

# VINTAGE

## VINTAGE MP Metal Bond Porcelain



### INSTRUCTIONS FOR USE





VINTAGE MP is an ultra-fine micro-ceramic developed according to the latest findings of the porcelain technology. With a recommended CTE range of  $13,6 \times 10^{-6} \text{K}^{-1}$  -  $15,2 \times 10^{-6} \text{K}^{-1}$ , all PFM alloys whether highly precious, semi-precious or non-precious can be veneered to an esthetically perfect finish within an economic timeframe.

Using a new production process, the VINTAGE MP (a special ceramic composition) was created. It demonstrates temperature-resistant color pigments in the crystal and glass phase even after several firings. The light transmission and appearance of natural teeth are easily and accurately reproduced.



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## 1 SAFETY INFORMATION

### 1-1 Notes

- 1 Use of eye-protective glasses is recommended for contouring work.
- 2 Use of dust extractor or mask is recommended for contouring work.
- 3 This product must only be used for the intended purpose.
- 4 This product must only be used by dental professionals.

### 1-2 Important Notes

- 1 If allergic reactions occur such as eruption or skin inflammation while using this product, discontinue use immediately and seek medical advice.
- 2 Avoid contact with soft tissues, skin or eyes. In case of eye contact, rinse immediately with copious amounts of water and seek medical advice.

## 2 FEATURES

### 2-1 Reproduction of life-like shades

- 1 Restorations with enhanced esthetics can be fabricated thanks to the wide range shade system such as Opal Translucent and / or Opal Enamel porcelain.
- 2 More life-like shades can be reproduced using newly designed Base Opaque and Shade Opaque pastes which can effectively mask the metal color even with a thin layer.
- 3 The fluorescence is similar to that of natural teeth – especially Cervical Trans and Margin Porcelain imparting strong fluorescence for creating the vital appearance even with thin layers at the cervical area.

### 2-2 Wide compatibility with a variety of PFM alloys

- 1 VINTAGE MP is compatible with a variety of PFM alloys with different coefficients of thermal expansion including non precious alloys, palladium alloys and highly precious alloys.
- 2 The recommended range of coefficient of thermal expansion is  $13,6 \times 10^{-6} \text{K}^{-1}$  -  $15,2 \times 10^{-6} \text{K}^{-1}$  (25-500°C).

### 2-3 Excellent handling

- 1 With the newly designed paste-type Opaque porcelains, Base Opaque and Shade Opaque, they can be applied more thinly and homogeneously yet effectively mask metal color. Furthermore, the drying time before firing is shortened saving time in the process.
2. The firing temperature of Correction porcelains is 150°C lower than the Body and Enamel porcelains which minimize deformation of fired restoration after correction.
3. With only two layers, Opal and Body, a natural shade can be obtained.



### 3 SYSTEM COMPONENTS

#### 3-1 System and Shades

SYSTEM	SHADES
Base Opaque (1 shade)	BASE
Shade Opaque (28 shades)	A1O, A2O, A3O, A3.5O, A4O, root AO, B1O, B2O, B3O, B4O, C1O, C2O, C3O, C4O, D2O, D3O, D4O, W0O, W1O, W2O, W3O, OM-G, OM-O, OM-Br, OM-Y, OM-BG, OM-LP, OM-DP
Cervical (4 shades)	AC, BC, CC, DC
Margin (20 shades)	W0M, NM, A1M, A2M, A3M, A3.5M, A4M, rootAM, B2M, B4M, C2M, C4M, D3M, CLM, LPM, DPM, OrM, BrM, MLM, MDM
Body (21 shades)	A1B, A2B, A3B, A3.5B, A4B, rootAB, B1B, B2B, B3B, B4B, C1B, C2B, C3B, C4B, D2B, D3B, D4B, W0B, W1B, W2B, W3B
Opaque Dentin (13 shades)	OD-A1, OD-A2, OD-A3, OD-A3.5, OD-A4, OD-rootA, OD-B2, OD-B4, OD-C2, OD-C4, OD-D3, OD-W0, OD-N
Opal (6 shades)	OPAL 55, OPAL 56, OPAL 57, OPAL 58, OPAL 59, OPAL 60
Incisal (4 shades)	57, 58, 59, 60
Opal Effect (9 shades)	OPAL T, OPAL SL, OPAL MI, OPAL WB, OPAL WE, OPAL OC, OPAL AM-R, OPAL AM-Y, OPAL AM-V
Enamel Effect (6 shades)	T, BT, PT, GT, OT, T-Glass
Cervical Trans (5 shades)	CT-A, CT-B, CT-R, CT-W, CT-CL
Color Effect (10 shades)	MP, MY, Mlv, RED, Y, O, G, W, Br, BI
Gum (4 shades)	Gum-LP, Gum-DP, Gum-V, Gum-Or
Correction (3 shades)	ADD-ON B, ADD-ON T, CPM FINE



### ① Base Opaque (1 shade)

Apply on the metal surface to enhance adhesion and masking ability of the opaque.  
Ideal viscosity can be obtained by mixing with VINTAGE MP Opaque Liquid.

