

# ® e.max<sup>®</sup> Ceram IPS



INSTRUCTIONS FOR USE

CE 0123

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# IPS e.max® System – ALL YOU NEED

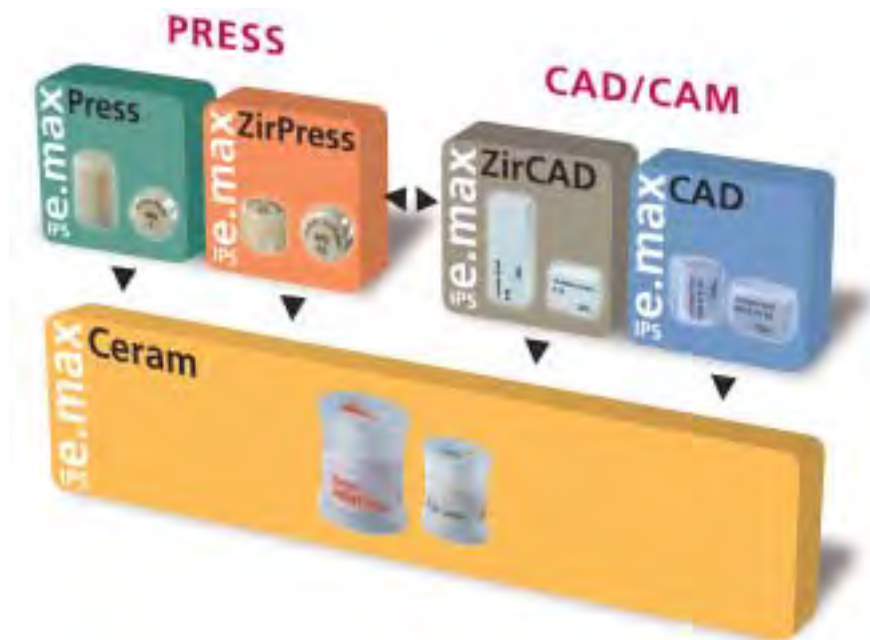
Your purchase of IPS e.max means you have chosen more than simply an all-ceramic system. You have taken the decision to benefit from the unlimited possibilities of all-ceramic. IPS e.max delivers high strength and highly aesthetic materials for the PRESS and the CAD/CAM technology.

The IPS e.max products are unique. They are recognized for their outstanding properties as well as exceptional versatility and flexibility – and they produce results with maximum aesthetics.

The components for the PRESS technique include the highly aesthetic glass-ceramic IPS e.max Press ingots and the glass-ceramic IPS e.max ZirPress ingots for pressing onto zirconium oxide. Depending on the case requirements, two types of materials are available for CAD/CAM techniques: the innovative IPS e.max CAD glass-ceramic blocks and the high-strength zirconium oxide IPS e.max ZirCAD.

The IPS e.max System is further enhanced by the nano-fluorapatite layering ceramic IPS e.max Ceram, which is used as a veneering material for all the IPS e.max components – either glass-ceramics or zirconium oxide ceramics.

This proves that really exceptional all-ceramic systems are well designed. The system allows you to take advantage of a single, standardized layering scheme to offer your dentists and their patients restorations with maximum individuality and naturalness.



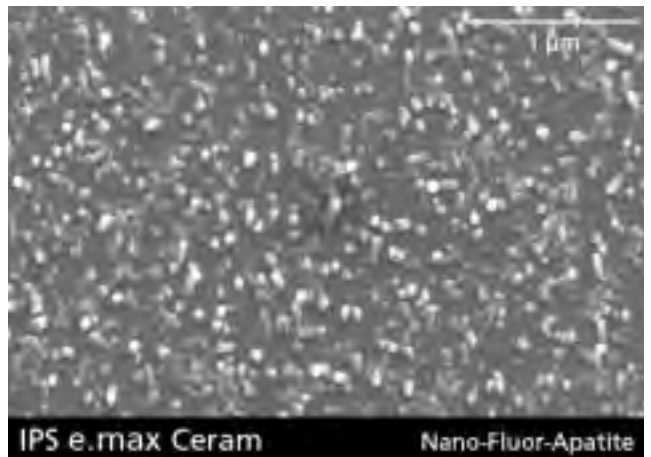
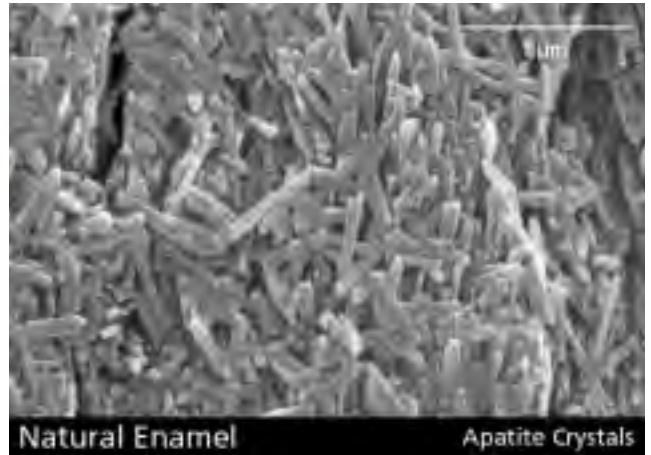
# IPS e.max® Ceram –

## PRODUCT INFORMATION

### MATERIAL

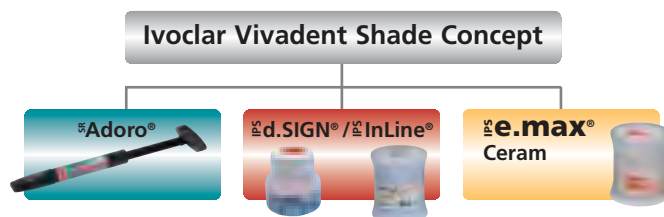
IPS e.max Ceram is a low-fusing nano-fluorapatite glass-ceramic, which permits, for the first time ever, the veneering and characterization of restorations fabricated using either the press technology and/or the CAD/CAM technology. During the development of IPS e.max Ceram, the fact that various materials in different shades and levels of opacity are used, was taken into consideration. The new material generation, which contains nano-fluorapatite crystals, demonstrates a crystal structure similar to that of vital teeth. The optical properties are controlled by the nano-fluorapatite crystals in the size range of 100-300 nm and micro-fluorapatite crystals with a length of 1–2 µm. The individual IPS e.max Ceram materials contain different concentrations of the apatite crystals, which then enable a unique and adjustable combination of translucency, brightness, and opalescence, depending on the type of layering material. The IPS e.max ZirLiners are yet another innovation of this new material concept. They enable an exceptionally good bond with the zirconium oxide framework and demonstrate high light transmitting capability coupled with high fluorescence. They thus make the white and not very translucent zirconium oxide frameworks look as if they have been shaded and permit the adjustment of the basic zirconium oxide shade of the framework to the shade of the IPS e.max Press and IPS e.max CAD glass-ceramics. In this way, the achieved layering concept permits the fabrication of highly aesthetic restorations that demonstrate optimum stability of shape both on shaded/translucent glass-ceramic frameworks and on less translucent zirconium oxide frameworks. The uniform material composition and, consequently, homogeneous clinical properties, irrespective of the framework material used, underlines the comprehensive IPS e.max restorative concept.

IPS e.max Ceram is based on the tried-and-tested shade concept of other Ivoclar Vivadent veneering materials. In this way, a continuous concept covering composites, metal-ceramics, and all-ceramics has been achieved. The easy application makes the time-consuming re-familiarization with the individual veneering materials a thing of the past.



CTE (100–400°C) [10 <sup>-6</sup> /K]*	9.5
Flexural resistance (biaxial) [MPa]*	90
Vickers hardness [MPa]	5400
Chemical stability [µg/cm <sup>2</sup> ]*	15
Firing temperature [°C]	750

\*according to ISO 6872



## USAGE

### Indications

- Characterization and veneering of IPS e.max Press restorations
- Characterization and veneering of IPS e.max ZirPress restorations
- Characterization and veneering of IPS e.max CAD restorations
- Characterization and veneering of IPS e.max ZirCAD restorations
- Characterization and veneering of frameworks, implant abutments, and implant superstructures made of
  - sintered zirconium oxide and/or HIP zirconium oxide, as well as
  - presintered zirconium oxideand demonstrating a CTE range of  $10.5\text{--}11.0 \times 10^{-6} \text{ K}^{-1}$  [100-500 °C].
- Layered veneers on fire resistant investment materials

### Contraindications

- Patients with severely reduced residual dentitions
- Patients suffering from bruxism

### Important processing restrictions

If the following notes are not observed, successful work with IPS e.max Ceram cannot be ensured:

- The necessary veneering layer thickness must be observed.
- The required layer thickness relation between the framework and the layering ceramic must be observed.
- IPS e.max Ceram materials must not be mixed with other dental ceramics
- Zirconium oxide frameworks with a CTE different from the one stipulated must not be veneered.
- Metal-frameworks must not be veneered.
- Other pressed ceramics (e.g. IPS Empress® 2, IPS Empress Esthetic) must not be veneered.
- Aluminium oxide frameworks (e.g. Procera Alumina, Vita In-Ceram 200 Al Cubes) must not be veneered.
- Slipped and CAD/CAM-fabricated Vita InCeram frameworks (e.g. In-Ceram Classic Spinell, Alumina, Zirconia) must not be veneered.
- Cast and CAD/CAM-fabricated titanium oxide must not be veneered.
- IPS e.max Ceram ZirLiner and Margin materials should not be used on IPS e.max Press and IPS e.max CAD.

### Side effects

If a patient is known to be allergic to any of the components in IPS e.max Ceram, the material should not be used.

## COMPOSITION

IPS e.max Ceram and the processing accessories consist of the following main components:

- **IPS e.max Ceram**  
Components:  $\text{SiO}_2 > 60 \text{ \% wt.}$   
Additional contents:  $\text{Al}_2\text{O}_3$ ,  $\text{ZnO}_2$ ,  $\text{Na}_2\text{O}$ ,  $\text{K}_2\text{O}$ ,  $\text{ZrO}_2$ ,  $\text{CaO}$ ,  $\text{P}_2\text{O}_5$ , fluoride, and pigments
- **IPS e.max Ceram Shades and Glaze Pastes**  
Components: 60 % wt. oxides, glycerine, butandiol, poly(vinyl pyrrolidone)
- **IPS e.max Ceram ZirLiner Build-Up Liquid (allround)**  
Components: Water, butandiol, and chloride
- **IPS e.max Ceram Margin Build-Up Liquids (allround and carving)**  
Components: Water, zinc chloride, and hydroxyl ethyl cellulose
- **IPS e.max Ceram Build-Up Liquids (allround and soft)**  
Components: Water, propylene glyco, butandiol, and chloride
- **IPS e.max Ceram Stain and Glaze Liquids (allround and longlife)**  
Components: Butandiol, Pentandiol
- **IPS Model Sealer**  
Components: Ethyl acetate, softener, and nitrocellulose
- **IPS Ceramic Separating Liquid**  
Components: Paraffin oil
- **IPS Margin Sealer**  
Components: Wax dissolved in  $> 95 \text{ \% hexane}$

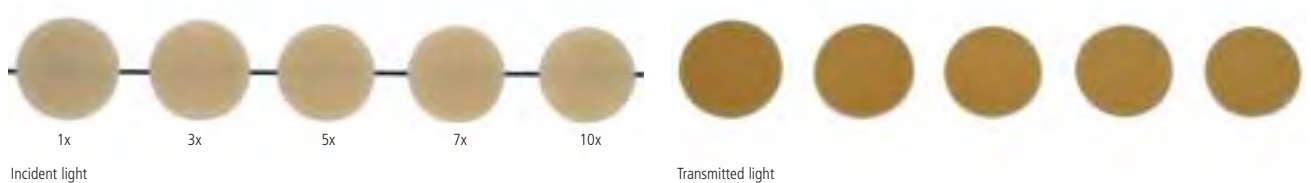
### Warnings:

- Butandiol and pentandiol are irritating – avoid contact with the skin and eyes. Do not inhale the vapours.
- Ethyl acetate is highly inflammable – keep it away from sources of ignition. Do not inhale the vapours.
- Hexane is highly inflammable and detrimental to health. Avoid contact with the skin and eyes. Do not inhale the vapours and keep the material away from sources of ignition.
- Do not inhale ceramic dust during finishing - use suction equipment and a face-mask.

