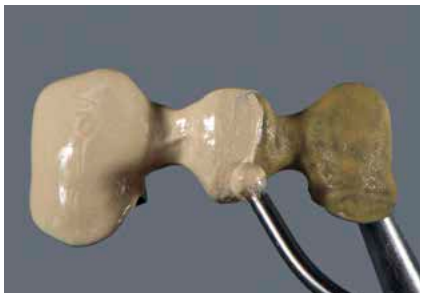
Base Opaque is applied using a ball-ended instrument or a brush.

The framework is masked only approx. 30 % with Base Opaque and then fired.

Shade Opaque

As a second opaque layer, apply the Shade Opaque material matching the tooth shade determined.
Mix Shade Opaque Powder with VINTAGE PRO Powder Opaque Liquid until it reaches a creamy consistency to mask the surface to be veneered, using a ball-ended instrument or a brush.

Alternatively, apply Shade Opaque Paste in the same way after firing Base Opaque and perform the 2nd opaque firing in accordance with the respective parameters.



Shade Opaque is applied in a sufficient thickness, using a ball-ended instrument or a brush.

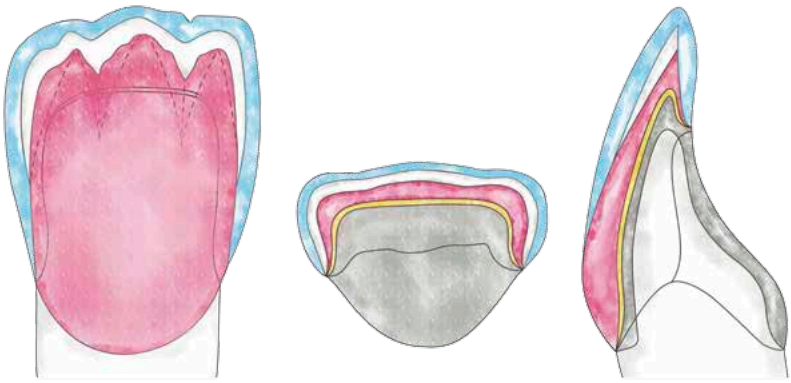
After firing, VINTAGE PRO Opaque should have a non-transparent, silky-matt surface. The framework should be completely masked by the opaque.

Note: After firing and cooling, the metal framework covered with Base Opaque or Shade Opaque should be thoroughly cleaned with a steam cleaner and dried with oil-free compressed air. Subsequently, touch the framework only with tweezers or clamps!

Layering Systems

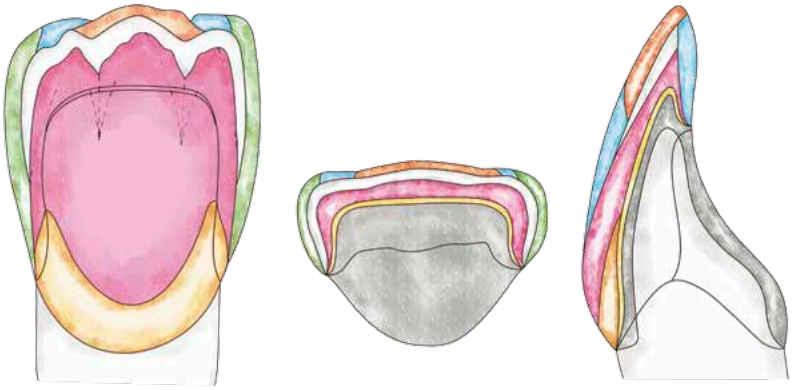
VINTAGE PRO

Standardised Layering with Opal Porcelains



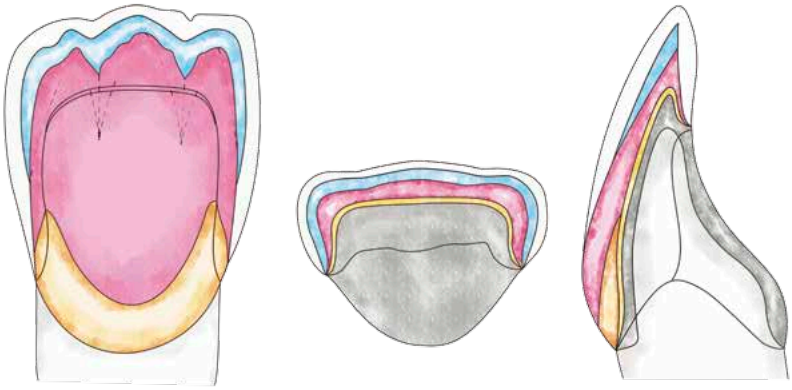
- Opal Incisal
- Opal T
- Body
- Opaque
- Metal

Customised Layering with Opal Porcelains



- Opal Incisal
- Opal OC
- Opal AM
- Opal T
- Body
- Cervical
- Opaque
- Metal

Standardised Layering with Incisal Porcelains without Opalescence



- T
- Incisal
- Body
- Cervical
- Opaque
- Metal

Standardised Layering with Opal Porcelains

All components of the VINTAGE PRO porcelain system have been optimally matched to each other, so that even a standard layering technique with Body, Opal Incisal and Opal Translucent porcelains will allow you to create highly aesthetic restorations based on the VITA* Classical Shade Guide. If only little space is available (less than 0.6 mm), or when veneering pontics, the shade effect can be improved by the use of Opaque Dentin.
Prior to porcelain layering, the model and the dies need to be sealed and then isolated with VINTAGE Margin Porcelain Isolation Liquid.

The model and the dies are isolated to prevent the porcelain from sticking to them later on.

Preferably mix the porcelains with VINTAGE Mixing Liquid-HC. It ensures convenient plastic processing properties during layering and prevents the mixture from drying too quickly.