### ② Shade Opaque (28 shades)

Consisting of 28 shades including 7 Effect shades, these porcelains can be applied on the fired Base Opaque. They can be mixed with each other to obtain the ideal shade and their viscosity can be easily adjusted with VINTAGE MP Opaque Liquid.

- **OM-G (Opaque Modifier Grey)** Greyish porcelain
- **OM-O (Opaque Modifier Orange)** Orangish porcelain
- **OM-Br (Opaque Modifier Brown)** Brownish porcelain
- **OM-Y (Opaque Modifier Yellow)** Yellowish porcelain
- **OM-BG (Opaque Modifier Blue Grey)** Greyish-blue porcelain
- **OM-LP (Opaque Modifier Light Pink)** Light pinkish porcelain
- **OM-DP (Opaque Modifier Dark Pink)** Dark pinkish porcelain

### ③ Cervical (4 shades)

Basic cervical shades for reproducing cervical areas. Mix with Body porcelain for a more intensive shade reproduction especially with dark shades such as A4 or B4 which are more effective.

### ④ Margin (20 shades)

Used for reproducing porcelain margin including 7 Effect shades. Having stronger fluorescence than Body porcelains, highly esthetic results can be obtained in the cervical area. Margin effect shades can be mixed with other Margin porcelains for the desired shade. In addition, VINTAGE Margin Hardening Liquid has the ability to harden the porcelain when dried which makes it easier to remove the built-up frame from the abutment tooth.

- **WOM** Bright white shade for bleaching cases; mix with other Margin shades according to the shade table
- **NM** Diluent color porcelain for mixing with basic Margin porcelain shades
- **CLM (Clear Margin)** Transparent shade
- **LPM (Light Pink Margin)** Intensive light pinkish shade
- **DPM (Dark Pink Margin)** Intensive dark pinkish shade
- **OrM (Orange Margin)** Intensive orangish shade
- **BrM (Brown Margin)** Intensive brownish shade
- **MLM (Masking Light Margin)** Opaque A2M shade used for adjustment of transparency
- **MDM (Masking Dark Margin)** Opaque A4M shade used for adjustment of transparency

### ⑤ Opaque Dentin (13 shades)

These porcelains have the same shade as Body porcelains but are more opaque. They are used in lingual areas or for the gingival aspects of bridge pontics where only limited space is available for the porcelain. In cases where Body porcelain need more opacity, mix with these porcelains.

- **OD-N** Diluent color porcelain for mixing with basic Opaque Dentin shades



➤ ⑥ **Body (21 shades)**

These porcelains are used to reproduce dentin shades.

➤ ⑦ **Opal (6 shades)**

Enamel shades with opalescence. Applying it in two layers together with Body porcelain enables the reproduction of life-like enamel shades.

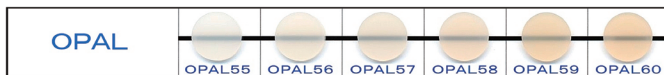


Image of Opal porcelains

OPAL 55 is designed as the brightest shade. As the shade number advances, the shade becomes more translucent with amber-colored tone.

➤ ⑧ **Incisal (4 shades)**

Enamel shades without opalescence.

Applying it in three layers together with Body and Translucent porcelains enables the reproduction of life-like enamel shades for restorations that have a palatal metal part up to the incisal edge or occlusal areas. Incisal is the second of the three layers.

➤ ⑨ **Opal Effect (9 shades)**

Enamel effect shades with opalescence. It is mainly applied on the Body porcelain or used equally with Opal Enamel.

- **OPAL T (Translucent)** Slightly translucent shade
- **OPAL SL (Superluculent)** Slightly bluish porcelain with higher opalescent translucency
- **OPAL MI (Milky)** Milky shade porcelain for use in molar cusps or whitish areas
- **OPAL WB (White Band)** More translucent than OPAL MI for use in marginal ridges and proximal areas
- **OPAL WE (White Enamel)** More translucent than OPAL WB for use in marginal ridges and interproximal areas
- **OPAL OC (Occlusal)** More translucent than OPAL WE for use in occlusal areas of molars
- **OPAL AM-R (Amber Red)** A slightly reddish amber porcelain for reproducing enamel shades
- **OPAL AM-Y (Amber Yellow)** A slightly yellowish amber porcelain for reproducing enamel shades
- **OPAL AM-V (Amber Violet)** A slightly violet amber porcelain for reproducing enamel shades

### 10 Enamel Effect (6 shades)

Translucent enamel effect porcelain without opalescence.

- **T (Translucent)** Highly translucent porcelain for use in the surface layer of the three-layering
- **BT (Blue Translucent)** Bluish translucent porcelain
- **PT (Pink Translucent)** Pinkish translucent porcelain
- **GT (Grey Translucent)** Greyish translucent porcelain
- **OT (Orange Translucent)** Orangish translucent porcelain
- **T-Glass** Most translucent porcelain

### 11 Cervical Trans (5 shades)

These translucent cervical porcelains have a slightly lower firing temperature than Body or conventional cervical powders. They reproduce deeper translucent shades in cervical areas and create smooth surfaces for excellent tissue compatibility. They are highly fluorescent.