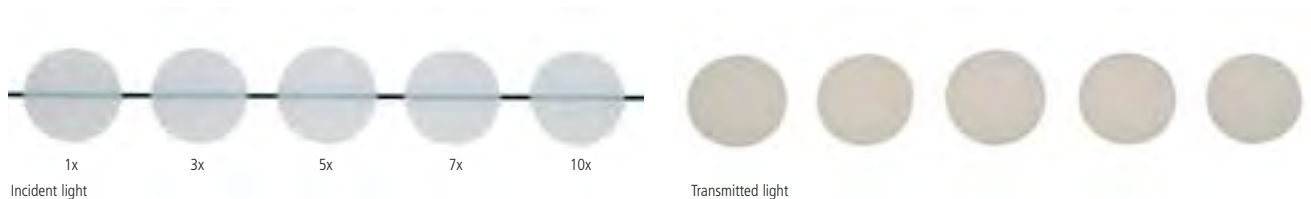
## FIRING BEHAVIOUR AND FIRING PROCESS

### Shade stability

IPS e.max Ceram is a low-fusing nano-fluorapatite glass-ceramic. The new material generation contains nano-fluorapatite crystals and demonstrates a crystal structure similar to that of vital teeth. Depending on the type of layering material, this permits a unique and adjustable combination of translucency, brightness, and opalescence, which is characterized by a high stability of shape and shade, even after several firing procedures. The following images of fired tabs show the shade stability of IPS e.max Ceram Dentin A3 after several firing procedures. Even after ten firings, no obvious shade difference to the original tab is visible. After three firings, the shade of the tab already corresponds with that of the firing restoration (2 dentin/incisal firings and 1 glaze firing).

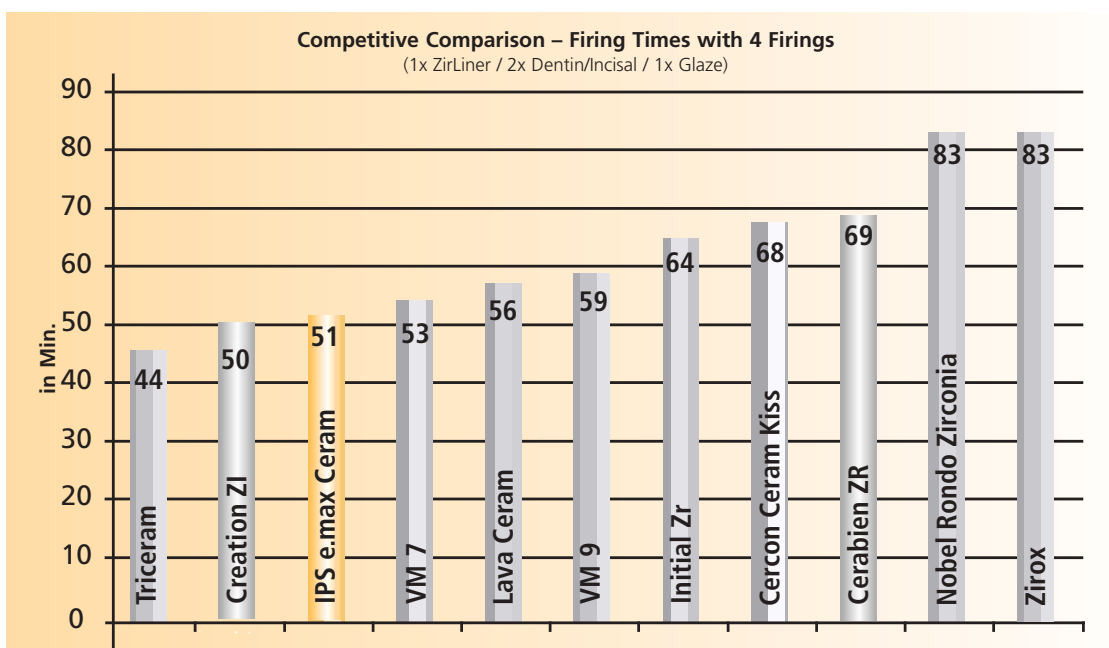


The high shade stability is particularly important for the Opal materials (Opal Effect 1), which are predominantly used in the incisal area, in order not to obtain a lifeless, greyish incisal third, even after several firing procedures. The following images show an Opal Effect 1 tab after 10 firings. There are no visible differences as regards the opalescence and brightness.



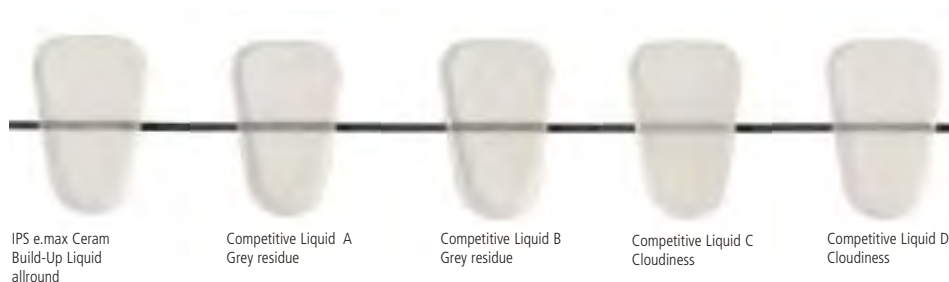
### Firing times

Another substantial advantage over high- (> 900 °C/1652 °F) and medium-fusing (800–900 °C/1472–1652 °F) ceramic material are the low firing temperatures. The efficient firing process with IPS e.max Ceram permits the completion of the restoration without any long waiting times.



## Burn-out behaviour

Given the low transformation point of low-fusing ceramic materials, the burn-out of the organic components in the build-up liquids occurs in a shorter time frame than that of high- and medium-fusing ceramics. If build-up liquids other than the IPS e.max Ceram Liquids are used, therefore, there is a risk of incomplete burn-out and thus discolouration of the restoration (e.g. cloudiness, greying). The following images show fired IPS e.max Ceram clear tabs, for which different build-up liquids were used. With certain liquids, the discolouration is clearly visible. Therefore, Ivoclar Vivadent recommends using only the liquids contained in the IPS e.max Ceram Kits. If silver dust is used to design the surface, make sure that it is completely removed during cleaning. If this is not done, discolouration (e.g. yellowish) may occur after glaze firing.



## Firing of glass-ceramic-supported restorations

- Use the honey-comb firing tray and the corresponding support pins to fire the restorations.
- Do not use ceramic pins, since they may stick to the restoration.
- The processing temperatures must be observed. Increasing the firing temperature will result in severe vitrification between the framework and the veneering ceramic, which may lead to crack formation later on. Reducing the firing temperature results in the ceramic being underfired rendering it very brittle, which may ultimately lead to delamination.
- The parameters listed in the Instructions for Use apply to Ivoclar Vivadent furnaces (temperature tolerance  $\pm 10\text{ }^{\circ}\text{C}/50\text{ }^{\circ}\text{F}$ ).
- If furnaces other than those from Ivoclar Vivadent are used, temperature adjustments may be necessary.

## Firing of zirconium oxide-supported restorations

- Several units (eg multi-unit bridges with bulky pontics) in the furnace impede even and thorough heating of the individual units.
- Heat penetration in the firing chamber depends on the type of furnace and the size of the firing chamber.
- To achieve adequate heating of the individual restorations the heating rate should be lowered by  $5\text{--}10\text{ }^{\circ}\text{C}$  ( $41\text{--}50\text{ }^{\circ}\text{F}$ ) as well as the holding time should be extended by 30 seconds.
- The parameters listed in the Instructions for Use apply to Ivoclar Vivadent furnaces (temperature tolerance  $\pm 10\text{ }^{\circ}\text{C}/50\text{ }^{\circ}\text{F}$ ).
- If furnaces other than those from Ivoclar Vivadent are used, temperature adjustments may be necessary.

## QUESTIONS AND ANSWERS

### Is IPS e.max Ceram also suitable to veneer frameworks made of other glass-ceramic materials?

IPS e.max Ceram is not suitable to veneer and characterize glass-ceramic frameworks made of materials other than IPS e.max Press, IPS e.max ZirPress, and IPS e.max CAD. On the one hand, the CTE of other glass-ceramic materials is not compatible and, on the other hand, the shade coordination between framework and veneering ceramics is not ensured.

### Is IPS e.max Ceram also suitable to veneer frameworks made of other zirconium oxide materials?

IPS e.max Ceram can be used to veneer frameworks made of sintered zirconium oxide, HIP zirconium oxide, as well as pre-sintered zirconium oxide with a CTE range of  $10.5\text{--}11.0 \times 10^{-6} \text{ K}^{-1}$  ( $100\text{--}500^\circ\text{C}$ ). The following zirconium oxide materials have been tested:

- KaVo Everest – Bio ZS (coloured and uncoloured) and Bio ZH Blanks
- Nobel Biocare – Procera Zirconia
- DeguDent – Cercon Base
- 3M/Espe – Lava Frame (coloured and uncoloured)
- DCS – DC-Zirkon
- Digident – Digizon
- Cad.esthetics – Denzir
- Vita – In-Ceram 2000 YZ Cubes (coloured and uncoloured)
- Diatomic – Diadem/Diazir (coloured and uncoloured)
- Wieland – Zeno Zr Disc

### Is IPS e.max Ceram also suitable to individualize and veneer implant abutments?

IPS e.max Ceram is suitable to individualize and veneer abutments made of zirconium oxide with a CTE of range of  $10.5\text{--}11.0 \times 10^{-6} \text{ K}^{-1}$  ( $100\text{--}500^\circ\text{C}$ ). However, it has to be made sure that the abutments are not designed too small and that they provide adequate shape and cusp support. The instructions of the corresponding manufacturer have to be observed.

### Is IPS e.max Ceram also suitable for the fabrication of veneers?

IPS e.max Ceram is suitable to fabricate veneers on fire resistant investment material dies. The material meets the required strength values (ISO standard: at least 50 MPa). The physical properties, such as the setting expansion, must be taken into consideration when selecting the corresponding investment material.

### What is the purpose of the IPS e.max Ceram ZirLiner?

IPS e.max Ceram ZirLiners are translucent. Their three major purposes are as follows:

1. They enable a strong, homogeneous bond with the zirconium oxide framework.
2. They provide the white, non-coloured zirconium oxide frameworks with chroma, an in-depth effect, and a shaded character without increasing their opacity.
3. They also provide the non-fluorescent zirconium oxide framework with a natural fluorescence, thus enabling the fabrication of lifelike restorations.

### Which type of IPS e.max Ceram ZirLiner should be used on shaded zirconium oxide frameworks?

The clear IPS e.max Ceram ZirLiner should be used on shaded zirconium oxide frameworks. The transparent character of the IPS e.max Ceram ZirLiner does not affect the framework shade. An outstanding bond as well as natural-looking fluorescence is achieved. When shaded frameworks are used, the colour compatibility of the IPS e.max ZirPress ingots and that of the framework must be ensured.

### Can zirconium oxide frameworks also be veneered without IPS e.max Ceram ZirLiner, or with a wash firing of dentin material, respectively?

An IPS e.max Ceram ZirLiner in the corresponding shade must always be applied prior to veneering. A wash firing, e.g. with dentin, as it is done for glass-ceramics, is not sufficient.

### Why is the IPS e.max Ceram ZirLiner powder green and how should it be applied?

Since zirconium oxide is white and, therefore, shows a poor contrast to tooth-coloured and/or white powders, the IPS e.max ZirLiner was given an identification colour to render its application more simple and efficient. The IPS e.max Ceram ZirLiner consists of a very fine powder and appears somewhat thick due to the dense packing of the grains. Make sure that the material is applied in an even, greenish coat. If the shade is too pale, the layer is too thin. After firing, however, the ZirLiner demonstrates a layer thickness of approximately 0.1 mm.



