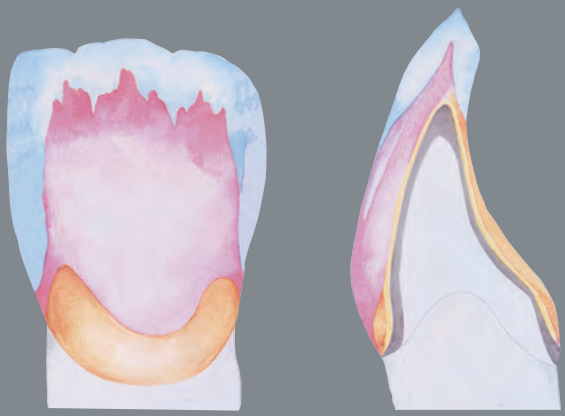
# VINTAGE Halo

Verarbeitungsanleitung
Instructions for Use
Mode d'emploi
Instruciones de uso
Istruzioni d'uso
Gebruiksaanwijzing
Bruksanvisning

SHOFU®

# Build-up System

- Opal Incisal
- Body
- Opaque Dentin
- Opaque
- Metal



# Color-Chart

| Shade | | A1 | A2 | A3 | A3.5 | A4 | root A |
|---|---|---|---|---|---|---|---|
| Opaque | | A1O | A2O | A3O | A3.5O | A4O | root AO |
| Opaque Dentin | | OD-A1 | OD-A2 | OD-A3 | OD-A3.5 | OD-A4 | OD-root A |
| Body | | A1 B | A2 B | A3 B | A3.5 B | A4 B | root A B |
| Opal Incisal or Standard Incisal | 57 | ❍ | | | | | |
| | 58 | ■ | ❍ ■ | | | | |
| | 59 | | | ❍ ■ | ❍ ■ | | |
| | 60 | | | | | ❍ ■ | ❍ ■ |
| Translucent | T | ■ | ■ | ■ | ■ | ■ | ■ |

❍ Opal Incisal

■ Standard Incisal

| B1 | B2 | B3 | B4 | root B |
|---|---|---|---|---|
| B1 O | B2 O | B3 O | B4 O | root B O |
| OD-B1 | OD-B2 | OD-B3 | OD-B4 | OD-root B |
| B1 B | B2 B | B3 B | B4 b | root B B |
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| | | ❍ ■ | | |
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| ■ | ■ | ■ | ■ | ■ |

| C1 | C2 | C3 | C4 | rootC | D2 | D3 | D4 |
|---|---|---|---|---|---|---|---|
| C1 O | C2 O | C3 O | C4 O | root C O | D2 O | D3 O | D4 O |
| OD-C1 | OD-C2 | OD-C3 | OD-C4 | OD-root C | OD-D2 | OD-D3 | OD-D4 |
| C1 B | C2 B | C3 B | C4 B | root C B | D2 B | D3 B | D4 B |
| | | | | | | | |
| ❍ ■ | ❍ ■ | | | | ❍ | | |
| | | ❍ ■ | | | ■ | ❍ | ❍ ■ |
| | | | ❍ ■ | ❍ ■ | | ■ | |
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# Basic

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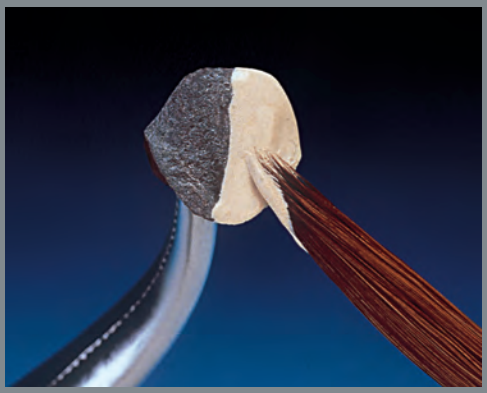

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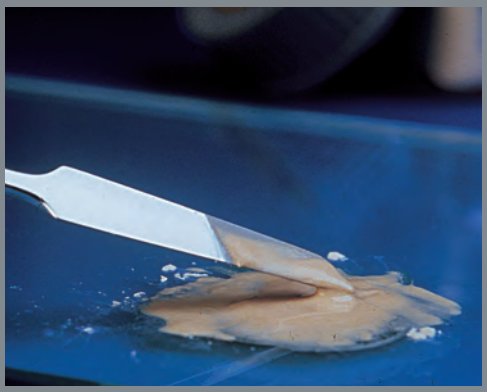