- **CT-A** Orangish translucent porcelain for use with A shade groups mixed with CT-CL
- **CT-B** Yellowish translucent porcelain for use with B shade groups mixed with CT-CL
- **CT-R** Reddish translucent porcelain for use with R shade groups mixed with CT-CL
- **CT-W (White)** A slightly translucent porcelain, used for making cervical area lighter shade
- **CT-CL (Clear)** Translucent porcelain

### 12 Color Effect (10 shades)

These Effect porcelains can be used with or without Body porcelain, as required.

- **MP (Mamelon Pink)** Pinkish porcelain for reproducing mamelons in the incisal areas of younger patients' teeth
- **Mlv (Mamelon Ivory)** Ivory porcelain for reproducing mamelons in the incisal areas of middle-aged patients' teeth
- **MY (Mamelon Yellow)** Yellowish porcelain for reproducing mamelons in the incisal areas of elderly patients' teeth
- **RED (Red)** Intensive pinkish shade
- **Y (Yellow)** Intensive yellowish shade
- **O (Orange)** Intensive orangish shade
- **G (Grey)** Intensive greyish shade
- **W (White)** Intensive whitish shade
- **Br (Brown)** Intensive brownish shade
- **Bl (Blue)** Intensive bluish shade

### 13 Gum (4 shades)

These pink shaded porcelains are to reproduce Gum shades. Due to the lower firing temperature than Body porcelains, they can be used after firing the regular porcelains so that deformations by firing are minimized.

- **Gum-LP (Gum Light Pink)** Lighter pinkish gum shade
- **Gum-DP (Gum Dark Pink)** Darker pinkish gum shade
- **Gum-V (Gum Violet)** Violet gum shade
- **Gum-Or (Gum Orange)** Orange-pinkish gum shade



➤ **14 Correction (3 shades)**

Can be used in small amounts for correcting after contouring or self-glazing.

Firing temperature of this porcelain is 150°C lower than Body porcelain, which minimizes deformation after firing.

- **ADD-ON B** Shade A3B Body correction porcelain
- **ADD-ON T** Translucent porcelain for correcting enamel areas
- **CPM FINE** Finer particle porcelain than ADD-ON B. Used for adjusting of marginal fit after self-glazing

➤ **15 VINTAGE MP Opaque Liquid**

Opaque liquid for adjusting the viscosity of VINTAGE MP Opaque pastes.

➤ **16 VINTAGE Mixing Liquid**

Mixing liquid for VINTAGE MP porcelains (except VINTAGE MP Opaque paste), used for enhance handling properties for easy build-up.

➤ **17 VINTAGE Mixing Liquid-HC**

This liquid is used to present ideal handling of porcelains either by using singularly or mixed with distilled water or VINTAGE Mixing Liquid.

➤ **18 VINTAGE Margin Hardening Liquid**

Mixing liquid for Margin porcelains. When dried with a dryer, this liquid hardens the Margin porcelains making it easy to remove the frame from the abutment tooth.

➤ **19 VINTAGE Margin Porcelain Isolation Liquid**

Applied to the plaster model to allow the separation from the porcelain.

➤ **20 VINTAGE CPM Modelling Liquid**

Mixing liquid for Correction and Margin porcelains.





### 3-3 Package (Set composition)

#### VINTAGE MP Standard Set

- **Base Opaque (1 shade, 5g)**      BASE
- **Shade Opaque (8 shades, 5g)**    A1O, A2O, A3O, A3.5O, A4O, B2O, B3O, C2O
- **Cervical (3 shades, 15g)**        AC, BC, CC
- **Body (8 shades, 15g)**            A1B, A2B, A3B, A3.5B, A4B, B2B, B3B, C2B
- **Opaque Dentin (8 shades, 15g)**   OD-A1, OD-A2, OD-A3, OD-A3.5, OD-A4, OD-B2, OD-B4, OD-C2
- **Opal (4 shades, 15g)**            OPAL 57, OPAL 58, OPAL 59, OPAL 60
- **Opal Effect (1 shade, 15g)**      OPAL T
- **Correction (2 shades, 15g)**      ADD-ON T, ADD-ON B
- **VINTAGE MP Opaque Liquid**      3ml / 1 bottle
- **VINTAGE Mixing Liquid**        30ml / 1 bottle



#### Whitening Set

- **Base Opaque (1 shade, 5g)**      BASE
- **Shade Opaque (4 shades, 5g)**    W0O, W1O, W2O, W3O
- **Body (4 shades, 15g)**            W0B, W1B, W2B, W3B
- **Opaque Dentin (2 shades, 15g)**   OD-N, OD-W0
- **Opal (3 shades, 15g)**            OPAL 55, OPAL 56, OPAL 57
- **Opal Effect (1 shade, 15g)**      OPAL T
- **VINTAGE MP Opaque Liquid**      3ml / 1 bottle



#### Enamel Effect Set

- **Opal Effect (9 shades, 15g)**      OPAL T, OPAL SL,  
OPAL WE, OPAL MI,  
OPAL WB, OPAL OC,  
OPAL AM-R, OPAL AM-Y,  
OPAL AM-V
- **Enamel Effect (5 shades, 15g)**    BT, OT, PT, GT, T-GLASS
- **Cervical Trans (5 shades, 15g)**   CT-CL, CT-W, CT-A,  
CT-B, CT-R