Opaque Dentin

The shades of Body and Opaque Dentin are identical, but the opacity of Opaque Dentin is slightly higher. Apply this material to areas requiring low layer thicknesses, such as pontics or incisal edges, so that the outline of the metal framework will not show through.

The application of Opaque Dentin to areas requiring low layer thicknesses helps to avoid differences in colour.

Body

For optimal control of tooth size, shape and position, we recommend to initially build up the Body porcelains to full contour, i.e. recreating the complete tooth shape. Then briefly condense the material and use the cutback technique to precisely reduce the dentine in accordance with the natural tooth anatomy, taking account of the firing shrinkage. Alternatively, the Body porcelains can be built up and condensed directly, incorporating a mamelon structure.
The materials should not completely desiccate during the sculpting procedure.

The dentine is correctly shaped, leaving enough space for the subsequent application of Opal Incisal and Translucent.

Before applying Opal T and Incisal, the Body porcelain should be carefully moistened using a brush, to ensure a uniform moisture level.

Opal Translucent

First add the opalescent and translucent Opal T porcelain to the mamelon areas and marginal ridges of the prepared dentine as an intermediate layer to support light diffusion.

A translucent layer between Body and Opal Incisal supports the natural light diffusion.

Opal Incisal

Then apply Opal Incisal in several portions to complete the tooth anatomy. Take care not to change the shape and position of the dentine during this step. The Opal Incisal material applied should be slightly oversized to compensate for the firing shrinkage and obtain the desired tooth shape after firing.

Opal Incisal is added to the reduced areas, first to the vestibular aspect, then to the palatal aspect.

After removing the restoration from the model, use Opaque Dentin or Body and Opal Incisal to complete the contact points. Slightly condense the material and suck off the liquid; this helps to reduce the firing shrinkage and to optimise the brilliance of the porcelain.

Proper separation in the interdental area down to the opaque leads to controlled shrinkage during the 1st body firing.

Standardised Layering with Opal Porcelains

After completion of the build-up, place the restoration preferably on a honeycomb firing tray, ensuring an adequate support. Then fire the restoration in accordance with the schedule for the 1st body firing.

After the 1st body firing, the restoration should be slightly shiny. Any interdental shrinkage is corrected by subsequent additions of porcelain, followed by the 2nd body firing.

Corrections after Firing

Ideally, the restoration should be slightly shiny after firing. Subsequent additions of porcelain for shape adjustment can be performed directly, without any surface pretreatment with abrasives or alumina sandblasting. However, if shape adjustments with the aid of rotary instruments should be needed at this point, the surface will have to be sandblasted with Al_2O_3 (50 µm) at a pressure of 0.1-0.2 MPa / 1-2 bar afterwards, to remove any contaminations. Following these corrections, thoroughly steamclean and dry the restoration.

2nd Body / Opal Incisal Firing

First, fill the interdental spaces with Opaque Dentin or Body. After gentle condensation, add one of these porcelains to the basal surfaces of the pontics. Then adjust the anatomical shape with Opal Incisal and Opal Translucent.

After filling the interdental spaces, the anatomical shape is adjusted by alternately layering Opal Incisal and Translucent.

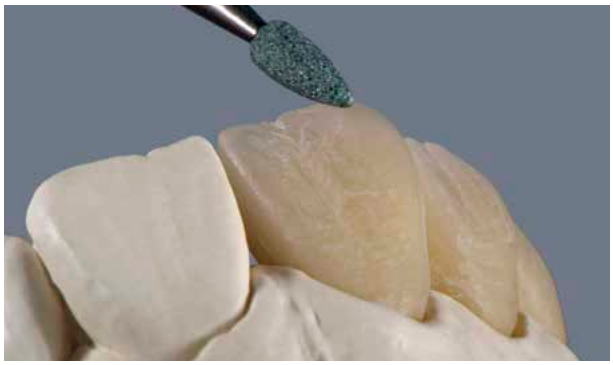
Remove the restoration from the model and inspect the contact points and interdental spaces. If necessary, slightly separate the interdental spaces and add porcelain to the contact points. Then place the restoration on the firing tray and perform the 2nd body firing in accordance with the respective schedule.

Contouring and Preparation for Glaze Firing

For shape correction or contouring after firing, we recommend the use of silicon carbide abrasives, such as Dura-Green or Dura-Green DIA. Alternatively, medium-grit diamond instruments can be used.

Restoration placed on the model after the 2nd body firing.

After adjusting the contact points and the basal surfaces, contour the tooth shapes including interdental spaces, cervical and incisal triangles, as well as convex and concave ridges on the tooth surfaces.



Tooth shapes and concave / convex surface details are properly contoured with Dura-Green abrasives.

Subsequent prepolishing with well-matched silicone polishers, such as CeraMaster Coarse or SoftCut, helps to specifically increase the gloss level of raised areas or surfaces that should be particularly glossy after glaze firing (e.g. pontic bases). Prior to glaze firing, thoroughly steamclean and dry the adjusted restoration.

The gloss level is increased in specific areas by prepolishing with silicone polishers.

The restoration has been accurately contoured.

Glaze Firing

Glaze firing is the step during which minor shade characterisations or corrections can be performed by using the fluorescent VINTAGE Art Porcelain Stains. If major shade corrections are necessary, we recommend a separate stain firing before glaze firing. For detailed information on how to create colour accents, please see the instructions for use of VINTAGE Art.

Dispense the required amount of VINTAGE Art Glaze Paste and dilute it with VINTAGE Art Stain Liquid. The consistency of this creamy paste can easily be adjusted to ensure optimal handling properties. Then apply a thin coat of Glaze Paste to the restoration.