#### **How are the IPS e.max Ceram Add-On materials correctly used?**

*There are 3 Add-On materials available for final adjustments. Add-On Margin with a firing temperature of 725 °C (1337 °F) is used for shoulder adjustments with the dentin / incisal firings, as well as with the final glaze firing. Depending on the application, the Add-On Margin material is mixed 1:1 with the correspondingly shaded Margin material (adjustment with the dentin/incisal firing) or used alone (adjustment with the glaze firing). Add-On Dentin and Add-On Incisal with a firing temperature of 700 °C (1292 °F) are used to supplement missing areas (e.g. contact points) with the final glaze firing or a separate add-on firing after glaze firing. Depending on the application Add-On Dentin and Add-On Incisal are mixed 1:1 with the corresponding shades Dentin and Incisal material (supplements with the glaze firing) or used alone (supplements after glaze firing) (see also page 42).*

#### **How should complete layered IPS e.max Ceram restorations be prepared for firing?**

*Separate the completely layered IPS e.max Ceram restorations in the interdental area down to the framework and only blot them dry with a cloth. Excessive vibration of the restorations by drawing another instrument over the grooves of the forceps grip and using suction equipment, or excessive drying with blown air should not be done.*

#### **How can the shrinkage be compensated for deep occlusal preparations or very concave areas?**

*With deep occlusal surfaces and/or steep cusp inclinations and particularly with massive zirconium oxide pontics and abutments, it is favourable to separate the central fissure with a scalpel down to the framework before the first firing (with the ZirLiner layer already fired). In this way, the ceramic may sinter to the framework surface in a controlled fashion. During the subsequent 2<sup>nd</sup> dentin and incisal firing, the central fissure and occlusal surface are then compensated accordingly.*

#### **How can the shrinkage of the ceramic be reduced, especially in large bridges and implant superstructures?**

*If enough space is available, a special Deep Dentin or intermediate dentin firing is recommended, to distribute the overall shrinkage to two firing procedures. In this way, especially the position of the Impulse materials after the second firing can be ensured.*

## PRODUCT OVERVIEW AND DESCRIPTIONS

### IPS e.max Ceram Basic Kit



#### Delivery form:

##### IPS e.max Ceram Basic Kit A–D

- 8x 20 g IPS e.max Ceram Dentin;  
Shades: A1, A2, A3, A3.5, B2, B3, C2, D3
- 3x 20 g IPS e.max Ceram Transpa Incisal;  
Shades: TI 1, TI 2, TI 3
- 2x 20 g IPS e.max Ceram Transpa;  
Shades: neutral, clear
- 2x 20 g IPS e.max Ceram Add-On;  
Shades: Dentin, Incisal
- 2x 60 ml IPS e.max Ceram Build-Up Liquid; allround, soft
- 1x 3 g IPS e.max Ceram Glaze Paste
- 1x 3 g IPS e.max Ceram Glaze Paste FLUO
- 2x 15 ml IPS e.max Ceram Glaze and Stain Liquid;  
allround, longlife
- 1x 50 ml IPS Model Sealer
- 1x 15 ml IPS Ceramic Separating Liquid with Brush
- 1x IPS e.max Ceram Dentin A–D material shade guide
- 1x IPS e.max Ceram Incisal/Transpa material shade guide

In order to facilitate the beginning with the system, the IPS e.max Ceram Basic Kit contains the most popular Dentin shades (8 x A–D / 10 x Chromascop), the corresponding Incisal materials, as well as the necessary processing accessories. The Basic Kit and all the other additional assortments are supplied in the new material box and can be supplemented with any other IPS e.max Kit.

##### IPS e.max Ceram Basic Kit Chromascop

- 10x 20 g IPS e.max Ceram Dentin;  
Shades: 130, 140, 210, 220, 230, 310, 320, 410, 420, 510
- 3x 20 g IPS e.max Ceram Incisal;  
Shades: I 1, I 2, I 3
- 2x 20 g IPS e.max Ceram Transpa;  
Shades: neutral, clear
- 2x 20 g IPS e.max Ceram Add-On;  
Shades: Dentin, Incisal
- 2x 60 ml IPS e.max Ceram Build-Up Liquid; allround, soft
- 1x 3 g IPS e.max Ceram Glaze Paste
- 1x 3 g IPS e.max Ceram Glaze Paste FLUO
- 2x 15 ml IPS e.max Ceram Glaze and Stain Liquid;  
allround, longlife
- 1x 50 ml IPS Model Sealer
- 1x 15 ml IPS Ceramic Separating Liquid with Brush
- 1x IPS e.max Ceram Dentin material shade guide
- 1x IPS e.max Ceram Incisal/Transpa material shade guide
- 1x Chromascop shade guide

### IPS e.max Ceram ZirLiner Kit



#### Delivery form:

##### IPS e.max Ceram ZirLiner Kit

- 5x 5 g IPS e.max Ceram ZirLiner;  
Shades: ZL clear, ZL 1, ZL 2, ZL 3, ZL 4
- 4x 5 g IPS e.max Ceram Intensiv ZirLiner;  
Shades: IZL yellow, IZL orange, IZL brown, IZL incisal
- 1x 60 ml IPS e.max Ceram ZirLiner Build-Up Liquid
- 1x IPS e.max Ceram ZirLiner shade guide

The IPS e.max Ceram ZirLiners can be used for

1. the press-over technique in conjunction with IPS e.max ZirPress, and
2. the veneering technique in conjunction with IPS e.max Ceram.

They enable an exceptionally stable bond with the zirconium oxide framework and demonstrate high light transmitting capability and excellent fluorescence. They provide the white and thus not very translucent zirconium oxide frameworks with a shaded character and enable a true-to-nature in-depth shade effect.

The shade tabs of the material shade guide show the shade effect of the ZirLiners on zirconium oxide after firing and can be used to double-check the optimum shade effect.

#### Important:

**The IPS e.max Ceram ZirLiners are only suitable for application on IPS e.max ZirCAD and other zirconium oxide frameworks. Given their firing temperature of 960 °C (1760 °F), they must not be used on glass-ceramic.**

## IPS e.max Ceram Margin Kit



### Delivery form:

#### IPS e.max Ceram Margin Kit A–D

- 8x 20 g IPS e.max Ceram Margin;  
Shades: A1, A2, A3, A3.5, B2, B3, C2, D3
- 4x 20 g IPS e.max Ceram Intensive Margin;  
Shades: orange, orange-pink, yellow, yellow-green
- 1x 20 g IPS e.max Ceram Add-On; Shade: Margin
- 1x 20 ml IPS Margin Sealer
- 2x 60 ml IPS e.max Ceram Margin Build-Up Liquid;  
allround, carving
- 1x IPS e.max Ceram Margin A–D material shade guide

The Kit contains shoulder materials with true-to-nature cervical fluorescence. The materials are used for the fabrication of ceramic shoulders on IPS e.max ZirCAD frameworks. The Kit contains the most popular shades (8 x A–D / 10 x Chromascop), the corresponding Intensive materials, as well as the necessary liquids.

### Important:

**The IPS e.max Ceram Margin materials are only suitable for application on IPS e.max ZirCAD and other zirconium oxide frameworks and must not be used in conjunction with glass-ceramic materials.**

#### IPS e.max Ceram Margin Kit Chromascop

- 10x 20 g IPS e.max Ceram Margin;  
Shades: 130, 140, 210, 220, 230, 310, 320, 410, 420, 510
- 4x 20 g IPS e.max Ceram Intensive Margin;  
Shades: orange, orange-pink, yellow, yellow-green
- 1x 20 g IPS e.max Ceram Add-On; Shade: Margin
- 1x 20 ml IPS Margin Sealer
- 2x 60 ml IPS e.max Ceram Margin Build-Up Liquid;  
allround, carving
- 1x IPS e.max Ceram Margin material shade guide

## IPS e.max Ceram Deep Dentin Kit



### Delivery form:

#### IPS e.max Ceram Deep Dentin Kit A–D

- 8x 20 g IPS e.max Ceram Deep Dentin;  
Shades: A1, A2, A3, A3.5, B2, B3, C2, D3
- 1x IPS e.max Ceram Deep Dentin A–D material shade guide

The Deep Dentin materials with true-to-nature fluorescence, enhanced opacity, and shade saturation ensure that the basic tooth shade is achieved even in very thin layers and thus permit the fabrication of restorations that exhibit life-like shades. The Kit contains the most popular shades (8 x A–D / 10 x Chromascop).

#### IPS e.max Ceram Deep Dentin Kit Chromascop

- 10x 20 g IPS e.max Ceram Deep Dentin;  
Shades: 130, 140, 210, 220, 230, 310, 320, 410, 420, 510
- 1x IPS e.max Ceram Deep Dentin material shade guide

### IPS e.max Ceram Impulse Kit



The IPS e.max Ceram Impulse materials have been designed in accordance with the other Ivoclar Vivadent veneering materials. A total of 22 Impulse materials for individualized characterizations are available.

#### Delivery form:

##### IPS e.max Ceram Impulse Kit

- 2x 20 g IPS e.max Ceram Impulse Occlusal Dentin;  
Shades: orange, brown
- 3x 20 g IPS e.max Ceram Impulse Mamelon;  
Shades: light, yellow-orange, salmon
- 6x 20 g IPS e.max Ceram Impulse Opal Effect;  
Shades: OE 1, OE 2, OE 3, OE 4, OE 5, violet
- 3x 20 g IPS e.max Ceram Impulse Transpa;  
Shades: blue, brown-grey, orange-grey
- 1x 20 g IPS e.max Ceram Impulse Incisal Edge
- 2x 20 g IPS e.max Ceram Impulse Special Incisal;  
Shades: yellow, grey
- 1x 20 g IPS e.max Ceram Impulse Inter Incisal; Shade: white-blue
- 4x 20 g IPS e.max Ceram Impulse Cervical Transpa;  
Shades: yellow, orange-pink, khaki, orange
- 1x IPS e.max Ceram Impulse material shade guide

### IPS e.max Ceram Essence Kit



The 19 Essence powders with the "1-for-3" effect are used to mix with other IPS e.max Ceram powders, as well as for internal and external characterizations. In this way, a maximum of application possibilities is achieved with a minimum investment.

#### Delivery form:

##### IPS e.max Ceram Essence Kit

- 19x 5 g IPS e.max Ceram Essence;  
Shades: white, creme, lemon, sunset, copper, hazel, olive, khaki, emerald, terracotta, mahogany, cappuccino, espresso, terra, profundo, ocean, sapphire, anthracite, black
- 1x 5 g IPS e.max Ceram Glaze Powder
- 1x 5 g IPS e.max Ceram Glaze Powder FLUO
- 2x 15 ml IPS e.max Ceram Glaze and Stain Liquid;  
allround, longlife
- 1x IPS e.max Ceram Essence material shade guide

### IPS e.max Ceram Shade Kit



The 7 stains in paste form are used for final shade modifications. Five dentin-shaded and 2 incisal-shaded pastes are available. The Shades can be used for both A-D and Chromascop shades.

#### Delivery form:

##### IPS e.max Ceram Shade Kit

- 7x 3 g IPS e.max Ceram Shade;  
Shades: 0, 1, 2, 3, 4, I 1, I 2
- 1x 3 g IPS e.max Ceram Glaze Paste
- 1x 3 g IPS e.max Ceram Glaze Paste FLUO
- 2x 15 ml IPS e.max Ceram Glaze and Stain Liquid;  
allround, longlife

### IPS e.max Ceram ZirLiner



### IPS e.max Ceram ZirLiner clear

Used for shaded zirconium oxide frameworks, for Bleach shades, as well as to mix with IPS e.max Ceram Intensive ZirLiner.

### IPS e.max Ceram ZirLiner 1–4

Used to provide white zirconium oxide frameworks with a shaded character. They help adjust the framework shade to the basic ingot and/or block shade (Medium Opacity) of IPS e.max Press and IPS e.max CAD.