## Color Effect Set

- **Color Effect (10 shades, 15g)** W, O, Br, Y, Bl, G, MP, MY, Mlv, RED
- **Gum (4 shades, 15g)** Gum-LP, Gum-DP, Gum-V, Gum-Or



## Margin Porcelain Set

- **Margin (13 shades, 15g)** W0M, A1M, A2M, A3M, A3.5M, A4M, rootAM, B2M, B4M, C2M, C4M, D3M, NM
- **Margin Effect (7 shades, 15g)** CLM, LPM, DPM, MLM, MDM, OrM, BrM
- **Correction (2 shades, 15g)** ADD-ON B, CPM FINE
- **VINTAGE CPM Modelling Liquid** 3ml / 1 bottle
- **VINTAGE Margin Hardening Liquid** 50ml / 1 bottle
- **VINTAGE Margin Porcelain Isolation Liquid** 7ml / 1 pen



## Starter Sets

### A2 Shade

- **Base Opaque (1 shade, 5g)** BASE
- **Shade Opaque (1 shade, 5g)** A2O
- **Cervical (1 shade, 15g)** AC
- **Body (1 shade, 15g)** A2B
- **Opaque Dentin (1 shade, 15g)** OD-A2
- **Opal (1 shade, 15g)** OPAL 58
- **Opal Effect (1 shade, 15g)** OPAL T
- **VINTAGE MP Opaque Liquid** 3ml / 1 bottle
- **VINTAGE Mixing Liquid** 20ml / 1 bottle



### A3 Shade

- **Base Opaque (1 shade, 5g)** BASE
- **Shade Opaque (1 shade, 5g)** A3O
- **Cervical (1 shade, 15g)** AC
- **Body (1 shade, 15g)** A3B
- **Opaque Dentin (1 shade, 15g)** OD-A3
- **Opal (1 shade, 15g)** OPAL 59
- **Opal Effect (1 shade, 15g)** OPAL T
- **VINTAGE MP Opaque Liquid** 3ml / 1 bottle
- **VINTAGE Mixing Liquid** 20ml / 1 bottle



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SYSTEM COMPONENTS

## Individual products

● <b>Base Opaque</b>	1 shade, 5g
● <b>Shade Opaque</b>	21 shades, 15g
● <b>Opaque Effect</b>	7 shades, 15g
● <b>Cervical</b>	4 shades, 15g, 50g
● <b>Margin</b>	20 shades, 15g
● <b>Body</b>	21 shades, 15g, 50g *
● <b>Opaque Dentin</b>	13 shades, 15g, 50g
● <b>Incisal</b>	4 shades, 15g, 50g *
● <b>Opal</b>	6 shades, 15g, 50g *
● <b>Opal Effect</b>	9 shades, 15g, 50g *
● <b>Enamel Effect</b>	6 shades, 15g, 50g *
● <b>Color Effect</b>	10 shades, 15g
● <b>Cervical Trans</b>	5 shades, 15g
● <b>Gum</b>	4 shades, 15g
● <b>Correction</b>	3 shades, 15g
● <b>VINTAGE MP Opaque Liquid</b>	3ml
● <b>VINTAGE Mixing Liquid</b>	50ml, 500ml
● <b>VINTAGE Mixing Liquid-HC</b>	50ml, 500ml
● <b>VINTAGE Margin Hardening Liquid</b>	50ml
● <b>VINTAGE CPM Modelling Liquid</b>	3ml
● <b>VINTAGE Margin Porcelain Isolation Liquid</b>	7ml

\* 200g packages are available in certain shades.

## Related products

- **VINTAGE Art**
- **Ceramosonic S**
- **VINTAGE Shade Guide**
- **VINTAGE Gummy**
- **SHOFU Porcelain Brushes**



## 4 APPLICATION

### 4-1 VINTAGE MP Shade Charts

Table 1 – Basic Shades

Shade	A1	A2	A3	A3.5	A4	rootA
Base Opaque	BASE					
Shade Opaque	A1O	A2O	A3O	A3.5O	A4O	rootAO
Cervical	–	–	A3B:2 AC:1	A3.5B:1 AC:1	A4B:1 AC:1	AC
Body	A1B	A2B	A3B	A3.5B	A4B	rootAB
Opal	OPAL57	OPAL58	OPAL59	OPAL59:1 OPAL60:1	OPAL60	OPAL60
Incisal	58	58	59	59	60	60
Translucent	T					

Shade	B1	B2	B3	B4
Base Opaque	BASE			
Shade Opaque	B1O	B2O	B3O	B4O
Cervical	–	–	B3B : 1 BC : 1	BC
Body	B1B	B2B	B3B	B4B
Opal	OPAL57	OPAL58	OPAL59	OPAL60
Incisal	57	58	59	60
Translucent	T			

Shade	C1	C2	C3	C4
Base Opaque	BASE			
Shade Opaque	C1O	C2O	C3O	C4O
Cervical	–	C2B : 2 CC : 1	C3B : 1 CC : 1	CC
Body	C1B	C2B	C3B	C4B
Opal	OPAL58	OPAL58	OPAL59	OPAL60
Incisal	58	58	59	60
Translucent	T			