A thin coat of Glaze Paste helps to control the shade effect of the restoration.

The creation of colour accents or minor shade modifications with VINTAGE Art Porcelain Stains is followed by the glaze firing in accordance with the respective firing schedule.

Finishing

After the glaze firing, the gloss level of the restoration can be specifically adapted to the clinical situation by polishing with silicone polishers (e.g. CeraMaster) or a diamond polishing paste (e.g. Dura-Polish DIA) and a felt wheel.

The completed restoration: labial view …

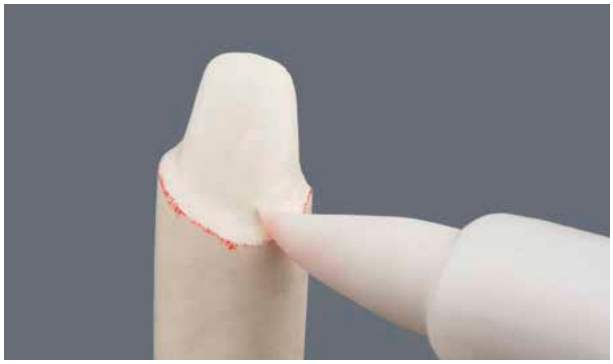
… and palatal view

Layering of Margin Porcelains

VINTAGE PRO

Margin Porcelain – 1st Firing

Porcelain margins transmit light where the tooth stump and the gingiva meet. VINTAGE PRO Margin is characterised by high plasticity and fluorescence, in contrast to the other porcelains of this system. Low shrinkage and excellent edge stability ensure an outstanding accuracy of fit.
Before applying any Margin porcelain, conventionally seal the stone dies and isolate them with VINTAGE Margin Porcelain Isolation Liquid. Apply this liquid to the die shoulder in one or two layers with the Isolation Pen and leave it undisturbed for approx. 30 seconds. Remove any excess material by gentle airblowing.



The sealed stone die is isolated with VINTAGE Margin Porcelain Isolation Liquid.

Note: If VINTAGE Margin Porcelain Isolation Liquid is applied too thickly and remains on the internal surface of the restoration, the restoration may turn black during firing.

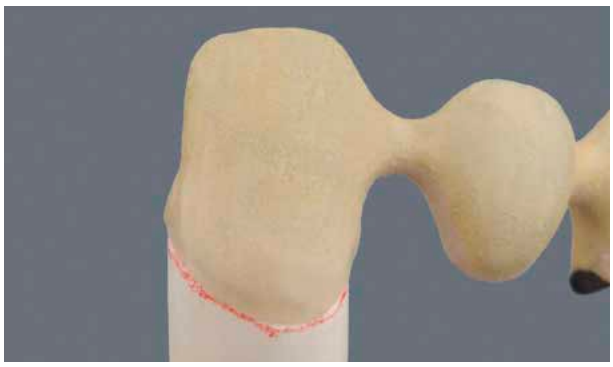
Mix the Margin porcelain you wish to use with distilled water or VINTAGE Margin Hardening Liquid until it reaches a plastic, doughy consistency.
For detailed information on how to use VINTAGE Margin Hardening Liquid, please see the separate instructions for use.
Apply the Margin porcelain to the cervical areas, using a brush or an instrument, and preferably condense it by slight vibration. Then dry the material with a hairdryer to evaporate some moisture. Check whether the framework can be separated from the die. Replace it on the die and remove any excess porcelain with a dry brush.

The Margin porcelain is adapted with a dry brush before firing.

Carefully separate the framework from the die, making sure that no porcelain particles remain on the internal surfaces of the restoration and any excess material has been removed. Then perform the 1st margin firing.

Note: The shades of VINTAGE PRO Margin can be customised by adding Margin Effect porcelains.

Before applying any additional porcelain, thoroughly clean the restoration with a steam cleaner and dry it with oil-free compressed air.



After firing, it may be necessary to adjust the porcelain margin by eliminating any imperfections.

Layering of Margin Porcelains

In addition to the standard layering technique, there are unlimited options to customise restorations with the aid of opalescent Incisal, Translucent and Effect porcelains, based on the individual clinical situation.

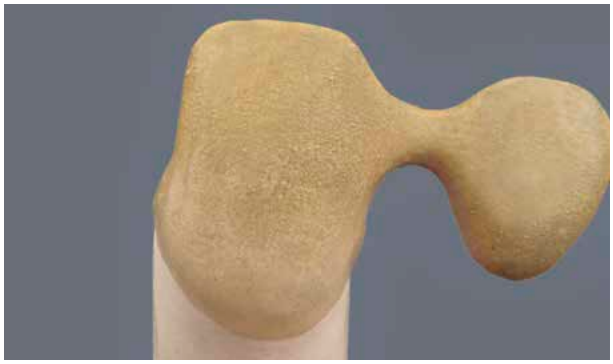
Margin Porcelain – 2nd Firing

To compensate for the firing shrinkage (sintering shrinkage), the fit of the porcelain margin needs to be optimised by a 2nd firing.
Before applying the 2nd layer of Margin porcelain, isolate the die shoulder again with VINTAGE Margin Porcelain Isolation Liquid. To optimise the fit, apply the same Margin porcelains you used for the 1st Margin layer, mixed with distilled water.
Apply a small amount of Margin porcelain to the marginal areas and place the restoration on the die. Then complete the porcelain margin and condense the material by slight vibration.

A 2nd layer of Margin porcelain is applied to compensate for the sintering shrinkage.

Note: When placing the restoration on the die, be sure to check it for correct fit and, if necessary, improve the fit by slight vibration.