### IPS e.max Ceram Intensive ZirLiner

Yellow, orange, brown, and incisal are used to enhance the in-depth shade effect.

#### Delivery form:

##### Refill

- 5x 5 g IPS e.max Ceram ZirLiner;  
Shades: ZL clear, ZL 1, ZL 2, ZL 3, ZL 4
- 4x 5 g IPS e.max Ceram Intensive ZirLiner;  
Shades: I ZL yellow, I ZL orange, I ZL brown, I ZL incisal

### IPS e.max Ceram Margin



### IPS e.max Ceram Margin

The materials exhibit true-to-nature cervical fluorescence and are used for the fabrication of ceramic shoulders on IPS e.max ZirCAD frameworks. Due to the difference in the firing temperature to the dentin and incisal materials, the Margin materials demonstrate excellent firing stability.

The 4 **IPS e.max Ceram Intensive Margin** materials are used to design individualized shoulder areas. For example, exposed cervicals can be excellently imitated using IPS e.max Ceram Intensive Margin yellow-green.

#### Delivery form:

##### Refill

- 16x 20 g IPS e.max Ceram Margin A–D;  
Shades: A1, A2, A3, A3,5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4
- 4x 20 g IPS e.max Ceram Intensive Margin;  
Shades: IM orange, IM orange-pink, IM yellow, IM yellow-green
- 22x 20 g IPS e.max Ceram Margin Chromascop;  
Shades: 010/020, 030/040, 110, 120, 130, 140, 210, 220, 230, 240, 310, 320, 330, 340, 410, 420, 430, 440, 510, 520, 530, 540

### IPS e.max Ceram Deep Dentin



The Deep Dentin materials with true-to-nature fluorescence, enhanced opacity, and shade saturation ensure that the basic tooth shade is achieved even if space is limited and thus permit the fabrication of restorations that exhibit life-like shades. Furthermore, the materials are used to intensify the chroma and to accommodate the gingiva in the pontic area to achieve a harmonious shade transition between the gingiva and the cervical area.

#### Delivery form:

##### Refill

- 16x 20 g IPS e.max Ceram Deep Dentin A–D;  
Shades: A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4
- 22x 20 g IPS e.max Ceram Deep Dentin Chromascop;  
Shades: 010/020, 030/040, 110, 120, 130, 140, 210, 220, 230, 240, 310, 320, 330, 340, 410, 420, 430, 440, 510, 520, 530, 540

### IPS e.max Ceram Dentin



The IPS e.max Ceram Dentin materials have been designed in such a way that easy and reliable shade reproduction can be achieved irrespective of the material used for the substructure. The high stability and excellent modelling properties enable quick and uncomplicated layering.

#### Delivery form:

##### Refill

- 16x 20 g IPS e.max Ceram Dentin A–D;  
Shades: A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4
- 24x 20 g IPS e.max Ceram Dentin Chromascop;  
Shades: 010, 020, 030, 040, 110, 120, 130, 140, 210, 220, 230, 240, 310, 320, 330, 340, 410, 420, 430, 440, 510, 520, 530, 540

### IPS e.max Ceram Incisal and Transpa Incisal



IPS e.max Ceram Incisal and Transparent Incisal demonstrate slight fluorescence and opalescence similar to natural enamel. The high stability and excellent modelling properties enable quick and accurately detailed layering of true-to-nature incisal edges and occlusal surfaces.

#### Delivery form:

##### Refill

- 3x 20 g IPS e.max Ceram Transpa Incisal;  
Shades: TI1, TI2, TI3
- 3x 20 g IPS e.max Ceram Incisal;  
Shades: I1, I2, I3

### IPS e.max Ceram Transpa



The non-shaded Transparent materials are available in 2 gradations. Depending on customer demands and patient requirements, the Transparent materials may be used alone or mixed with other materials.

#### **Delivery form:**

##### **Refill**

- 2x 20 g IPS e.max Ceram Transpa;  
Shades: T neutral, T clear

### IPS e.max Ceram Impulse Occlusal Dentin



The Occlusal Dentin materials are available in two different shades. They are used as the shade basis for the occlusal surface and to intensify the chroma.

#### **Delivery form:**

##### **Refill**

- 2x 20 g IPS e.max Ceram Impulse Occlusal Dentin;  
Shades: OD orange, OD brown

### IPS e.max Ceram Impulse Mamelon



The Mamelon materials are available in three different shade gradations. They demonstrate high opacity and excellent masking capabilities even when applied in very thin layers. Depending on the working habits of the user, these materials are applied in thin lines on the reduced dentin. In this way, an individualized appearance of the incisal third is achieved.

#### **Delivery form:**

##### **Refill**

- 3x 20 g IPS e.max Ceram Impulse Mamelon;  
Shades: MM light, MM yellow-orange, MM salmon

### IPS e.max Ceram Impulse Incisal Edge



This material is used to achieve what is known as the "halo effect", which is caused in natural teeth by the light refraction at the incisal edge.

#### **Delivery form:**

##### **Refill**

- 1x 20 g IPS e.max Ceram Incisal Edge



### IPS e.max Ceram Impulse Opal Effect



The Opal Effect materials are available in 6 shade gradations. Starting with Opal Effect 1 – with naturally enhanced opalescence and simultaneous high translucency – the brightness value between Opal Effect 2 and Opal Effect 4 is continuously increased. Opal Effect 5 then demonstrates the typical opal shade. The Opal Effect violet material is used to reduce the brightness value in the incisal area.

#### Delivery form:

##### Refill

- 6x 20 g IPS e.max Ceram Impulse Opal Effect;  
Shades: OE 1, OE 2, OE 3, OE 4, OE 5, OE violet

### IPS e.max Ceram Impulse Transpa



The Transparent materials are available in 3 shade nuances. They are used to accurately reproduce transparent areas in full detail, particularly in the incisal third.

#### Delivery form:

##### Refill

- 3x 20 g IPS e.max Ceram Impulse Transpa;  
Shades: T blue, T brown-grey, T orange-grey

### IPS e.max Ceram Impulse Special Incisal



The Special Incisal materials are used to intensify the incisal area. They may be applied either directly or as an intermediate layer between dentin and incisal.

#### Delivery form:

##### Refill

- 2x 20 g IPS e.max Ceram Impulse Special Incisal;  
Shades: SI yellow, SI grey

### IPS e.max Ceram Impulse Inter Incisal



Inter Incisal is a special incisal material, which is used to increase the brightness value in the incisal third if the brightness value of the incisal area is high and space is limited.

#### Delivery form:

##### Refill

- 1x 20 g IPS e.max Ceram Impulse Inter Incisal;  
Shades: II white-blue



### IPS e.max Ceram Impulse Cervical Transpa



With the shaded Cervical Transparent materials, a life-like in-depth effect is achieved in the cervical third. Compared to the conventional Transparent materials, these special materials demonstrate slightly higher fluorescence.

#### Delivery form:

##### Refill

- 4x 20 g IPS e.max Ceram Impulse Cervical Transpa;  
Shades: CT yellow, CT orange-pink, CT khaki, CT orange

### IPS e.max Ceram Essence



The 19 Essence powders with the "1-for-3" effect are used **for internal characterizations, to mix** with other IPS e.max Ceram powders, and for final superficial, **external characterizations**. The very fine powders demonstrate different degrees of fluorescence, depending on the individual shade. The Essence shades have been given ordinary names and thus convey an initial shade idea to the user. Furthermore, the labels are imprinted with the original shade. In this way, a maximum of processing convenience is achieved.

#### Delivery form:

##### Refill

- 19x 5 g IPS e.max Ceram Essence;  
Shades: E 01 white, E 02 creme, E 03 lemon, E 04 sunset, E 05 copper, E 06 hazel, E 07 olive, E 08 khaki, E 09 emerald, E 10 terracotta, E 11 mahogany, E 12 cappuccino, E 13 espresso, E 14 terra, E 15 profundo, E 16 ocean, E 17 saphir, E 18 anthracite, E 19 black

### IPS e.max Ceram Shade



The 5 **IPS e.max Ceram Shades** in A–D and Chromascop shades are used for final shade modifications of IPS e.max restorations, as well as for the wash firing of IPS e.max glass-ceramics.

The 2 **IPS e.max Ceram Shades Incisal** materials are especially suitable for fully anatomical restorations (e.g. IPS e.max ZirPress). They are used to imitate the incisal area and they provide the incisal third with optical translucency and an in-depth effect.

#### Delivery form:

##### Refill

- 5x 3 g IPS e.max Ceram Shades;  
Shades: SH 0, SH 1, SH 2, SH 3, SH 4
- 2x 3 g IPS e.max Ceram Shades Incisal;  
Shades: I1, I2

### IPS e.max Ceram Glaze



**IPS e.max Ceram Glaze** is available in both the tried-and-tested paste form and in powder form. The glazing material is applied to all areas of the restoration that have been veneered using IPS e.max Ceram and are thus exhibiting sufficient fluorescence resulting from the layering material.

**IPS e.max Ceram Glaze FLUO** is also available in the tried-and-tested paste form and in powder form. The fluorescent glazing materials are used in those areas of the restoration, which have not been veneered with IPS e.max Ceram. Furthermore, they are applied to framework materials that demonstrate no or very low fluorescence, and for which fully or partially anatomical reduction has been carried out.

#### Delivery form:

##### Refill

- 1x 3 g IPS e.max Ceram Glaze Paste
- 1x 5 g IPS e.max Ceram Glaze Powder
- 1x 3 g IPS e.max Ceram Glaze Paste FLUO
- 1x 5 g IPS e.max Ceram Glaze Powder FLUO

### IPS e.max Ceram Add-On



IPS e.max Ceram Add-On materials are available in 3 shades. Depending on the application, users may select between a Margin, Dentin, and Incisal shade and opacity. The shaded add-on materials further facilitate adjustments.

#### Delivery form:

##### Refill

- 3x 20 g IPS e.max Ceram Add-On;  
Shades: A-O Margin, A-O Dentin, A-O Incisal

### IPS e.max Ceram ZirLiner Build-Up Liquid



The IPS e.max Ceram ZirLiner Build-Up Liquid allround is exclusively used to mix the IPS e.max Ceram ZirLiner powders. The ZirLiner Liquid provides the materials with a creamy and ductile consistency and thus enables easy and efficient application of the ZirLiner. If another consistency is desired, the Liquid may also be mixed with the other IPS e.max Ceram Build-Up Liquids (allround and soft) or with the Glaze and Stain Liquids (allround and longlife) in any mixing ratio.

#### Delivery form:

##### Refill

- 1x 60 ml IPS e.max Ceram ZirLiner Build-Up Liquid;  
Type: allround

### IPS e.max Ceram Margin Build-Up Liquids



The IPS e.max Ceram Margin Build-Up Liquids are available in 2 versions.

- With the allround Liquid, a consistency suitable for conventional Margin processing and drying is achieved.
- Powders mixed with the carving Liquid demonstrate a shorter processing time. After drying, the powder sets. The applied shoulder may then be given the desired shape, i.e. "carved", using a suitable instrument.

#### Delivery form:

##### Refill

- 2x 60 ml IPS e.max Ceram Margin Build-Up Liquid;  
Types: allround, carving

### IPS e.max Ceram Build-Up Liquids



The IPS e.max Ceram Build-Up Liquids are available in 2 versions:

- With the allround Liquid, a consistency suitable for conventional processing and drying is achieved.
- Powders mixed with the soft Liquid demonstrate a shorter processing time.

#### Delivery form:

##### Refill

- 2x 60 ml IPS e.max Ceram Build-Up Liquid;  
Types: allround, soft

### IPS e.max Ceram Glaze and Stain Liquids



The IPS e.max Ceram Glaze and Stain Liquids are available in 2 versions:

- With the allround Liquid, a consistency suitable for conventional processing and drying is achieved. Powders mixed with the allround Liquid demonstrate a shorter processing time (approximately 1/2 day).
- The longlife Liquid, however, enables a slightly pasty consistency and the powders mixed with this liquid can be processed over a longer period of time (approximately 1 week).