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Shade	D2	D3	D4
Base Opaque	BASE		
Shade Opaque	D <sub>2</sub> O	D <sub>3</sub> O	D <sub>4</sub> O
Cervical	D <sub>2</sub> B : 1 DC : 1	D <sub>3</sub> B : 1 DC : 1	DC : 2 BC : 1
Body	D <sub>2</sub> B	D <sub>3</sub> B	D <sub>4</sub> B
Opal	OPAL58	OPAL59	OPAL60
Incisal	59	60	59
Translucent	T		

Table 2 – Whitening Shades

Shade	W0	W1	W2	W3
Base Opaque	BASE			
Shade Opaque	W <sub>0</sub> O	W <sub>1</sub> O	W <sub>2</sub> O	W <sub>3</sub> O
Cervical	–	–	–	–
Body	W <sub>0</sub> B	W <sub>1</sub> B	W <sub>2</sub> B	W <sub>3</sub> B
Opal	OPAL55	OPAL56	OPAL56 : 2 OPAL57 : 1	OPAL56 : 1 OPAL57 : 2

Table 3 – Opaque Dentin

	0	1	2	3	3.5	4	root
A	–	OD-A <sub>1</sub>	OD-A <sub>2</sub>	OD-A <sub>3</sub>	OD-A <sub>3.5</sub>	OD-A <sub>4</sub>	OD-rootA
B	–	OD-N : 1 OD-B <sub>2</sub> : 1	OD-B <sub>2</sub>	OD-B <sub>2</sub> : 1 OD-B <sub>4</sub> : 1	–	OD-B <sub>4</sub>	–
C	–	OD-N : 1 OD-C <sub>2</sub> : 1	OD-C <sub>2</sub>	OD-C <sub>2</sub> : 1 OD-C <sub>4</sub> : 1	–	OD-C <sub>4</sub>	–
D	–	–	OD-N : 1 OD-D <sub>3</sub> : 1	OD-D <sub>3</sub>	–	OD-D <sub>3</sub> : 1 OD-B <sub>4</sub> : 1	–
W	OD-W <sub>0</sub>	OD-W <sub>0</sub> : 2 OD-N : 1	OD-W : 1 OD-N : 2	OD-N	–	–	–

Table 4 – Margin Porcelain

	0	1	2	3	3.5	4	root
A	–	A <sub>1</sub> M	A <sub>2</sub> M	A <sub>3</sub> M	A <sub>3.5</sub> M	A <sub>4</sub> M	rootAM
B	–	NM : 1 B <sub>2</sub> M : 1	B <sub>2</sub> M	B <sub>2</sub> M : 1 B <sub>4</sub> M : 1	–	B <sub>4</sub> M	–
C	–	NM : 1 C <sub>2</sub> M : 1	C <sub>2</sub> M	C <sub>2</sub> M : 1 C <sub>4</sub> M : 1	–	C <sub>4</sub> M	–
D	–	–	NM : 1 D <sub>3</sub> M : 1	D <sub>3</sub> M	–	D <sub>3</sub> M : 1 B <sub>4</sub> M : 1	–
W	W <sub>0</sub> M	W <sub>0</sub> M : 2 NM : 1	W <sub>0</sub> M : 1 NM : 2	NM	–	–	–



## 4-2 Preparations before use

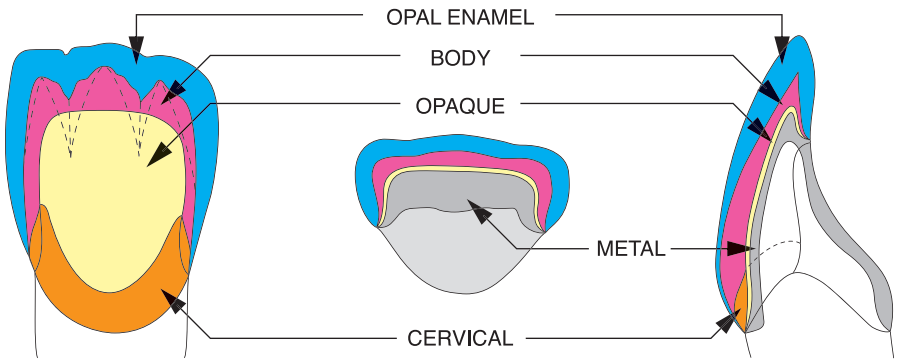
### Pretreatment of the metal framework

Pretreatment of the metal framework strongly affects the bonding strength between porcelain and metal.

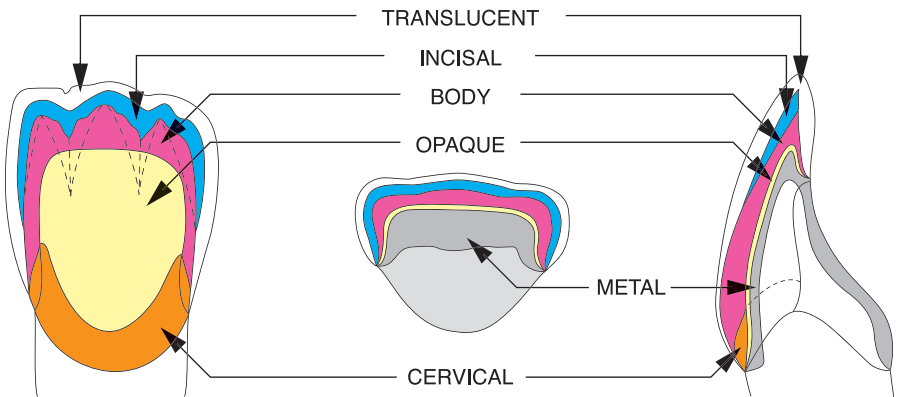
Follow the metal manufacturer's instructions for the metal pretreatment, oxidation and cleaning.