Slightly dry the completed porcelain margin with a hairdryer and carefully separate the framework from the die. Make sure that no porcelain particles remain on the internal surfaces of the restoration and that any excess material has been removed. Then place the restoration on a honeycomb firing tray and perform the 2nd margin firing.



The porcelain margin after the 2nd margin firing.

Note: After firing, it may be necessary to adjust the porcelain margin by eliminating any minor imperfections.

Note: Before applying any additional porcelain, thoroughly clean the restoration with a steam cleaner and dry it with oil-free compressed air. Any final corrections of the porcelain margin fit can be performed using CPM (Correction Porcelain Margin), even after glaze firing. The application of these materials is described on page 28 (“Correction Porcelains”).

Customised Application of the Opaques

VINTAGE PRO

Base Opaque

Thanks to its fine particle structure and orange-golden colour, Base Opaque provides a pleasant warm hue and excellent bond strength, especially when applied to non-precious alloys.
Carefully mix Base Opaque Paste or Powder with a clean spatula until it reaches the desired consistency. After mixing Base Opaque, dispense an adequate amount of the dedicated mixing liquid next to it onto the mixing slab, so that you can wet your brush or instrument.
Apply Base Opaque in a thin wash layer. Then fire the framework in accordance with the parameters of the 1st opaque firing.

Frameworks masked with Base Opaque.

Shade Opaque

As a second opaque layer, apply the Shade Opaque material matching the tooth shade determined.
Mix Shade Opaque Powder with VINTAGE PRO Powder Opaque Liquid until it reaches a creamy consistency and evenly apply the mixture in a sufficient thickness to mask the surface to be veneered, using a brush or a ball-ended instrument. Alternatively, apply Shade Opaque Paste in the same way after firing Base Opaque. In both cases, leave out all the areas you wish to customise with Opaque Modifiers.

When applying Shade Opaque, initially leave out all the areas you wish to customise (e.g. incisal, cervical or occlusal areas).

Opaque Modifiers can be used pure or mixed with Shade Opaque. Use these intense shades to complete the areas you left out and perform the 2nd opaque firing in accordance with the respective parameters.

Customised Shade Opaque before and after the 2nd opaque firing.

Note: After firing and cooling, the metal framework covered with Base Opaque or Shade Opaque should be thoroughly cleaned with a steam cleaner and dried with oil-free compressed air. Subsequently, touch the framework only with tweezers or clamps!

Customised Layering with Opal Porcelains

In addition to the standard layering technique, there are unlimited options to customise restorations with the aid of opalescent Incisal, Translucent and Effect porcelains, based on the individual clinical situation.

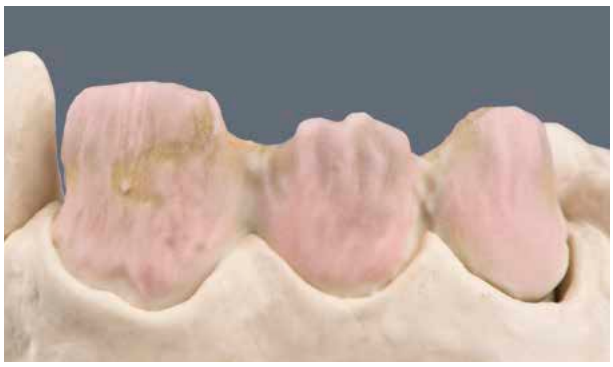
Prior to porcelain layering, the model and the dies need to be sealed and then isolated with VINTAGE Margin Porcelain Isolation Liquid.

Preferably mix the porcelains with VINTAGE Mixing Liquid-HC. It ensures convenient plastic processing properties during layering and prevents the mixture from drying too quickly.

The model and the dies are isolated to prevent the porcelain from sticking to them later on.

Opaque Dentin

The shades of Body and Opaque Dentin are identical, but the opacity of Opaque Dentin is slightly higher. Apply this material to areas requiring low layer thicknesses, such as pontics or incisal edges, so that the outline of the metal framework will not show through.



The application of Opaque Dentin to areas requiring low layer thicknesses helps to avoid differences in colour.

Body

For optimal control of the tooth size, shape and position, we recommend an initial build-up of the Body porcelains to full contour, i.e. recreating the complete tooth shape. Then briefly condense the material and use the cutback technique to precisely reduce the dentine in accordance with the natural tooth anatomy, taking account of the firing shrinkage. Alternatively, the Body porcelains can be built up and condensed directly, incorporating a mamelon structure. The materials should not completely desiccate during the sculpting procedure.