#### Delivery form:

##### Refill

- 2x 20 ml IPS e.max Ceram Glaze and Stain Liquid;  
Types: allround, longlife

### IPS® Model Sealer



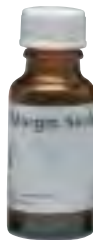
The IPS Model Sealer is used to isolate the stone model. It seals the stone pores and thus prevents the moisture of the ceramic material from being absorbed by the stone.

**Delivery form:**

**Refill**

- 1x 50 ml IPS Model Sealer

### IPS® Margin Sealer



The IPS Margin Sealer is used to isolate the plaster die during the fabrication of a ceramic shoulder.

**Delivery form:**

**Refill**

- 1x 20 ml IPS Margin Sealer

### IPS® Ceramic Separating Liquid with Brush



This liquid is used to coat those areas that have previously been impregnated with IPS Model Sealer or IPS Margin Sealer. A clean separation of the ceramic material and the stone model or stone die is thus possible.

**Delivery form:**

**Refill**

- 1x 15 ml IPS Ceramic Separating Liquid with Brush

The "IPS" separating liquids mentioned above are suitable for all the popular Ivoclar Vivadent ceramic materials.

# IPS e.max® Ceram —

## PRACTICAL USE

### SHADE DETERMINATION

#### Chromascop

The Chromascop shade guide provides the shade standard for Ivoclar Vivadent products. The individual shades of the Chromascop are logically arranged and therefore allow shades to be determined accurately and efficiently. The 20 shades are divided into five shade groups. In addition, the Chromascop Bleach shade group comprises four very light shades. Once the basic hue has been established, the most suitable shade is chosen from within the shade group. All superfluous effects (eg cervical and translucent areas, severe discolourations in the incisal area and dentin as well as superficial characterizations) have been left out, making the selection of the proper shade much easier.



#### IPS e.max Ceram Material Shade Guides

For IPS e.max Ceram, the material shade guides are an integral part of the product concept. For reasons of light refraction, the dentin shade tabs have been given an anatomical shape and surface structure. All the other shade tabs demonstrate a slight wedge shape, in order to better illustrate the translucency of the individual materials. The shade tabs are fired from the original ceramic materials. To facilitate the distinction from the existing material shade guides (e.g. IPS d.SIGN, IPS InLine, SR Adoro), the rods and holders of the IPS e.max Ceram material shade guides are light-grey.



## LAYERING DIAGRAM

The layering diagram of IPS e.max Ceram has been designed in such a way that easy and reliable shade reproduction is possible, irrespective of the framework material or framework shade. A proportional framework design that supports both shape and cusps represents the ideal basis.

### Layering Diagram for Glass-Ceramics

(IPS e.max Press and IPS e.max CAD)



Highly aesthetic glass-ceramic framework



Wash (foundation) application



Dentin application



Completing the layering with Incisal material

### Layering Diagram for Zirconium Oxide

(IPS e.max ZirCAD)



High-strength zirconium oxide framework



ZirLiner application



Dentin application

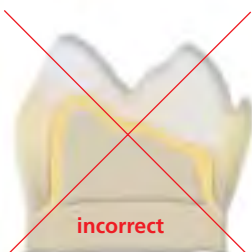
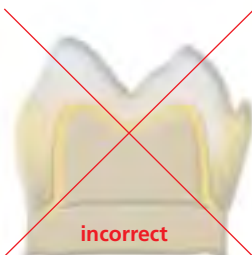
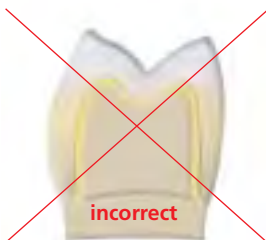


Completing the layering with Incisal material

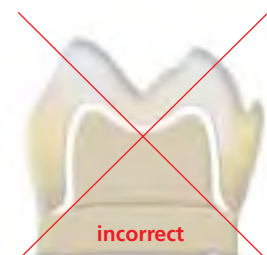
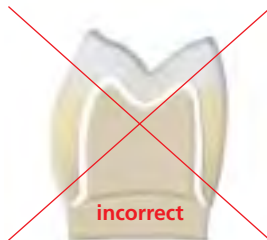
## FRAMEWORK DESIGN

Failure to observe the stipulated framework design criteria and minimum thicknesses may result in clinical failure, such as cracks, delamination, and, ultimately, to fracture of the restoration.

### Framework Design for Glass-Ceramics



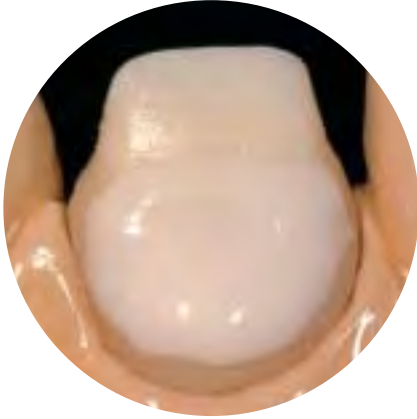
### Framework Design for Zirconium Oxide



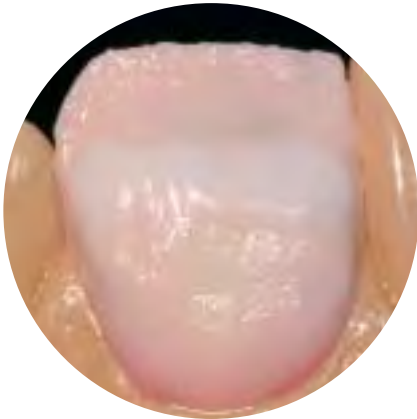
## TIPS AND TICKS ON LAYERING

### Application of the Impulse materials

#### Increasing the brightness value



By applying **Opal Effect 4** or **Deep Dentin 010/020** directly on the wash layer or ZirLiner, the in-depth brightness value in the dentin area can be enhanced. The corresponding areas are subsequently covered with Dentin materials.



To increase the brightness value in the incisal third, e.g. if space is limited, **Inter Incisal white-blue** can be used.

#### Enhancing the in-depth effect - internal



To enhance the in-depth effect in the incisal third, e.g. if space is limited, **Special Incisal** e.g. **SI grey**, can be used.



### Designing a true-to-nature incisal third



The Mamelon materials permit a true-to-nature interplay of shades in the incisal third. They are applied on the completed incisal area, e.g. **MM light**, **MM salmon**.



To complete and enhance the vitality in the incisal area, the shaded Transparent materials can be used, e.g. **T brown-grey**.



With the Opal Effect materials, a lifelike opalescent effect in the incisal third can be achieved. **OE 2** can be applied on the individualized cut-back.



**Opal Effect 1** is layered in the mesial and distal areas. Opal Effect 5 is excellently suitable to imitate secondary dentin.

#### Enhancing the in-depth effect - external



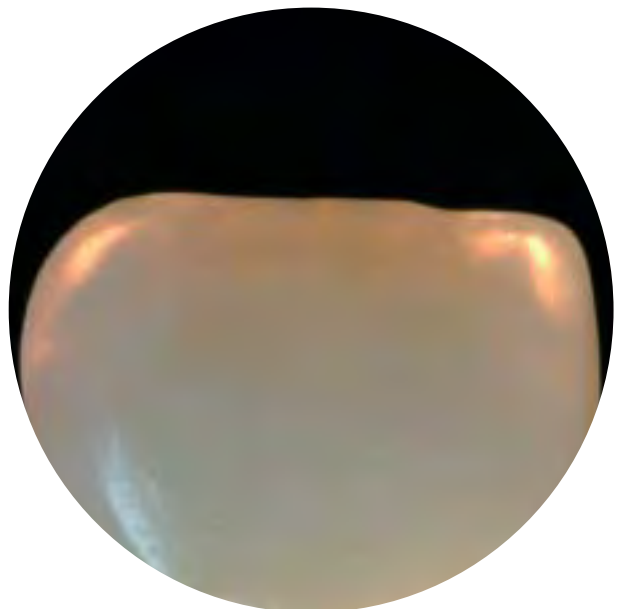
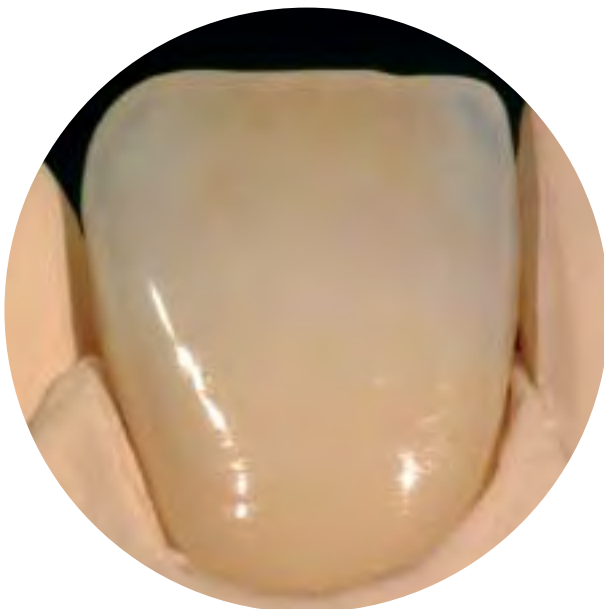
The Cervical Transparent materials with their slightly higher fluorescence are used to complete the layering of the cervical third, e.g. **CT orange-pink**.

#### Halo effect



To achieve what is known as the halo effect, **Incisal Edge** is used and applied to prolong the incisal edge.

#### Result of an individual IPS e.max Ceram Impulse layering procedure



## Applications for the Essence powders

Essence powders are intensively shaded and should, therefore, only be used in very small quantities.

### Essence – mixing



Dentin before

Dentin after

Increasing the chroma or the shade saturation of layering materials, such as Deep Dentin and Dentin.



Transpa Incisal before

Transpa Incisal after

Enhancing the shade effect of Incisal materials, e.g. adjusting of warm and chromatic Incisal materials.



Transpa neutral before

Transpa neutral after

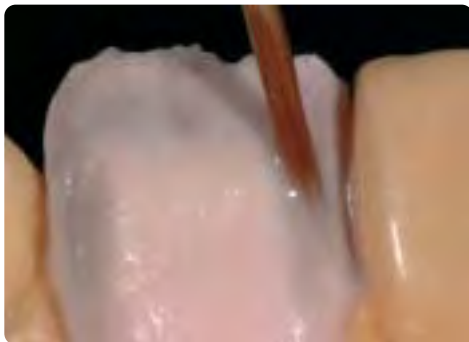
Shading of Transparent clear to create new individual Transpa materials.

### Essence – internal

Internal characterizations should only be applied on thoroughly moist areas.



To design **Mamelons**, e.g. E 02 cream, E 10 terracotta are used.



To enhance the **in-depth effect**, E 15 profundo can be flushed in.



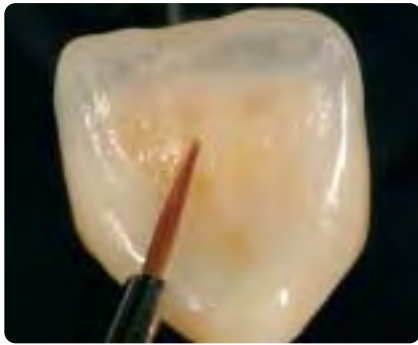
To increase the **brightness value** and to **imitate incisal discolouration**, E 01 white and e.g. E 04 sunset, can be flushed in.



To design **enamel cracks**, E 02 cream or any mixture can be applied.

### Essence – external

Superficial deposits, such as the ones caused by coffee or tea, can be imitated using, e.g. E 13 espresso.



Staining



Completed crown



Natural tooth

Fissures and occlusal surfaces can be reproduced in a lifelike fashion using, e.g. E 05 copper, E 11 mahogany, or E 14 terra.