## 4-3 Application

Layering diagram using Opal Incisal (2-layer technique)



Layering diagram using Incisal (3-layer technique)



## Opaque application

### 1 Application of Base Opaque

Mix the Base Opaque sufficiently well with a plastic spatula before use. Dispense an adequate amount on a glass mixing pad. Apply a thin layer with a flat brush etc. to wash the metal surface and fire.

Gentle condensing with the Ceramosonic condenser will improve the adhesion to the framework.



Mixing of paste



Application of Base Opaque

#### Note

If the metal color could not be masked after first firing, it should be adjusted with the following application of Shade Opaque.

### 2 Application of Shade Opaque

Mix the Paste Opaque sufficiently well with a plastic spatula before use. Dispense an adequate amount on a glass mixing pad. Apply the Paste Opaque with a flat brush etc. to mask the framework and fire.



Mixing of paste



Application of Shade Opaque

#### Note

1. Clean the spatula or brush to be used for dispensing and thoroughly remove any excess water. Dispense adequate amount of the paste and mixing liquid. Do not return any excessively dispensed paste and liquid into the jar.
2. Sufficiently mix the paste with a clean spatula and dispense on a glass mixing pad. Tightly close the cap immediately after dispensing.
3. Use VINTAGE MP Opaque Liquid for adjusting the paste viscosity. Do not mix with water or other mixing liquids.
4. Sufficiently dry the liquid components of Paste Opaque before firing.

#### Hint

#### Adjustment of the foundation shade

Adjust the foundation shade of the Opaques by using VINTAGE Art (stain) after firing. Use Shade Stain (AS, BS, CS, DS, RS) etc. for cervical area, and BI (Blue), G (Grey) or BI-G (Blue Grey) for incisal area.



Adjustment of foundation shade

### 3 Application of Cervical porcelain

To smooth out the shades in the cervical region, mix the Cervical porcelain with the prescribed mixing ratio and build up in a crescent shape. The thickness is dependent on the desired effect and space.



Application of Cervical porcelain

## 4 Application of Body and Enamel porcelains

### ① Application of Body porcelain

The first Body build-up should be done to the final anatomical shape of the tooth. After condensation, the exact dimension of the body can be targeted by cutting back.



Application of Body porcelain

### ② Cut-back of the labial aspect of the Body porcelain

- Cut-back the labial aspect of the Body porcelain to ensure the space for Enamel porcelain.
- Cut-back to 1/3 point from incisal top followed by cutting-back up to 2/3 point from incisal top.
- Cut-back the interproximal area up to lingual aspect to ensure the space for Enamel porcelain.
- Add mamelon (finger-like) structure on the cut-back labial aspect of the Body porcelain and adjust the surface in consideration of the twist of the tooth etc.

#### Hint

Cut-back should be performed in consideration of the structure of natural dentition which consists of three areas, incisal area, central area and cervical area.

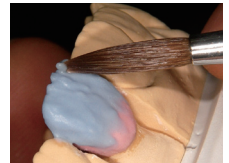


Cut-back of Body porcelain

Mamelon structure

### ③ Build-up of Enamel Porcelain (With Opal porcelain)

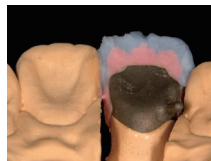
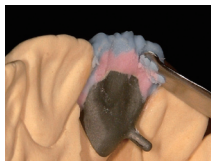
- **Application of Opal porcelain on the labial aspect:**  
Apply Opal porcelain on the Body porcelain. Note that Opal porcelain must be overdimensioned to compensate for firing shrinkage.



Application of Enamel porcelain

- **Application of Opal porcelain on the lingual aspect:**

Cut-back the lingual incisal edge to confirm the shape of the body. Build up the reduced lingual incisal edge with Opal porcelain.



Cut-back of lingual side

Application of Enamel porcelain



- **Application of Enamel porcelain on the interproximal area:**  
Remove the frame from the model to build up Enamel porcelain on the interproximal area and condense.



Application of proximal areas

**Hint**

**1. Wrap around effect**

Coat the labial, lingual, incisal and interproximal surfaces with Opal porcelain. Coating the entire surface with Opal porcelain creates depth and translucency of the shade.



Cross-section of each layer

**2. Condense**

Use Ceramosonic condenser for more effective condensation and shrinkage control.

**5 Firing**

After completing build-up, adjust the shape and remove the excessive porcelain from the cervical area with a dry brush. Remove the remaining porcelain from inside the frame and fire.



After firing

**6 Contouring**

Contour following the conventional method:

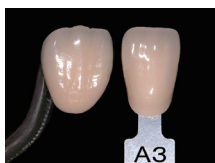
After firing, contour the restoration with SHOFU Dura-Green Stones and/or Diamond Points and/or Polishers from the CeraMaster Finishing & Polishing Kit.