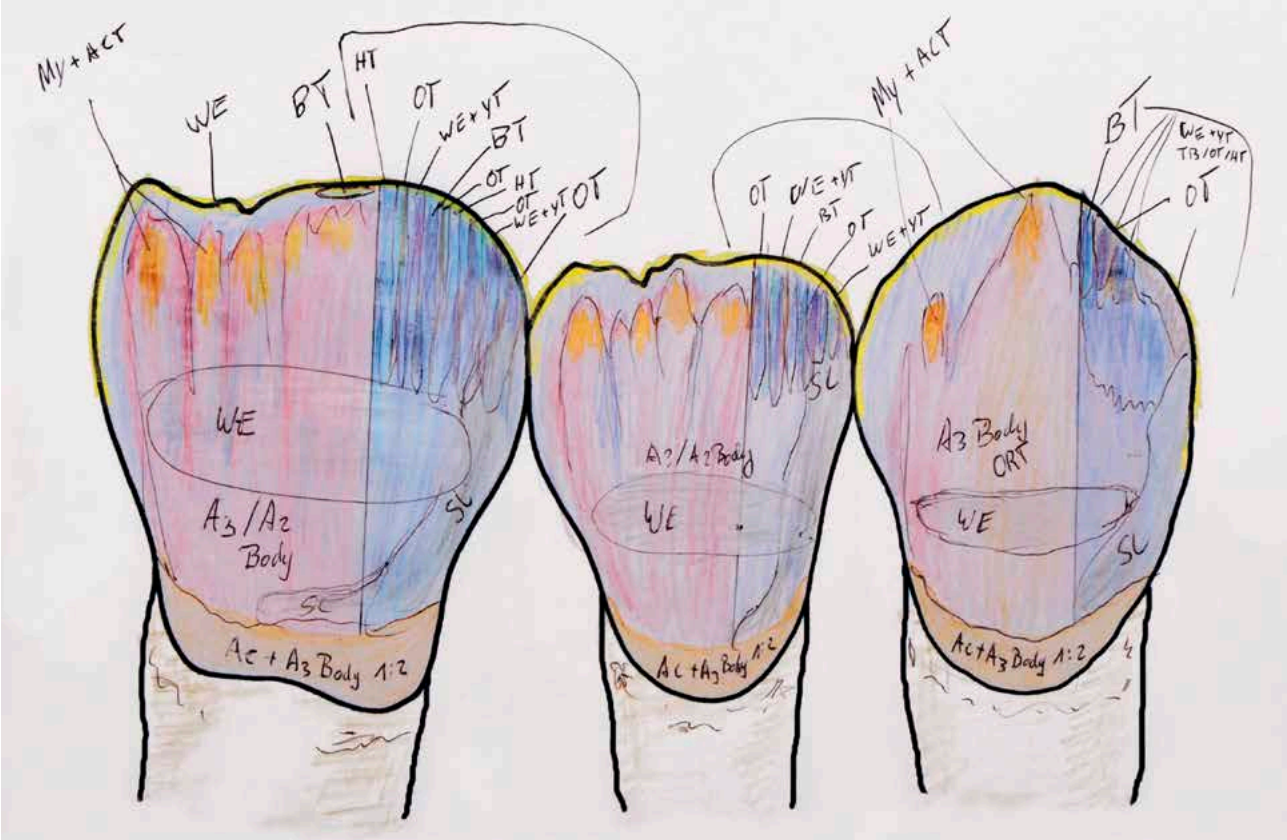
The dentine is correctly shaped, leaving enough space for the subsequent application of Opal Incisal, Translucent and Effect.

Before applying Opal Translucent and Incisal, the Body porcelain should be carefully moistened using a brush, to ensure a uniform moisture level.

Opal Translucent, Opal Effect and Opal Incisal

In addition to the Effect shades for the individualisation of the dentine porcelains, the system includes various Opal and translucent Effect shades helping to improve the depth of the restoration or to reproduce enamel effects. The following illustrations show examples of how to use them for a customised layering.

Customised Build-up of the Incisal Region



Customised Layering with Opal Porcelains

The anatomical shape is adjusted by alternately layering Opal Incisal and Translucent. The material applied should be slightly oversized to compensate for the firing shrinkage and to obtain the desired tooth shape after firing.

After removing the restoration from the model, use Opaque Dentin or Body and Opal Incisal to complete the contact points. Slightly condense the material and suck off the liquid; this helps to reduce the firing shrinkage and to optimise the brilliance of the porcelain.

Proper separation in the interdental area down to the Opaque leads to controlled shrinkage during the 1st body firing.

After completion of the build-up, place the restoration preferably on a honeycomb firing tray, ensuring an adequate support. Then fire the restoration in accordance with the schedule for the 1st body firing.

After the 1st body firing, the restoration should be slightly shiny. Any interdental shrinkage is corrected by subsequent additions of porcelain, followed by the 2nd body firing.

Corrections after Firing

Ideally, the restoration should be slightly shiny after firing. Subsequent additions of porcelain for shape adjustment can be performed directly, without any surface pretreatment with abrasives or alumina sandblasting. However, if shape adjustments with the aid of rotary instruments should be needed at this point, the surface will have to be sandblasted with Al_2O_3 (50 µm) at a pressure of 0.1-0.2 MPa / 1-2 bar afterwards, to remove any contaminations. Following these corrections, thoroughly steamclean and dry the restoration.

2nd Body / Opal Incisal Firing

First, fill the interdental spaces with Opaque Dentin or Body. After gentle condensation, add one of these porcelains to the basal surfaces of the pontics. Then adjust the anatomical shape with Opal Incisal and Opal Translucent.

Remove the restoration from the model and inspect the contact points and interdental spaces.
If necessary, slightly separate the interdental spaces and add porcelain to the contact points. Then place the restoration on the firing tray and perform the 2nd body firing in accordance with the respective schedule.

After filling the interdental spaces, the anatomical shape is adjusted by alternately layering Opal Incisal and Translucent.

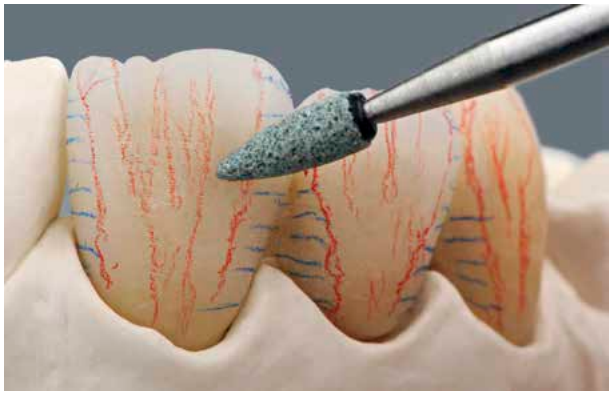
Contouring and Preparation for Glaze Firing