Staining



Completed crown

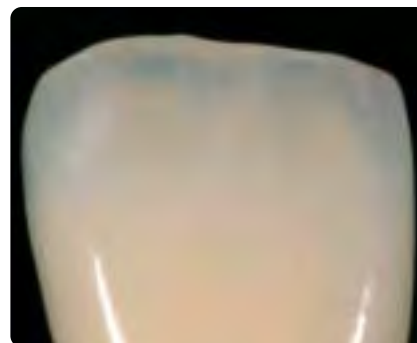


Natural tooth

Enamel stains are imitated with, e.g. E 01 white or E 02 cream.



Staining




Completed crown



Natural tooth

## CEMENTATION

For the cementation of the IPS e.max restorations, you may select between the tried-and-tested adhesive luting composites and cements from the coordinated assortment of Ivoclar Vivadent. Adhesive cementation achieves a sound bond between the preparation and the cementation material, while conventional cementation requires a retentive preparation to ensure the durability of the IPS e.max restorations.



	Adhesive Cementation		Conventional Cementation	
	Variolink® II	Multilink®	Vivaglass® CEM	PhosphaCEM
IPS e.max Press	✓✓	✓✓	✓✓	–
IPS e.max ZirPress Veneers	✓✓	–	–	–
IPS e.max ZirCAD	–	✓✓	✓✓	✓
IPS e.max CAD	✓✓	✓✓	✓	–
IPS e.max Ceram Veneers	✓✓	–	–	–

- ✓✓ Especially recommended product combination
- ✓ Recommended product combination (2<sup>nd</sup> choice)
- Not recommended; product combination not possible

## PROCESSING ON ZrO<sub>2</sub> FRAMEWORKS

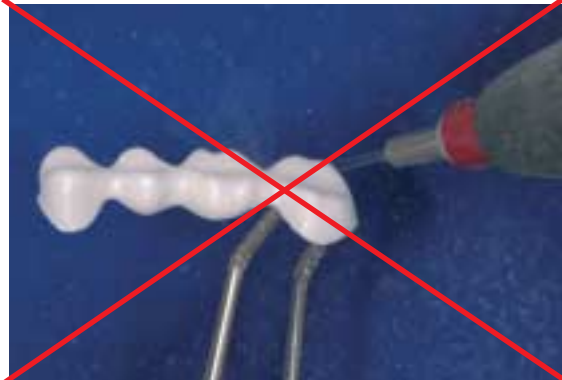
### Framework preparation

Place the sintered zirconium oxide framework on the model. Reduce the margins of the premolar for a fused-on ceramic shoulder down to the inner edge of the chamfer or shoulder preparation. Observe the following procedure:

- Make sure that the minimum thicknesses are maintained even after minor adjustments.
- Check marginal area and carry out slight adjustments, if necessary.
- Do not 'post-separate' the bridge framework after sintering using separating disks, since this may result in undesired predetermined breaking points, which will subsequently compromise the stability of the all-ceramic restoration.
- Before veneering, clean framework under running water or with the steam jet and dry.
- The framework **must not** be blasted with Al<sub>2</sub>O<sub>3</sub> or polishing jet medium, since this would damage the surfaces.
- Before ZirLiner is applied, the framework must be free of dirt and grease. Prevent any contamination after cleaning.



Reduce the margins of the premolar down to the inner edge of the chamfer or shoulder preparation for the fused-on ceramic shoulder.



Before veneering, clean framework under running water or with the steam jet and dry. The framework **must not** be blasted with Al<sub>2</sub>O<sub>3</sub>.



Finished and cleaned zirconium oxide framework



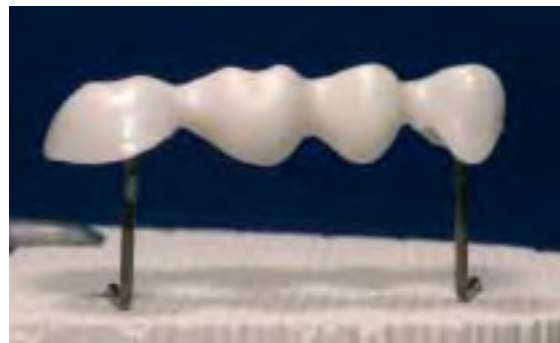
## ZirLiner firing

Before ZirLiner is applied, the framework must be free of dirt and grease. Avoid any contamination after cleaning. Observe the following procedure.

- The IPS e.max ZirLiners are only suitable for the application on IPS e.max ZirCAD and other zirconium oxide frameworks.
- IPS e.max Ceram ZirLiner must always be applied prior to veneering in order to achieve a sound bond, as well as an in-depth shade effect and fluorescence.
- Direct layering on ZirCAD framework without using IPS e.max Ceram ZirLiner results in a poor bond and may lead to delamination.
- Mix the IPS e.max Ceram ZirLiner in the corresponding shade with the respective liquid to a creamy consistency.
- If a different consistency is desired, the IPS e.max Ceram Build-Up Liquids (allround and soft) and the Glaze and Stain Liquids (allround and longlife) may be used. The liquids may also be mixed with each other at any mixing ratio.
- Apply ZirLiner on the entire framework, pay special attention to the margins. If required, the restoration may be vibrated until an even, greenish colour effect is achieved. If the colour appears too pale, the layer is too thin.
- For more intensively shaded areas, 4 IPS e.max Ceram Intensive ZirLiners (yellow, orange, brown, and incisal) are available.
- After that, the applied ZirLiner is briefly dried and fired.
- The IPS e.max Ceram ZirLiner should have a layer thickness of approximately 0.1 mm after firing
- If ZirLiner is to be individually characterized after the Margin firing, IPS e.max Ceram Essence is suitable for this purpose. Given the lower firing temperature of Essence, characterization prior to Margin firing is not possible.



Mix the corresponding IPS e.max Ceram ZirLiner with the respective liquid to a creamy consistency and cover the entire framework with it. Pay special attention to the margins.



Make sure that an even, greenish shade effect is achieved. Fire the restorations using the stipulated firing parameters.

### Firing parameters for the ZirLiner firing (note the temperature control)

IPS e.max Ceram on ZrO <sub>2</sub>	B	S	t↗	T	H	V <sub>1</sub>	V <sub>2</sub>
ZirLiner firing	403°C 757°F	4' 4'	60°C 108°F	960°C 1760°F	1' 1'	450°C 842°F	959°C 1758°F

**Do not apply any layering materials on unfired ZirLiner, since this will lead to delamination of the layering ceramic. Before the actual layering is commenced, the ZirLiner must be fired.**



## 1<sup>st</sup> Margin firing

A ceramic shoulder is applied to the reduced premolar bridge abutment after the ZirLiner firing. Observe the following procedure:

- Before the ceramic shoulder is applied, cover the model die with IPS Margin Sealer and allow it to dry. After that, isolate the shoulder areas using IPS Ceramic Separating Liquid.
- Place the framework on the die and make sure it is correctly positioned.
- Subsequently, mix IPS e.max Ceram Margin in the desired shade with the corresponding Margin Build-Up Liquid (allround or carving) and apply in drop-shaped increments.
- For more intensively shaded areas, 4 Intensive Margin materials (yellow, yellow-orange, and orange-pink) are available.
- Contour the Margin material as desired and dry.
- Carefully remove the framework with the applied and dried should material from the die, place it on a firing tray, and fire.



Isolate the die and apply the Margin material on the entire shoulder preparation.



Apply the Margin material in drop-shaped increments.

Do not apply the Margin material too thinly or with a concave shape.



Carefully remove the framework with the applied and dried shoulder material from the die, and fire.

### Firing parameters for the 1<sup>st</sup> Margin firing (note the temperature control)

IPS e.max Ceram on ZrO <sub>2</sub>	B	S	t↗	T	H	V <sub>1</sub>	V <sub>2</sub>
1 <sup>st</sup> Margin firing	403°C 757°F	4' 4'	50°C 90°F	800°C 1472°F	1' 1'	450°C 842°F	799°C 1470°F

**Important:** IPS e.max Ceram Margin materials are only suitable for the application on IPS e.max ZirCAD and other zirconium oxide frameworks and must not be used in conjunction with glass-ceramic materials.

## 2<sup>nd</sup> Margin firing

After firing, the shoulder may require minor adjustments by grinding. Observe the following procedure for the 2<sup>nd</sup> Margin firing:

- Isolate the die once again using IPS Ceramic Separating Liquid.
- Complete the areas affected by shrinkage and any missing areas using the same Margin material that was used for the 1<sup>st</sup> firing.
- Depending on the size of the gap, the shoulder material may be slightly vibrated.
- Carefully remove the framework with the completed and dried shoulder from the die, position it on the firing tray, and fire.
- After the 2<sup>nd</sup> firing, the shoulder may require minor adjustments to achieve very good accuracy of fit.



Complete the areas affected by shrinkage and any missing areas using the same Margin material that was used for the 1<sup>st</sup> firing



If necessary, slightly adjust the fired shoulder by grinding to achieve very good accuracy of fit.

### Firing parameters for the 2<sup>nd</sup> Margin firing (note the temperature control)

IPS e.max Ceram on ZrO <sub>2</sub>	B	S	t↗	T	H	V <sub>1</sub>	V <sub>2</sub>
2 <sup>nd</sup> Margin firing	403°C 757°F	4' 4'	50°C 90°F	800°C 1472°F	1' 1'	450°C 842°F	799°C 1470°F

#### Important:

If the fit of shoulder is to be optimized during the subsequent Dentin and Incisal firing, mix the corresponding Margin material with the Add-On Margin material in a 1:1 ratio and fire using the firing parameters for the Dentin / Incisal firing.

## Wash firing (Foundation)

Begin the veneering process by conducting a wash firing of Dentin or Deep Dentin material. This procedure ensures controlled shrinkage of the veneering material in the direction of the substructure and ensures a homogenous bond to the underlying ZirLiner material. In order to achieve this:

- Mix the required IPS e.max Ceram layering materials (Dentin or Deep Dentin) with the Build-Up Liquids allround and soft. If a more plastic consistency is desired, IPS e.max Ceram Glaze and Stain Liquids (allround and longlife) can be used to mix with the Build-Up Liquids in any ratio.
- Provide a thin even coverage of the Dentin or Deep Dentin material on the entire veneering surface.
- After surface is completely covered, position the restoration on the firing tray and fire according to the given parameters.

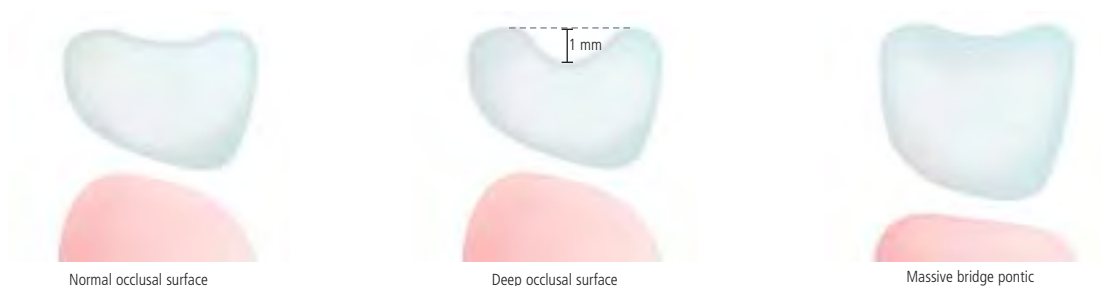
### Firing parameters for Wash firing (Foundation) (note the temperature control)

IPS e.max Ceram on ZrO <sub>2</sub>	B	S	t	T	H	V <sub>1</sub>	V <sub>2</sub>
Wash firing (Foundation)	403°C 757°F	4' 4'	50°C 90°F	750°C 1382°F	1' 1'	450°C 842°F	749°C 1380°F

## 1<sup>st</sup> Dentin and Incisal firing

In order to fabricate highly aesthetic restorations, please observe the following procedure:

- Before layering, apply IPS Model Sealer and allow it to dry. Then, isolate the corresponding areas using IPS Ceramic Separating Liquid.
- Place the framework on the die and make sure it is correctly positioned.
- Mix the required IPS e.max Ceram layering materials with the Build-Up Liquids allround and soft. If a different consistency of the ceramic is desired, the Liquids may also be mixed with each other in any ratio.
- Underlay the pontic areas with Deep Dentin in the next lighter shade and make sure that a good rest is reached. After that, layer these areas using Deep Dentin and Dentin materials.
- The low thermal conductivity of zirconium oxide frameworks provides an insulating effect that in a small number of cases such as restorations with an abnormally deep occlusal fossa or bulky molar pontics, present challenges in achieving properly fired veneering ceramic. To optimize the sintering result, control shrinkage and ensure a well bonded veneer layer, two veneering options may be used:
  - Option 1: Intermediate firing  
Use Deep Dentin, Dentin or Impulse materials for an intermediate firing to minimize the bulk of veneering ceramic during the initial build-up. The layering has to cover the complete surface.
  - Option 2: Fissure separation  
Separate the central fissure from mesial to distal including the marginal ridges with a thin scalpel. This allows optimal sintering behaviour and results in uniform shrinkage that is easily corrected during the 2<sup>nd</sup> Dentin and Incisal firing.