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# Individual

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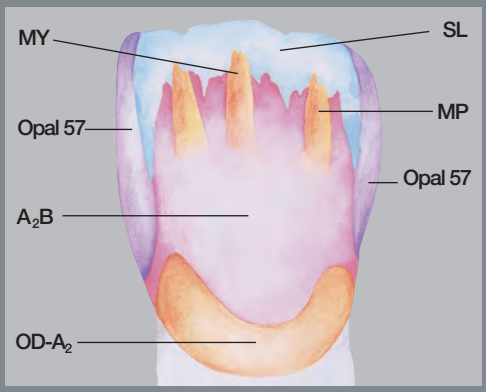


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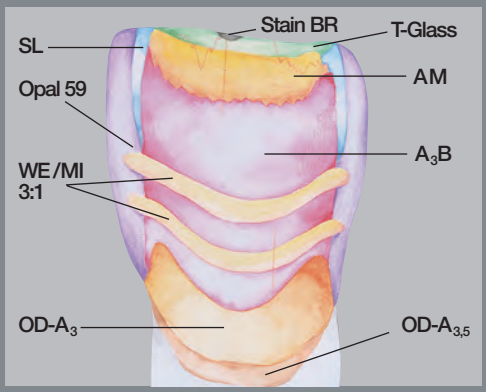


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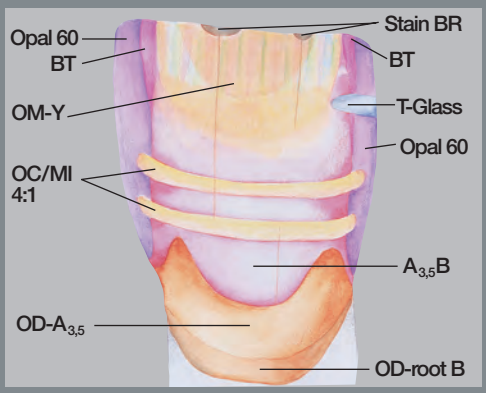


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# Firing Schedule for VINTAGE Halo Porcelain System

| | Pre-heating (°C) | Drying (min) → | Vacuum | Incr. temperature (°C/min) ↗ | Vacuum final temperature | Final temperature | Holding time (min) → |
|---|---|---|---|---|---|---|---|
| Firing of powder opaque I | 650 | 3 | full | 60 | 950 | 950 | 1 |
| Firing of powder opaque II | 650 | 3 | full | 60 | 940 | 940 | 1 |
| Firing of paste opaque I | 450 | 6 | full | 60 | 950 | 950 | 1 |
| Firing of paste opaque II | 450 | 6 | full | 60 | 940 | 940 | 1 |
| Firing of body, opaque dentin, incisal and translucent, 1. firing | 650 | 5 | full | 60 | 910 | 910 | 0 |
| Firing of body, opaque dentin, incisal and translucent, 2. firing | 650 | 5 | full | 60 | 905 | 905 | 0 |
| Self-glazing | 650 | 3-5 | 0 | 60 | 0 | 900 | 0,5 |
| Firing of correction (Add-On Porcelain) | 650 | 3-5 | full | 60 | 870 | 870 | 0 |
| Firing of gingiva VINTAGE Porcelain (pink, dark pink) | 650 | 3-5 | full | 60 | 870 | 870 | 0 |

The above-mentioned is to be understood as a recommended guideline.