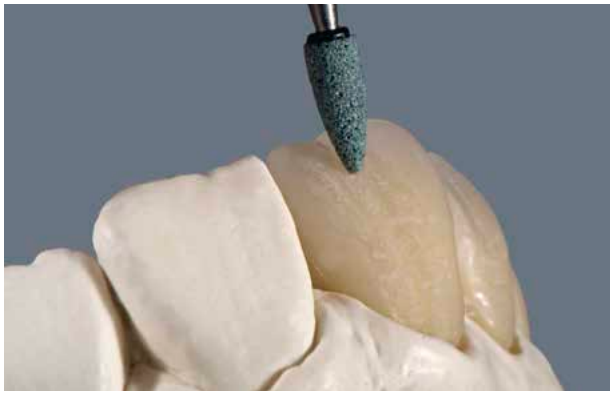
For shape correction or contouring after firing, we recommend the use of silicon carbide abrasives, such as Dura-Green or Dura-Green DIA. Alternatively, medium-grit diamond instruments can be used.

Restoration placed on the model after the 2nd body firing.

Customised Layering with Opal Porcelains

After adjusting the contact points and the basal surfaces, contour the tooth shapes including interdental spaces, cervical and incisal triangles, as well as convex and concave ridges on the tooth surfaces.





Tooth shapes and concave / convex surface details are properly contoured with Dura-Green abrasives.

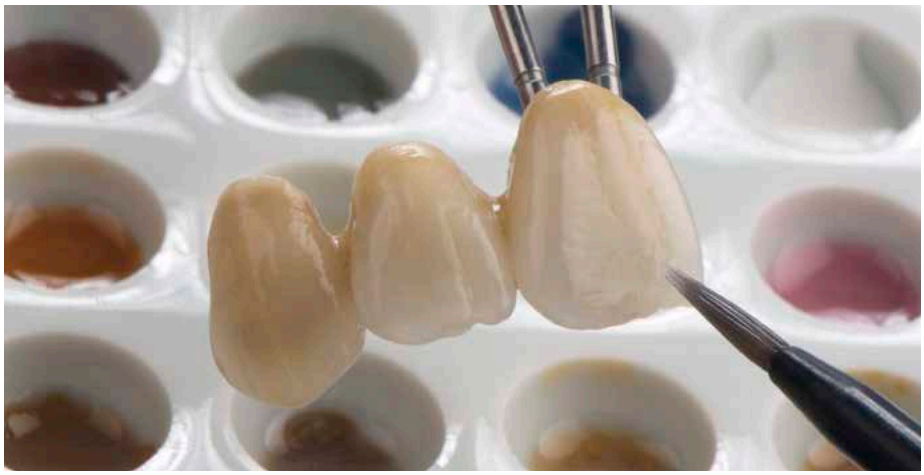
Subsequent prepolishing with well-matched silicone polishers, such as CeraMaster Coarse or SoftCut, helps to specifically increase the gloss level of raised areas or surfaces that should be particularly glossy after glaze firing (e.g. pontic bases). Prior to glaze firing, thoroughly steamclean and dry the adjusted restoration.

The gloss level is increased in specific areas by prepolishing with silicone polishers.

Glaze Firing

Glaze firing is the step during which minor shade characterisations or corrections can be performed using the fluorescent VINTAGE Art Porcelain Stains. If major shade corrections are necessary, we recommend a separate stain firing before glaze firing. For detailed information on how to create colour accents, please see the instructions for use of VINTAGE Art.

Dispense the required amount of VINTAGE Art Glaze Paste and dilute it with VINTAGE Art Stain Liquid. The consistency of this creamy paste can easily be adjusted to ensure optimal handling properties. Then apply a thin coat of Glaze Paste to the restoration.



The creation of colour accents or minor shade modifications with VINTAGE Art Porcelain Stains is followed by the glaze firing in accordance with the respective firing schedule.

Finishing

After the glaze firing, the gloss level of the restoration can be specifically adapted to the clinical situation by polishing with silicone polishers (e.g. CeraMaster) or a diamond polishing paste (e.g. Dura-Polish DIA) and a felt wheel.

Combination Chart

Shade	W0	W1	W2	W3	A1	A2	A3	A3.5	A4
Base Opaque									
Shade Opaque	W0O	W1O	W2O	W3O	A1O	A2O	A3O	A3.5O	A4O
Cervical					—	—	A3B:2 AC:1	A3.5B:1 AC:1	A4B:1 AC:1
Margin	W0M	W0M:2 NM:1	W0M:1 NM:2	NM	A1M	A2M	A3M	A3.5M	A4M
Opaque Dentin	OD-W0	OD-W0:2 OD-N:1	OD-W0:1 OD-N:2	OD-N	OD-A1	OD-A2	OD-A3	OD-A3.5	OD-A4
Body	W0B	W1B	W2B	W3B	A1B	A2B	A3B	A3.5B	A4B
Opal	OPAL55	OPAL56	OPAL56:2 OPAL57:1	OPAL56:1 OPAL57:2	OPAL57	OPAL58	OPAL59	OPAL59	OPAL60
Incisal					58	58	59	59	60
Enamel Effect									