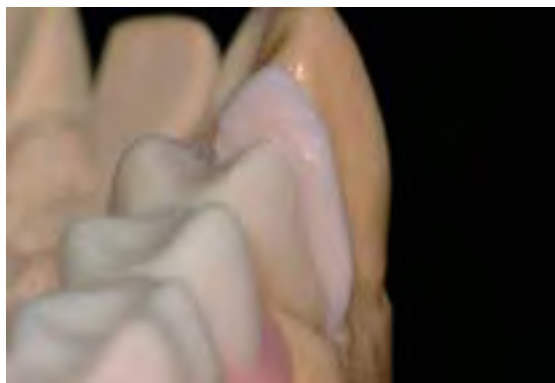
- Subsequently, conduct the layering procedure according to the layering diagram. Observe the necessary layer thicknesses.
- For individual characterizations, use, e.g. Occlusal Dentin (see also pages 22–29)
- Carefully remove the restorations from the model and supplement the contact points.
- Do not apply excessive suction and prevent the restoration from drying out.
- Before firing, all the interdental areas must be separated down to the framework using a scalpel.
- Position the restoration on the firing tray and fire using the stipulated firing parameters.



Before layering, apply IPS Model Sealer and allow it to dry. Then, isolate the corresponding areas using IPS Ceramic Separating Liquid.



Underlay the pontic areas with Deep Dentin in the next lighter shade and make sure that a good rest is reached.



Observe the necessary layer thicknesses. Continue the layering with Dentin.



Layer the entire dentin core.



Apply Occlusal Dentin orange and complete the occlusal surface.



Carefully reduce the completed dentin layering and provide sufficient space for the Incisal materials.



Individually supplement the restorations with Transparent and Impulse material and completely cover them with Incisal materials.



Remove the completed layered restorations from the model, supplement the contact points, and separate all interdental areas down to the framework.





Fired restorations after the 1<sup>st</sup> Dentin / Incisal firing.

#### Firing parameters for the 1<sup>st</sup> Dentin/Incisal firing (note the temperature control)

IPS e.max Ceram on ZrO <sub>2</sub>	B	S	t↗	T	H	V <sub>1</sub>	V <sub>2</sub>
1 <sup>st</sup> Dentin / Incisal firing	403°C 757°F	4' 4'	50°C 90°F	750°C 1382°F	1' 1'	450°C 842°F	749°C 1380°F

#### 2<sup>nd</sup> Dentin and Incisal firing

Touch up the restoration and clean it completely. Cleaning is carried out with ultrasound in a water bath or the steam jet. Blasting the surface with Al<sub>2</sub>O<sub>3</sub> Type 50 at 1 bar pressure is only necessary if superficial contamination is evident after cleaning. Thoroughly dry the restoration and complete any missing areas. Interdental areas and contact points should be given special attention.



Thoroughly dry the restoration and complete any missing areas. Interdental areas and contact points should be given special attention.



Fired restorations after the 2<sup>nd</sup> Dentin / Incisal firing

#### Firing parameters for the 2<sup>nd</sup> dentin and incisal firing (note the temperature control)

IPS e.max Ceram on ZrO <sub>2</sub>	B	S	t↗	T	H	V <sub>1</sub>	V <sub>2</sub>
2 <sup>nd</sup> Dentin / Incisal firing	403°C 757°F	4' 4'	50°C 90°F	750°C 1382°F	1' 1'	450°C 842°F	749°C 1380°F

Depending on the furnace type, the firing temperature can be reduced by 5 ° C, max. 10 ° C (41 ° F to max. 50 ° F) for the 2<sup>nd</sup> Dentin / Incisal firing.

## Finishing and preparation for the Stain and Glaze firing

The restoration must be finished and polished as follows before the stain and glaze firing:

- Use finishing diamonds to achieve a natural shape and surface structure of the restoration, such as growth lines, convex/concave areas.
- Areas that should demonstrate a stronger gloss after glaze firing (e.g. pontic rests) can be smoothed and prepolished using silicone wheels.
- If gold or silver dust is used for the surface design, the restoration must be thoroughly cleaned with the steam jet. Make sure that any gold or silver dust is entirely removed in order to prevent discolouration after firing.



Create a natural shape and surface structure with finishing diamonds.










Finished restoration ready for stain and glaze firing.

## Stain and Glaze firing

Stain firing is conducted with Essence and Shade material, while Glaze firing is carried out with Glaze powder. Depending on the situation, the firings may be conducted together or separately. The firing parameters are identical. The restoration must be free of dirt and grease. Avoid any contamination of the restoration after cleaning with ultrasound in the water bath or with the steam jet. With this firing, final adjustments of the shoulder and contact points are also possible. Observe the following procedure:

- To promote wetting of the Stains and Glaze materials, IPS e.max Ceram Glaze and Stain Liquid can be lightly painted onto the surface.
- Mix the paste or powder with the IPS e.max Ceram Glaze and Stain Liquid (allround and longlife) until the desired consistency is reached.
- More intensive shades are achieved by repeated staining, rather than by applying thicker layers.
- Individually characterize cusps and fissures using Essence materials.
- If shade modifications are required, Shades can be used.
- Use Glaze material in powder or paste form.
- Apply Glaze material in an even layer on the entire restoration.
- Make any adjustment of the shoulder using Add-On Margin.
- Adjustments of contact points are carried out with a 1:1 mixture of, e.g. Incisal and Add-On Incisal.
- Polish the supplemented areas to a high gloss using silicone polishers.

The combinations listed below represent suggestions:

IPS e.max Ceram Shade	Chromascop	A–D
Shade Incisal 1 	010–040 / 110–140, 210, 220, 310, 320	A1, A2, A3, B1, B2, B3, B4
Shade Incisal 2 	230, 240, 330, 340, 410–440, 510–540	A3.5, A4, C1, C2, C3, C4, D2, D3, D4
Shade 0 	010–040	
Shade 1 	110–140, 210–240	A1, A2, A3, A3.5
Shade 2 	310–330	B1, B2, B3, B4, D4
Shade 3 	410–440	C1, C2, C3, C4
Shade 4 	340, 510–540	A4, D2, D3





Apply Glaze material in an even layer on the entire restoration. Basal area and the pontic should be given particular attention.



Characterize the fissures with Essence and supplement the contact points with a 1:1 mixture.



Completely stained, glazed, and adjusted restoration ready to be fired.

Polish the supplemented areas to a high gloss using silicone polishers.

#### Firing parameters for the Stain and Glaze firing (note the temperature control)

IPS e.max Ceram on ZrO <sub>2</sub>	B	S	t	T	H	V <sub>1</sub>	V <sub>2</sub>
Stain firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337°F	1' 1'	450°C 842°F	724°C 1335°F
Glaze firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337°F	1' 1'	450°C 842°F	724°C 1335°F

## Add-On firing

There are 3 IPS e.max Ceram Add-On materials available for adjustments. Depending on the individual application, the materials are processed differently.

### Variant 1 – Add-On with Glaze firing

This method is used, if minor adjustments are made together with the Glaze firing. If you use this method, proceed as follows:

- If necessary, optimize the accuracy of fit of the shoulder using IPS e.max Ceram Add-On Margin (alone).



- Mix IPS e.max Ceram Add-On Dentin and Incisal in a 1:1 ratio and then mix it with Dentin and Transparent Incisal material. Apply the mixture on the corresponding areas and fire.



- Polish the adjusted areas to a high gloss after firing.

### Firing parameters for Add-On with Glaze firing (note the temperature control)

IPS e.max Ceram on ZrO <sub>2</sub>	B	S	t↗	T	H	V <sub>1</sub>	V <sub>2</sub>
Add-On with Glaze firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337°F	1' 1'	450°C 842°F	724°C 1335°F

### Variant 2 – Add-On after Glaze firing

Additional corrections may be required once the restoration has been completed and tried-in with the patient (e.g. pontic rest, contact points). In such cases, proceed as follows:

- Apply IPS e.max Ceram Add-On Dentin and Incisal (alone) to the corresponding areas and fire.
- Polish the adjusted areas to a high gloss after firing.



### Firing parameters for Add-On after Glaze firing (note the temperature control)

IPS e.max Ceram on ZrO <sub>2</sub>	B	S	t↗	T	H	V <sub>1</sub>	V <sub>2</sub>
Add-On after Glaze firing	403°C 757°F	6' 6'	50°C 90°F	700°C 1292°F	1' 1'	450°C 842°F	699°C 1290°F



Completed IPS e.max Ceram restoration



Homogeneous, true-to-nature surface and gloss



High-gloss basal area of the pontics for optimum cleaning

# IPS e.max<sup>®</sup> Ceram – ONE FOR 4

Versatility and simplicity of IPS e.max Ceram on the various IPS e.max framework materials

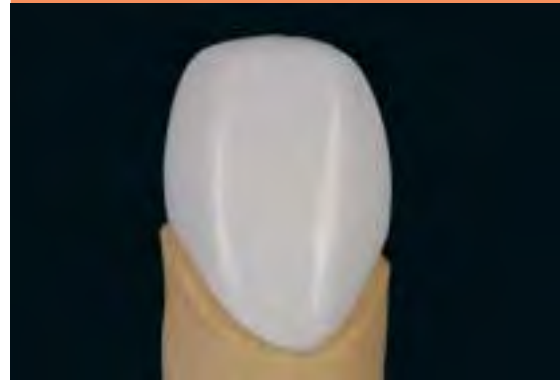


IPS e.max Press

IPS e.max ZirPress



Glass-ceramic framework prepared for the wash application



Zirconium oxide framework prepared for the ZirLiner application



Wash application



ZirLiner application



Fired wash



Fired ZirLiner



Building-up the tooth shape using Dentin materials



Pressing-over the tooth shape



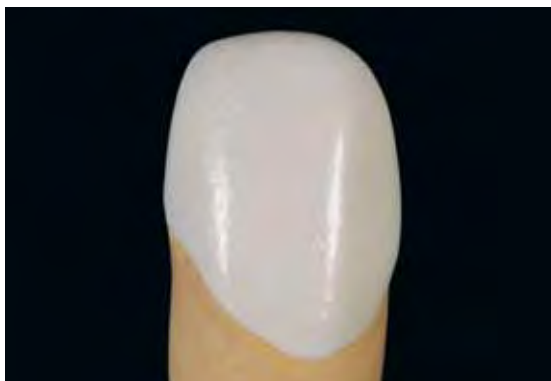
## IPS e.max<sup>®</sup> ZirCAD



Framework prepared for the ZirLiner application



ZirLiner application



Fired ZirLiner



Conducting the Wash firing and building-up the tooth shape using Dentin materials

## IPS e.max<sup>®</sup> CAD



Framework prepared for the wash application



Wash application



Fired wash



Building-up the tooth shape using Dentin materials



IPS **e.max<sup>®</sup> Press**



Reducing the tooth shape to the dentin core



Completing the layering with incisal materials



Labial view of the completed restoration after glaze firing



Palatal view of the completed restoration after glaze firing

IPS **e.max<sup>®</sup> ZirPress**





## IPS e.max<sup>®</sup> ZirCAD



## IPS e.max<sup>®</sup> CAD



Reducing the tooth shape to the dentin core



Completing the layering with Incisal materials



Labial view of the completed restoration after glaze firing



Palatal view of the completed restoration after glaze firing



# IPS e.max® Ceram – ALL YOU NEED

## Uniform layering diagram

Uniform aesthetic appearance irrespective of the framework material

Maximum efficiency and performance through one layering ceramic



The crowns were fabricated by Thorsten Michel, M.D.T. Schorndorf/Germany

# IPS e.max<sup>®</sup> Ceram –


## GENERAL INFORMATION

### PREPARING FOR CEMENTATION

Conditioning of the ceramic surface in preparation for cementation is decisive for generating a sound bond between the luting material and the all-ceramic restoration.