# VINTAGE Halo

Instructions for Use

SHOFU®

# VINTAGE Halo

***A New Porcelain Concept***

Vintage Halo is a an advanced porcelain system, based on the successful SHOFU VINTAGE system. HALO has been developed over several years with the cooperation of MAKOTO YAMAMOTO, and also an extensive research programme studying several thousand natural teeth with the aid of computer controlled colour analysis. This research has led to a greater understanding of both shade matching and the three dimensional reproduction of natural teeth.
The HALO system has the advantage of using a basic layering technique of Opaque-Dentine, Body and Opal Incisal to give an extraordinary aesthetic result to finished restorations.
The extent to which HALO can be individually characterised is limitless, as the system contains Effect colours, Value Plus, Opal and Red Shift powders. These are all available as full kits or individual packs to fulfil all requirements.
The HALO system also has several other advantages including a significantly increased physical strength and the ability to use almost any bonding alloy including those which contain up to 50% silver without any colour change.
The new paste and powder opaques have a lower firing temperature of 940°C, which again means that the choice of alloy is unrestricted.
HALO Opal Incisal and Effect colours have been improved and show a significant increase in their opalescence, which does not diminish even after several firings.
To obtain the optimum in colour matching and aesthetics the HALO system contains newly developed colour guides and indicators.

## Metal Framework

The crown or bridge framework should be designed in such a way that they correspond to the tooth form which is to be replaced, making sure that there are no sharp angles or undercut areas. The recommended wall thickness for a single crown is **0.3** mm for precious alloy and **0.2** mm for non precious bonding alloy. It is also important to avoid making the porcelain metal junction in a contact point area as this may cause stresses at this junction. In order to achieve stability in a bridge framework cast in precious alloy, it is recommended that the connection between the above mentioned and the pontics are of metal.

## Surface Treatment of the metal framework

**(fig.1)** It is important that the metal framework is free of porosity and casting deficiencies. The metal is finished by firstly grinding all the surfaces with a tungsten carbide in order to obtain a clean smooth surface, secondly the surface is ground with a porcelain bonded abrasive e. g. Shofu Lab Series Stone in pink, white or coral depending on the type of alloy being used. The framework is steam cleaned, blasted and oxidised according the manufacturers recommendations. In most cases a single blasting with Aluminium oxide after the oxide firing assures an optimal bonding to the porcelain **(fig. 2)**.

## Paste Opaque / Powder Opaque

Conventional Powder Opaque and a new Paste Opaque are available within the VINTAGE HALO SYSTEM. HALO Paste Opaque is ready to use and requires no mixing, and if required it is possible to thin the paste with modelling liquid. A small amount of paste is put onto a glass slab or dry mixing pad **(fig. 3)** and a thin even layer is applied onto the dry framework with a Shofu Nylon Brush No. 5 **(fig. 4).** Fire according the firing table. The fired surface should have a silky mat sheen.

**Note: In order to guarantee the complete firing of the organic components within the paste opaque it is very important that the modified drying, preheating and firing times are followed.**

VINTAGE HALO opaque powder has been refined and when mixed with the specially developed modelling liquid gives a smooth and paste like consistency during application. Mix the powder opaque by adding the modelling liquid to the required consistency **(fig. 5)** and apply a wash layer to cover the framework **(fig. 6).** Fire according to the recommended firing table. A second layer of paste or powder opaque is applied to achieve the optimum coverage of the metal **(fig. 7+8).** Slight condensing with a Ceramosonic condenser can increase the bond strength to the alloy and give an even, homogeneous surface. Characterisation is often necessary in the cervical area, this can be achieved by using the modifiers within the system, with the corresponding opaque, to achieve the desired aesthetic result.

**Note: Care needs to be taken to use only paste opaque with paste modifiers, and powder opaque with powder modifiers. It is essential that pastes and powder**

**materials are not mixed together.**

**Build up / Basic Technique**

VINTAGE HALO was developed to achieve optimum aesthetics in the most efficient manner. All the components of the system are matched to each other so that even with a basic layering technique of Opaque-Dentine, Body and Opal Incisal the system will give an excellent result. The HALO System can be extended with supplementary powders e.g. Translucent, Effects, Value Plus and Red Shift which offer additional choices depending on the requirements of the technician.

**Opaque-Dentine**

Often the colour of the opaque appears too dominant and changes the shade of the finished restoration in the cervical and interdental areas or in areas of limited space. HALO OPAQUE-DENTINE exhibits reflection, brightness and a colour match identical to natural teeth, and should be used in the above areas to give a natural appearance. Opacious dentine is also recommended for use at the base of a bridge pontic, using a minimum thickness of 1 mm. Mix the powder with distilled water to a creamy consistency and apply a crescent shape on to the moistened opaqued framework **(fig. 9)**, condense the material (preferably with a Ceramosonic Condenser) and remove the excess water with a tissue.