Opal	OPAL55	OPAL56	OPAL57	OPAL58	OPAL59	OPAL60

Incisal	57	58	59	60

Enamel Effect	T	T-Glass

Margin Effect	CLM	LPM	DPM	OrM	BrM	MLM	MDM

Color Effect

Cervical	AC	BC	CC	DC

Gum	Gum-LP	Gum-DP	Gum-V	Gum-Or	Gum-R	Gum-P

B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
BASE										
B1O	B2O	B3O	B4O	C1O	C2O	C3O	C4O	D2O	D3O	D4O
—	—	B3B:1 BC:1	BC	—	C2B:2 CC:1	C3B:1 CC:1	CC	D2B:1 DC:1	D3B:1 DC:1	BC:1 DC:2
NM:1 B2M:1	B2M	B2M:1 B4M:1	B4M	NM:1 C2M:1	C2M	C2M:1 C4M:1	C4M	NM:1 D3M:1	D3M	D3M:1 B4M:1
OD-B1	OD-B2	OD-B3	OD-B4	OD-C1	OD-C2	OD-C3	OD-C4	OD-D2	OD-D3	OD-D4
B1B	B2B	B3B	B4B	C1B	C2B	C3B	C4B	D2B	D3B	D4B
OPAL57	OPAL58	OPAL59	OPAL60	OPAL58	OPAL58	OPAL59	OPAL60	OPAL58	OPAL59	OPAL60
57	58	59	60	58	58	59	60	58	59	60
T										

Opal Effect									
OPAL T	OPAL SL	OPAL MI	OPAL WB	OPAL WE	OPAL OC	OPAL AM-R	OPAL AM-Y	OPAL AM-V	

BT	PT	GT	YT	OT	BG	WT	AC-T	BC-T	CC-T	DC-T
W	O	Br	Y	Bl	G	MP	MY	Mlv	RED	RED-L

Opaque Modifier						
OM-G	OM-O	OM-Br	OM-Y	OM-BG	OM-LP	OM-DP

Correction			
ADD-ON B	ADD-ON T	CPM FINE	CPM

Correction Porcelains / Gum Porcelains

Before or after the completion of a restoration, minor shape corrections or adjustments might be necessary. For this purpose, the VINTAGE PRO porcelain system includes correction porcelains, which can be applied after the glaze firing to meet a variety of requirements:

- VINTAGE PRO ADD-ON B / ADD-ON T
- VINTAGE PRO CPM / CPM Fine

Corrections with ADD-ON

ADD-ON correction porcelains are available in the shades B (A3B) and T (Translucent) and may be added to contact points or pontic surfaces, for example. Their firing temperature is approx. 30 °C lower than that of the standard porcelains of the VINTAGE PRO system.

Note: Mix ADD-ON porcelains exclusively with distilled water or CPM Modelling Liquid. Do not use any other mixing liquids, because they will change the shade of the material during the correction firing.

Apply a slightly oversized amount of mixed ADD-ON porcelain and smooth it with a dry brush. Then fire the restoration under vacuum in accordance with the Correction / ADD-ON firing schedule.

After firing, smooth the porcelain by polishing with CeraMaster silicone polishers, followed by Dura-Polish DIA diamond polishing paste on a small felt wheel.

Corrections of Margin Porcelain with CPM / CPM Fine

Use CPM and CPM Fine porcelains to correct the fit of a porcelain margin after the glaze firing. CPM is designed for small margin corrections, CPM Fine for very fine corrections. Mix these two porcelains exclusively with CPM Modelling Liquid until they reach a pasty consistency.

Apply the mixed CPM correction porcelain to the edge area of the porcelain margin and gently press the restoration onto the isolated die. Remove any excess material, smooth the porcelain with a dry brush, and slightly dry it with a hairdryer. Carefully separate the restoration from the die, making sure that no excess porcelain remains on the internal surfaces. Then fire the restoration under vacuum in accordance with the Correction / ADD-ON schedule.

After firing, smooth the porcelain by polishing with CeraMaster silicone polishers, followed by Dura-Polish DIA diamond polishing paste on a small felt wheel.

Gum Porcelains

For gingiva reproduction, the VINTAGE PRO porcelain system includes Gum porcelains in six different shades and two Opaque Modifiers in the shades OM-LP (Light Pink) und OM-DP (Dark Pink).

The firing temperatures of the Opaque Modifiers and the Gum porcelains are identical with those of the VINTAGE PRO Opaques and standard porcelains, respectively.

Firing Schedule

VINTAGE PRO

	Drying temp. °C	Drying min.	Preheating min.	Vacuum start °C	Inc. temp. °C/min.	Final temp. °C	Vacuum end °C	Hold* min.
Base Opaque Powder	500	5	1	500	60	960	960	1
Shade Opaque Powder	500	5	1	500	60	950	950	1
Base Opaque Paste	500	5	1	500	60	960	960	1
Shade Opaque Paste	500	5	1	500	60	950	950	1
1. Margin	650	5	1	650	50	940	940	0.5
2. Margin	650	5	1	650	50	930	930	0.5
1. Cervcial, Body, Opaque Dentin, Opal Incisal, Opal Effect, Enamel Effect, Uni-Layer**, Color Effect	650	5	2	650	50	910	910	0.5
2. Cervcial, Body, Opaque Dentin, Opal Incisal, Opal Effect, Enamel Effect, Uni-Layer**, Color Effect	650	5	2	650	50	900	900	0.5
VINTAGE Art Glaze	600	5	2	–	60	870	–	–
Gum	650	7	2	650	50	900	900	0.5
Gum-Glaze	650	5	2	–	60	900	–	0.5
Correction	650	5	1	650	60	870	870	0.5
Correction-Glaze	650	5	2	–	60	870	–	0.5

* Hold with vacuum

Note: Please note that these data are only guidelines. If your firing results are not as good as they would be under optimal conditions in terms of surface quality, transparency or gloss, the parameters will have to be adjusted.

Firing conditions may vary, depending on the design and operating voltage of the porcelain furnace used. It is essential to carry out test firings, as described on page 5 of these instructions, before using the porcelains for actual restorations.