Contouring

**7 Finish**

After contouring, clean the restoration with ultrasonic or steam cleaning. If required, the entire restoration can be individualized or shade adjusted with VINTAGE Art (stain), glaze and fire.



Confirmation of the shade and staining

Finished Crown

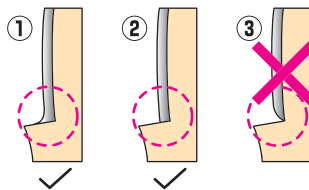


## 5 TECHNICAL ADVICE FOR VARIOUS PORCELAINS

### 5-1 Margin Porcelain

#### Design of the metal frame

If an all-ceramic shoulder is required, remove the metal on the labial aspect of the cervical area to achieve an adequate space for the porcelain shoulder of 0.5-0.7 mm. The strength of the PFM restoration largely depends on the metal frame.



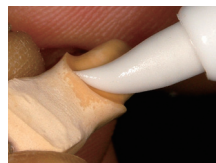
Design of the metal frame

#### Application of Margin Porcelain Isolation Liquid

Apply one layer of Margin Porcelain Isolation Liquid to the marginal area of the plaster die.

#### Note

Apply one layer of Margin Porcelain Isolation Liquid to the marginal area of the working model and remove excess liquid by air. If Margin Porcelain Isolation Liquid is applied excessively, the inside of the restoration may become black after firing.

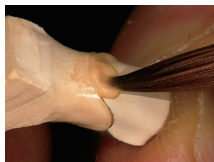


Application of Margin Porcelain Isolation Liquid

#### First build-up

Place the opaqued frame on the isolated plaster die, apply Margin Porcelain, mix with VINTAGE Margin Hardening Liquid and condense.

After contouring, dry it with a hair dryer, remove the crown from the working model and fire.



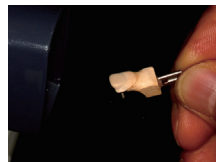
Application



Condensation



Adjustment by brush



Drying by hot air

#### Second build-up

After firing, apply additional Margin porcelain where necessary and condense it. Remove the crown from the working model and fire. If necessary, please repeat this procedure to fix the margin area.



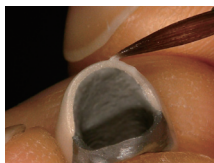
Second application

#### CPM FINE

CPM FINE is used after self-glazing.

After self-glazing, build up the marginal area with CPM FINE. Remove excess porcelain by gently pressing the crown to the isolated plaster die. After confirming the fitting, remove the excess porcelain with a brush and dry with a hair dryer. Remove the crown and fire.

After firing, polish the marginal area with a SHOFU Ceramiste or CeraMaster and finish with Dura-Polish Dia.



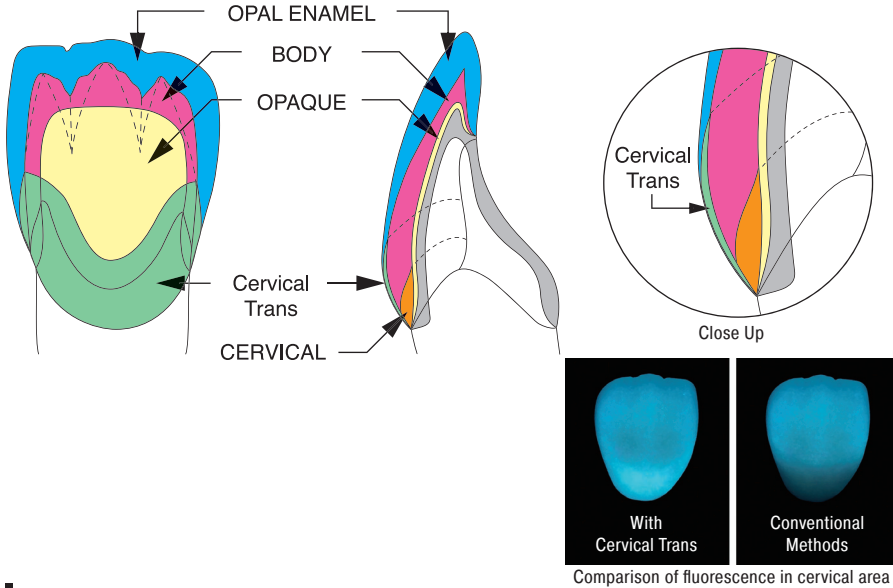
Application of CPM FINE



Push out the excess porcelain

## 5-2 Cervical Trans

Cervical Trans is used for cervical surface application in consideration of the shade reproduction of cervical area and tissue compatibility. It is designed to have lower firing temperature than Enamel porcelain to produce smooth surfaces after self-glazing. Also, its fluorescence is designed to be higher than Enamel porcelain and sufficient fluorescence can be obtained even with a thin layer.



## 5-3 Correction

- ① **If the build-up is found to be deficient after contouring**  
Contour and clean the surface with steam or ultrasonic cleaner and apply Correction porcelain on the insufficient area. Fire in air to self-glaze.
- ② **If the build-up is found to be deficient after self-glazing**  
Apply Correction porcelain a little excessively and fire in air.  
After firing, contour the built-up area and polish with SHOFU Ceramiste or CeraMaster followed by Dura-Polish Dia.