**Body**

The body porcelain is mixed as described above. We recommend that the final anatomical form of the tooth is modelled in Body porcelain **(fig.10),** slightly condensed and cut back to the definitive body shape **(fig.11).** This is necessary to determine the correct placement of Opal Incisal and will ensure a natural result is achieved. The porcelain should not be allowed to completely dry out during this process.

**Incisal / Opal Incisal material**

The VINTAGE HALO basic system contains two different groups of Incisal powders, Incisal Standard and Incisal Opal. Incisal Standard is a non opal material with a greyish appearance which is often exhibited in old and worn teeth. When Incisal Standard is used, it is recommended that it is covered with a layer of translucent powder to create a natural result. Bluish or orange colours can only be achieved by using additional colour effect powders. If a restoration has a complete metal backing to the incisal edge, we recommend that Incisal Standard is used. For young to middle age patients where the enamel is thick and unworn, Opal Incisal powders should be used, as this will reproduce a natural light transmission in the incisal area. VINTAGE HALO Opal Incisal powder has a similar structure and particle distribution to natural enamel. This property enables the bluish translucency and diffused orange colours of natural enamel to be reproduced without the addition of colour effects. Thus vital and aesthetic restorations can be produced using a simple two layer technique ( Body & Incisal ). This phenomenon is maintained even after repeated firings. Apply the mixed Opal Incisal powder onto the cut back body porcelain **(fig.12)** and model to the final anatomical tooth shape. During firing the porcelain will shrink a small amount, and for this reason it is necessary to over build the porcelain by 1.0 -1.3 mm **(fig.13).**

**Cut back**

The cut back is an important working step and the final translucency achieved is influenced by the shape of the body porcelain **(fig. 14).** In areas of limited space Opaque-Dentine or Body and Opaque-Dentine can be used to achieve the desired results **(fig. 15)**.
The Opal Incisal layer is now completed and the approximal areas added. Again we recommend slight condensation and the removal of excess moisture which reduces firing shrinkage and optimises the brilliance of the porcelain. The crown or bridge is now fired in accordance to the firing table.

**After firing**

The fired restoration should have a slightly shiny appearance after firing. If it is necessary to add further porcelain this can be done without grinding the surface with abrasives. In most cases an addition with Opal Incisal is sufficient. Then fire according to the firing table.

**Trimming/Prepolishing**

When trimming or making shape adjustments we recommend the use of Silicon Carbide abrasives e.g. Dura Green stones or finishing diamonds. The abrasive and binder within Dura Green stones makes them particularly suitable and leaves the porcelain with a smooth even finish. Coarse diamond abrasives should be avoided as they often create micro facets in the porcelain surface which can only be removed with great difficulty.
VINTAGE HALO can be prepolished with Shofu Soft Cut porcelain polishers to create a light shine to the surface of the crown **(fig. 17).**
After trimming the restoration should be steam cleaned.

**Final Firing/Add-on**

Before the final firing moisten the surface with stain liquid and make the necessary characterisation with Shofu stains before glazing in accordance with the firing table. **Figure 18** shows the finished restoration after using the basic technique. It is also possible to make mass corrections after the final glaze firing with A3 Add-on and Translucent Add-on powders. Add-on has a firing temperature 30°C lower than Body and Incisal powders. The Add-on powder is mixed with distilled water and applied to the crown as needed and fired according the firing table with vacuum. After firing it is recommended to super polish the work with a Shofu Ceramiste Ultra polisher or diamond polishing paste and a felt wheel.

**Individual Opal Incisal**

The opaque and body powders within the system can be modified and enhanced using a choice of effect colours including the Effect set, Value Plus and Red shift. Please see separate instructions for Use of these materials. The VINTAGE HALO Opal Full set enables unrestricted characterisation and colouration of the enamel areas depending on the aesthetics result required. The HALO Opal set contains various

Translucent and enamel effects which can be used in the following ways:

**OPAL T**

is a slightly opalescent translucent material which is often used in the incisal area between Body and Opal Incisal to create a depth of shade.

**OPAL SUPERLUCENT**

is the most opalescent material available and has a bluish translucency. Opal Superlucent is slightly duller than Opal T, but will create an increased three dimensional appearance when used between the Body and Incisal porcelains.