When applying large amounts of Paste Opaque or Powder Opaque, select a longer drying time at the furnace entrance and a longer preheating time, in order to thoroughly burn the liquid components.

When firing large restorations, it is also advisable to extend the drying time.

When applying porcelain layers > 1.5 mm in thickness to non-precious alloys or alloys with a CTE of > 14.5 x $10^{-6}K^{-1}$, longterm cooling after firing may be beneficial, beginning with the 1st body firing.

** Uni-Layer is not available in Europe!

Troubleshooting

Paste Opaque / Powder Opaque

Problem	Cause	Solution	Note
Bubbles	Occurrence of porosities in metal frame	If the porosities are large, remake the frame. If the porosities are small, grind off the surface.	If the metal frame has porosities where Opaque porcelain cannot be applied, the porosities will become small holes on the opaque layer. The air included in the holes gets heated and expands resulting in creating air bubbles.
	The pastes incorporate water	When adjusting the paste viscosity, dilute with VINTAGE PRO Paste Opaque Liquid. In the case of applying Opaque porcelain with a brush, thoroughly remove excess water in advance from the brush.	VINTAGE PRO Paste Opaque Liquid incorporates organic components and its drying temperature and time are different from water.
	Drying time is too short	A minimum of 5 minutes drying time should be set.	VINTAGE PRO Opaque Liquids incorporate organic components.
	Drying temperature is too high	Follow the drying time specifically outlined in this manual. When using a furnace with its thermocouple being mounted on the side of the drying table, drying temperature should be lowered by around 100 °C than prescribed drying temperature in this manual.	• Firing temperature varies depending on the furnace to be used. Visually check the firing conditions of the furnace before actual firing. • Check the opaque applied surface after firing. In the case where convex parts are observed, correct them to avoid creating bubbles caused by additional firing and glaze firing.
	Ununiform mixture or paste	Mix well until getting a uniform mixture or paste.	Mix gently to avoid air bubbles.
	Reuse of the dried paste	Use new paste	If the paste is dried on the mixing pad, air is entrapped into the paste and the air expands to become air bubbles when fired.
	Inadequate vacuum of the furnace	Check the setting of the firing program. Check the vacuum of the furnace.	If firing with inadequate vacuum, air bubbles remain in the interface between the metal frame and Opaque porcelain. Then the air bubbles expand while firing Body porcelain.
Opaque layer is raised	Porcelain was not built up soon after pretreatment of the metal frame	Apply and fire Opaque porcelain immediately after metal surface treatment.	Build up porcelain immediately after the metal treatment to avoid weakened bonding strength.
	Inadequate setting of the firing schedules	Check the drying temperature and time.	If the drying temperature is too high and the drying time is too long, fusing tends to start with the incisal area, resulting in lifting.
Cracks on the surface	Opaque layer is not uniform or is too thick	Build up uniformly	If the thickness of opaque layer is not uniform, cracks occur on the surface of opaque.
	Drying time is too short	Lengthen the drying time	
Uneven shade after firing	The paste incorporates water	When adjusting the viscosity, dilute with VINTAGE PRO Paste Opaque Liquid or VINTAGE PRO Powder Opaque Liquid. In the case of applying Opaque porcelain with a brush, thoroughly remove excess water in advance from the brush.	
Luster on the surface after firing	Drying temperature is too high	Lower the drying temperature.	
Yellow discolouration	Affected by the components of the alloy	Check the metal composition	If the alloy contains silver, select the one whose silver containing rate is 30 % or lower.
Dark shade	Opaque layer is too thin	Thicken the opaque layer	

Layering Porcelains

Problem	Cause	Solution	Note
Occurrence of superficial microcracks after firing	Drying time is too long	Shorten the drying time.	Pasty thick material might develop small cracks when dried. Those small cracks remain after firing which results in superficial microcracks.
Explosive crack occurred after firing	Drying time is too short	Lengthen the drying time.	Porcelain is rapidly heated in the furnace. If excess liquid remains due to insufficient drying, the liquid can be boiled which causes explosion of the porcelain from the inside.
Firstly fired layer raised	Check the condense method	Reduce the frequency of condensation.	If condensed too much, the porcelain becomes too dense which causes separation from the metal frame.
		Densely condense the cervical area and less densely the incisal area.	
	Build-up is not well balanced	Build-up on the labial aspect and lingual aspect in the same thickness.	If there is a large difference in the thickness of the porcelain between labial aspect and lingual aspect, porcelain might shrink toward the area on which porcelain is applied thicker.
Bonding failure after additional firing	Too much luster on the surface of the foundation porcelain	Grind the surface of the foundation porcelain to remove luster.	
Bubbles form	Opaque layer has bubbles	Before applying Body porcelain, check the opaque layer and fix the flaw.	If the opaque layer entraps bubbles, they expand when fired, leading to cause bubbles in Body porcelain.
	Firing temperature is too high	Lower the firing temperature.	
	Porcelain is contaminated	Remove the contaminants. Lengthen the drying time a little.	
Yellowish discolouration	Affected by the compo-nents of the alloy	Check the metal composition.	If the alloy contains silver, select the one whose silver containing rate is 30 % or lower.
Insufficient luster after glazing	Firing temperature is too low	Check the firing temperature.	
Porcelain presents dull shade	Porcelain powders are mixed with each other when built up	Avoid excessive vibration or condensation while building up. Fire Body and Enamel porcelains (translucent layers) separately.	
	Vacuum degree of the furnace is low or inappropriate	Check the vacuum of the furnace.	
	Inappropriate drying process	Check the drying process.	
Inability to obtain the desired shade	Opaque layer is too thin	Thicken the opaque layer.	

Photos courtesy of

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You will find further information on our website at www.shofu.de

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