**Note** ➤ If much addition is required, build up Body and Enamel porcelains and fire.

## 5-4 Gum

Build up the individual Gum porcelain on the remaining opaqued framework and fire. The firing temperature of Gum porcelains is 20°C lower compared to the Body porcelains to minimize deformation of the remaining fired porcelain restoration.

## 6 TECHNICAL SPECIFICATIONS

### 6-1 Physical Properties

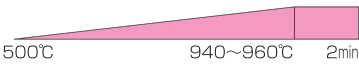
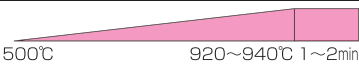
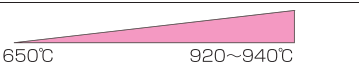
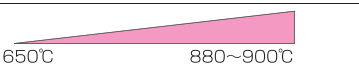

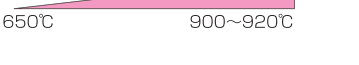
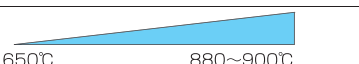
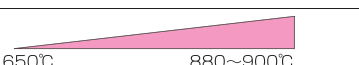
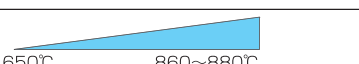
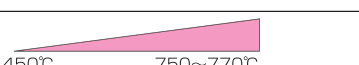
#### 1 Coefficient of thermal expansion and Glass transition point

		Coefficient of thermal expansion (25-500 °C)	Glass transition point (°C)
Base Opaque	2. Firing	11.5 x 10 <sup>-6</sup> K <sup>-1</sup>	598
	4. Firing		
Shade Opaque	2. Firing	12.4 x 10 <sup>-6</sup> K <sup>-1</sup>	594
	4. Firing		
Margin	2. Firing	13.0 x 10 <sup>-6</sup> K <sup>-1</sup>	594
	4. Firing		
Body	2. Firing	12.3 x 10 <sup>-6</sup> K <sup>-1</sup>	557
	4. Firing		
Cervical Trans	2. Firing	12.9 x 10 <sup>-6</sup> K <sup>-1</sup>	548
	4. Firing		
Correction	2. Firing	11.7 x 10 <sup>-6</sup> K <sup>-1</sup>	528
	4. Firing		

#### 2 Solubility Test (ISO specification below 100 µg/cm<sup>2</sup>)

	Solubility amount (µg/cm <sup>2</sup> )
Body, Enamel	31.7

## 6-2 Firing schedule

	Drying & Preheating Furnace entrance (min.)	Temperature rising speed (°C /min.)	Firing Schedule
Base Opaque	5~7	50~60	 500°C 940~960°C 2min
Shade Opaque	5~7	50~60	 500°C 920~940°C 1~2min
Margin	5~7	50~60	 650°C 920~940°C
Cervical	5~7	50~60	 650°C 880~900°C
Opaque Dentin, Body, Opal, Opal Effect, Enamel Effect, Incisal, Cervical Trans	5~7	50~60	 650°C 900~920°C
Self-glaze	5~7	50~60	 650°C 880~900°C
Gum (First)	5~7	50~60	 650°C 880~900°C
Gum-glaze	5~7	50~60	 650°C 860~880°C
Correction (First)	5~7	50~60	 450°C 750~770°C
Correction-glaze	5~7	50~60	 450°C 750~770°C

 Vacuum firing

 Air firing

### Note

- Please consider this information only as providing values. If surface, transparency and the degree of gloss does not correspond to the firing results which are achieved under optimal conditions, the firing procedure must be adjusted accordingly. The firing conditions may vary due to the different designs and operating voltages of the porcelain furnaces. It is essential to carry out test firings before using the porcelain for actual restoration.
- In the case where Opaque porcelain is applied generously, set longer drying time at furnace entrance and preheating time in order to burn the liquid components thoroughly.



## 7 TROUBLESHOOTING

### 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 can not 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 MP Opaque Liquid. In the case of applying Opaque porcelain with a brush, thoroughly remove excess water in advance from the brush.	VINTAGE MP 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 MP Opaque Liquid incorporates 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.	<ul style="list-style-type: none"> <li>Firing temperature varies depending on the furnace to be used. Visually check the firing conditions of the furnace before actual firing.</li> <li>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.</li> </ul>
	Re-use 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 shrinkage.
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 paste viscosity, dilute with VINTAGE MP 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 discoloration	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	

## Body, Enamel und Translucent

Problem	Cause	Solution	Note
Occurrence of superficial micro-cracks 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 micro-cracks.
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. Densely condense the cervical area and less densely the incisal area.	If condensed too much, the porcelain becomes too dense which causes separation from the metal frame.  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.
	Build-up is not well balanced	Build up on the labial aspect and lingual aspect in the same thickness.	
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 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 drying time a little.	
Yellowish discoloration	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.
Insufficient luster after glazing	Firing temperature is too low	Check the firing temperature.	After polishing the prosthesis surface, thoroughly steam clean or ultrasonically clean.
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.	



CE 0044



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