**OPAL AMBER**

produces a translucent orange effect which is often seen in middle aged teeth.

**Note: Opal Effect and translucent powders can be mixed with Opal Incisal powders to modify their translucency and colour.**

**OPAL OCCLUSAL**

is used to emphasise the milky dull areas of occlusal surfaces and can also be used to brighten the interproximal areas of anterior teeth.

**Opal Occlusal**

can be mixed with Opal Incisal or used individually.

**OPAL WHITE E**

has a duller and whiter appearance than Opal Occlusal and is used to create cusp tips on molars or demineralised areas in anterior teeth. In most cases Opal White E is mixed with other Opal Enamels and Translucent powders to decrease translucency. **Opal Milky** has a creamy white opal appearance and is used in small amounts to emphasise cusp tips and approximal areas.

**The following case examples and outlines show how the various opal effects are used (fig. 19-24).**

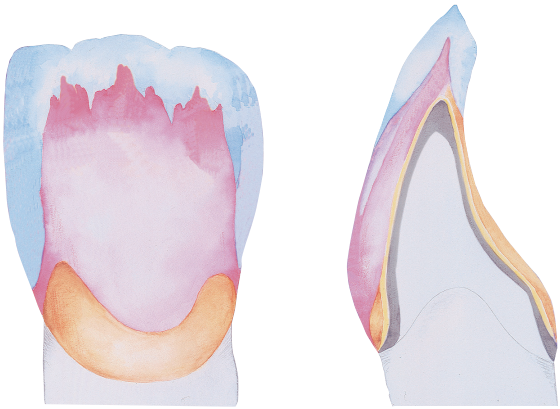
**Fig. 19-20** The layering technique and restoration of a younger tooth.

**Fig. 21-22** The layering technique and restoration of a middle aged tooth.

**Fig. 23-24** The layering technique and restoration of an older age tooth.

# Build-up System

- Opal Incisal
- Body
- Opaque-Dentine
- Opaque
- Metal



# Color-Chart

| Shade | | A1 | A2 | A3 | A3.5 | A4 | root A |
|---|---|---|---|---|---|---|---|
| Opaque | | A1O | A2O | A3O | A3.5O | A4O | root AO |
| Opaque-Dentine | | OD-A1 | OD-A2 | OD-A3 | OD-A3.5 | OD-A4 | OD-root A |
| Body | | A1 B | A2 B | A3 B | A3.5 B | A4 B | root A B |
| Opal Incisal or Standard Incisal | 57 | ❍ | | | | | |
| | 58 | ■ | ❍ ■ | | | | |
| | 59 | | | ❍ ■ | ❍ ■ | | |
| | 60 | | | | | ❍ ■ | ❍ ■ |
| Translucent | T | ■ | ■ | ■ | ■ | ■ | ■ |

❍ Opal Incisal

■ Standard Incisal

| B1 | B2 | B3 | B4 | root B |
|---|---|---|---|---|
| B1 O | B2 O | B3 O | B4 O | root B O |
| OD-B1 | OD-B2 | OD-B3 | OD-B4 | OD-root B |
| B1 B | B2 B | B3 B | B4 b | root B B |
| ❍ | | | | |
| | ❍ ■ | | | |
| | | ❍ ■ | | |
| | | | ❍ ■ | ❍ ■ |
| ■ | ■ | ■ | ■ | ■ |

| C1 | C2 | C3 | C4 | rootC | D2 | D3 | D4 |
|---|---|---|---|---|---|---|---|
| C1 O | C2 O | C3 O | C4 O | root C O | D2 O | D3 O | D4 O |
| OD-C1 | OD-C2 | OD-C3 | OD-C4 | OD-root C | OD-D2 | OD-D3 | OD-D4 |
| C1 B | C2 B | C3 B | C4 B | root C B | D2 B | D3 B | D4 B |
| | | | | | | | |
| ❍ ■ | ❍ ■ | | | | ❍ | | |
| | | ❍ ■ | | | ■ | ❍ | ❍ ■ |
| | | | ❍ ■ | ❍ ■ | | ■ | |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

# Firing Schedule for VINTAGE Halo Porcelain System

| | Pre-heating (°C) | Drying (min) → | Vacuum | Incr. temperature (°C/min) ↗ | Vacuum final temperature | Final temperature | Holding time (min) → |
|---|---|---|---|---|---|---|---|
| Firing of Powder Opaque I | 650 | 3 | full | 60 | 950 | 950 | 1 |
| Firing of Powder Opaque II | 650 | 3 | full | 60 | 940 | 940 | 1 |
| Firing of Paste Opaque I | 450 | 6 | full | 60 | 950 | 950 | 1 |
| Firing of Paste Opaque II | 450 | 6 | full | 60 | 940 | 940 | 1 |
| Firing of Body, Opaque-Dentine, Incisal and Translucent, 1. firing | 650 | 5 | full | 60 | 910 | 910 | 0 |
| Firing of Body, Opaque-Dentine, Incisal and Translucent, 2. firing | 650 | 5 | full | 60 | 905 | 905 | 0 |
| Self-glazing | 650 | 3-5 | 0 | 60 | 0 | 900 | 0,5 |
| Firing of correction (Add-On Porcelain) | 650 | 3-5 | full | 60 | 870 | 870 | 0 |
| Firing of gingiva VINTAGE Porcelain (pink, dark pink) | 650 | 3-5 | full | 60 | 870 | 870 | 0 |

The above-mentioned is to be understood as a recommended guideline

# Technical Data

VINTAGE HALO porcelain has been tested in accordance with EN/ISO 9693 and fulfils the requirements of the standard.

**Coefficient of thermal expansion (CTE 25 °– 500 °C):**

PASTE-OPAQUE, POWDER-OPAQUE
2. firing 14.0 x $10^{-6}$
4. firing 14.1 x $10^{-6}$
OPAQUE-DENTINE, BODY, INCISAL, OPAL INCSAL, TRANSLUCENT, EFFECT, MODIFIER, ADD-ON
2. firing 12.6 x $10^{-6}$
4. firing 12.8 x $10^{-6}$

**Glass Transition Temperature (°C):**

PASTE-OPAQUE, 590 °C
POWDER-OPAQUE, OPAQUE-DENTINE, BODY, INCISAL, OPAL INCISAL, TRANSLUCENT, EFFECT, MODIFIER, ADD-ON, 580 °C

**Alloys:**

VINTAGE HALO porcelain can be used in conjunction with alloys which have a CTE of 13.5 – 14.4 x $10^{-6}$ (25 ° – 500 °C). The CTE of the porcelain can be adjusted by extending the cooling time. Therefore alloys can also be used with CTE (25 ° – 500 °C) – 14.7 x $10^{-6}$ x k.

| Au-Pt alloys | Pd alloys | Np alloys |
|---|---|---|
| Herador H (Heraeus) | Duopal 6 (Wieland) | Uni Metall II (SHOFU) |
| CTE (25 ° – 500 °C) 13.9 | CTE (25 ° – 500 °C) 14.1 | CTE (25 ° – 500 °C) 14.0 |
| Normal cooling | Normal cooling | Normal cooling |

**Storage:**

Protect the porcelain powder from humidity.
Store paste porcelain at room temperature (15 ° – 25 °C).

**The System:**

These instructions are valid for the following components of the VINTAGE PORCELAIN System:
VINTAGE HALO BASE-SET (15 g/50 g)
Opaque-Dentine, 19 colours, Body 19 colours, Opal Incisal 6 colours, Incisal Standard 6 colours, Correction powder 2 colours, Colorindicator (No. 1, 2, 3), GUMY® L, M, D.
VINTAGE HALO POWDER OPAQUE-SET (15 g)
Powder Opaque 19 colours, Mixing-liquid Opaque 50 ml
VINTAGE HALO PASTE OPAQUE-SET (3 g)
Paste Opaque 19 colours, Paste- Modifier 3 colours, Modelling-liquid 3 ml, 1 Brush No. 5 (Nylon)
VINTAGE HALO OPAL FULL-SET (15 g/50 g)
Opal Incisal and Effect powder 10 colours, 1 Colorindicator No. 2
VINTAGE HALO INTRO-SET (15 g, Colour A2, A3, A3.5, B2, B3)
Per each Set: Paste Opaque 1 colour, Opaque-Dentine 1 colour, Body 1 colour, Opal Incisal 1 colour, Opal Translucent, 1 Brush No. 5 (Nylon)

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SHOFU ®

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