The following points must be observed:

- High-strength zirconium oxide ceramics are generally **not** etched with hydrofluoric acid (IPS Ceramic Etching Gel), as it does not produce an etching pattern.
- Zirconium oxide-supported restorations may be sandblasted with Al<sub>2</sub>O<sub>3</sub> Type 50 at max. 1 bar (15 psi) pressure to clean the surfaces prior to cementation.
- Veneers fabricated of IPS e.max Ceram **must** be etched with hydrofluoric acid (IPS Ceramic Etching Gel), silanated, and incorporated by means of the adhesive cementation technique.

IPS e.max Ceram		
Indication	Veneers	
	Adhesive Cementation	Conventional Cementation
Cementation method	✓	
Sand blasting	Only to remove the investment material die	
Etching	20 s. with IPS Ceramic Etching Gel	
Conditioning / Silanating	Monobond-S	
Cementation system	Variolink II Variolink Veneer	

For the cementation of IPS e.max Ceram restorations, you may choose between the tried-and-tested luting composites and cements of the coordinated assortment from Ivoclar Vivadent.

**Please observe the IPS Ceramic Etching Gel Instructions for Use.**

## FIRING PARAMETERS

### Firing of glass-ceramic-supported restorations

- Use the honey-comb firing tray and the corresponding support pins to fire the restorations.
- Do not use ceramic pins, since they may stick to the restoration.
- The processing temperatures must be observed. Increasing the firing temperature will result in severe vitrification between the framework and the veneering ceramic, which may lead to crack formation later on. Reducing the firing temperature results in the ceramic being underfired rendering it very brittle, which may ultimately lead to delamination.
- The parameters in the Instructions for Use apply to Ivoclar Vivadent furnaces (tolerance: +/- 10 %)
- If furnaces other than those from Ivoclar Vivadent are used, temperature adjustments may be necessary.



IPS e.max Ceram on IPS e.max Press and IPS e.max CAD	B	S	t	T	H	V <sub>1</sub>	V <sub>2</sub>
Wash firing (foundation)	403°C 757°F	4' 4'	50°C 90°F	750°C 1382°F	1' 1'	450°C 842°F	749°C 1380°F
Wash firing (foundation) characterization	403°C 757°F	4' 4'	50°C 90°F	750°C 1382°F	1' 1'	450°C 842°F	749°C 1380°F
1 <sup>st</sup> Dentin / Incisal firing	403°C 75 °F	4' 4'	50°C 90°F	750°C 1382°F	1' 1'	450°C 842°F	749°C 1380°F
2 <sup>nd</sup> Dentin / Incisal firing	403°C 757°F	4' 4'	50°C 90°F	750°C 1382°F	1' 1'	450°C 842°F	749°C 1380°F
Stain firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337°F	1' 1'	450°C 842°F	724°C 1335°F
Glaze firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337°F	1' 1'	450°C 842°F	724°C 1335°F
Add-On with Glaze firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337°F	1' 1'	450°C 842°F	724°C 1335°F
Add-On after Glaze firing	403°C 757°F	6' 6'	50°C 90°F	700°C 1292°F	1' 1'	450°C 842°F	699°C 1290°F

Depending on the furnace type, the firing temperature can be reduced by 5 ° C, max. 10 °C (41 °F to max. 50 °F) for the 2<sup>nd</sup> Dentin / Incisal firing.

### Firing of zirconium oxide-supported restorations

- Several units (eg multi-unit bridges with bulky pontics) in the furnace impede even and thorough heating of the individual units.
- Heat penetration in the firing chamber depends on the type of furnace and the size of the firing chamber.
- To achieve adequate heating of the individual restorations the heating rate should be lowered by 5–10 °C (41–50 °F) as well as the holding time should be extended by 30 seconds.
- The parameters listed in the Instructions for Use apply to Ivoclar Vivadent furnaces (temperature tolerance ± 10 °C/50 °F).
- If furnaces other than those from Ivoclar Vivadent are used, temperature adjustments may be necessary.



IPS e.max Ceram on IPS e.max ZirPress MO Cut-back Technique	B	S	t	T	H	V <sub>1</sub>	V <sub>2</sub>
ZirLiner firing – before wax-up and pressing	403°C 757°F	4' 4'	60°C 108°F	960°C 1760 °F	1' 1'	450°C 842°F	959°C 1758°F
Wash firing (foundation)	403°C 757°F	4' 4'	50°C 90°F	750°C 1382 °F	1' 1'	450°C 842°F	749°C 1380°F
Wash firing (foundation) characterization	403°C 757°F	4' 4'	50°C 90°F	750°C 1382 °F	1' 1'	450°C 842°F	749°C 1380°F
1 <sup>st</sup> Incisal / Impulse firing	403°C 757°F	4' 4'	50°C 90°F	750°C 1382 °F	1' 1'	450°C 842°F	749°C 1380°F
2 <sup>nd</sup> Incisal / Impulse firing	403°C 757°F	4' 4'	50°C 90°F	750°C 1382 °F	1' 1'	450°C 842°F	749°C 1380°F
Stain firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337 °F	1' 1'	450°C 842°F	724°C 1335°F
Glaze firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337 °F	1' 1'	450°C 842°F	724°C 1335°F
Add-On with Glaze firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337 °F	1' 1'	450°C 842°F	724°C 1335°F
Add-On after Glaze firing	403°C 757°F	6' 6'	50°C 90°F	700°C 1292 °F	1' 1'	450°C 842 °F	699°C 1290°F

Depending on the furnace type, the firing temperature can be reduced by 5 ° C, max. 10 °C (41 °F to max. 50 °F) for the 2<sup>nd</sup> Incisal / Impulse firing.



IPS e.max Ceram on IPS e.max ZirPress LT Fully Anatomic Technique	B	S	t↗	T	H	V <sub>1</sub>	V <sub>2</sub>
ZirLiner firing – before wax-up and pressing	403°C 757°F	4' 4'	60°C 108°F	960°C 1760°F	1' 1'	450°C 842°F	959°C 1758°F
Stain and characterization firing	403°C 757°F	6' 6'	60°C 108°F	770°C 1418°F	1' 1'	450°C 842°F	769°C 1416°F
Glaze firing	403°C 757°F	6' 6'	60°C 108°F	770°C 1418°F	1' 1'	450°C 842°F	769°C 1416°F
Add-On after Glaze firing	403°C 757°F	6' 6'	50°C 90°F	700°C 1292°F	1' 1'	450°C 842°F	699°C 1290°F



IPS e.max Ceram on IPS e.max ZirCAD	B	S	t↗	T	H	V <sub>1</sub>	V <sub>2</sub>
ZirLiner firing	403°C 757°F	4' 4'	60°C 108°F	960°C 1760°F	1' 1'	450°C 842°F	959°C 1758°F
1 <sup>st</sup> Margin firing	403°C 757°F	4' 4'	50°C 90°F	800°C 1472°F	1' 1'	450°C 842°F	799°C 1470°F
2 <sup>nd</sup> Margin firing	403°C 757°F	4' 4'	50°C 90°F	800°C 1472°F	1' 1'	450°C 842°F	799°C 1470°F
Wash firing (Foundation)	403°C 757°F	4' 4'	50°C 90°F	750°C 1382°F	1' 1'	450°C 842°F	749°C 1380°F
1 <sup>st</sup> Dentin / Incisal firing	403°C 757°F	4' 4'	50°C 90°F	750°C 1382°F	1' 1'	450°C 842°F	749°C 1380°F
2 <sup>nd</sup> Dentin / Incisal firing	403°C 757°F	4' 4'	50°C 90°F	750°C 1382°F	1' 1'	450°C 842°F	749°C 1380°F
Stain firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337°F	1' 1'	450°C 842°F	724°C 1335°F
Glaze firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337°F	1' 1'	450°C 842°F	724°C 1335°F
Add-On with Glaze firing	403°C 757°F	6' 6'	60°C 108°F	725°C 1337°F	1' 1'	450°C 842°F	724°C 1335°F
Add-On after Glaze firing	403°C 757°F	6' 6'	50°C 90°F	700°C 1292°F	1' 1'	450°C 842°F	699°C 1290°F

Depending on the furnace type, the firing temperature can be reduced by 5 °C, max. 10 °C (41 °F to max. 50 °F) for the 2<sup>nd</sup> Dentin / Incisal firing.

- The parameters listed represent standard values and apply to the Ivoclar Vivadent furnaces: P200, P300, P500, PX1 and EP 600 Combi. The temperatures indicated also apply to furnaces of older generations, such as the P20, P90, P95, P80, and P100. If one of these furnaces is used, however, the temperatures may deviate by ± 10 °C/50 °F, depending on the age and type of the heating muffle.
- If furnaces other than those from Ivoclar Vivadent are used, temperature adjustments may be necessary.
- Regional differences in the power supply or the operation of several electronic devices by means of the same circuit may render adjustments of the firing and press temperatures necessary.

# IPS e.max® Ceram – COMBINATION






























































































A-D	A1	A2	A3	A3.5	A4	B1	B2			
IPS e.max Ceram ZirLiner	 ZL 1	 ZL 1	 ZL 2	 ZL 2	 ZL 4	 ZL 1	 ZL 1			
IPS e.max Ceram Intensive ZirLiner						 yellow	 orange			
IPS e.max Ceram Margin	 M A1	 M A2	 M A3	 M A3.5	 M A4	 M B1	 M B2			
IPS e.max Ceram Intensive Margin						 yellow	 yellow-green			
IPS e.max Ceram Deep Dentin	 DD A1	 DD A2	 DD A3	 DD A3.5	 DD A4	 DD B1	 DD B2			
IPS e.max Ceram Dentin	 D A1	 D A2	 D A3	 D A3.5	 D A4	 D B1	 D B2			
IPS e.max Ceram Transpa Incisal	 TI 1	 TI 1	 TI 2	 TI 2	 TI 3	 TI 1	 TI 1			
IPS e.max Ceram Transpa							 T neutral			
IPS e.max Ceram Add-On						 A-O Margin				
IPS e.max Ceram Impulse	Occlusal Dentin		 OD orange	 OD brown	Mamelon			 MM light	 MM salmon	 MM yellow-orange
	Incisal Edge		 Incisal Edge	Transpa		 T blue	 T brown-grey	 T orange-grey		
IPS e.max Ceram Essence	 E 01 white	 E 02 creme	 E 03 lemon	 E 04 sunset	 E 05 copper	 E 06 hazel	 E 07 olive	 E 08 khaki		
IPS e.max Ceram Shade	 Shade Incisal 1	 Shade Incisal 2			 Shade 0					

TABLE A – D

B3		B4		C1		C2		C3		C4		D2		D3		D4					
ZL 3		ZL 3		ZL 1		ZL 4		ZL 4		ZL 4		ZL 4		ZL 4		ZL 4					
		brown				incisal															
M B3		M B4		M C1		M C2		M C3		M C4		M D2		M D3		M D4					
		orange				orange-pink															
DD B3		DD B4		DD C1		DD C2		DD C3		DD C4		DD D2		DD D3		DD D4					
D B3		D B4		D C1		D C2		D C3		D C4		D D2		D D3		D D4					
TI 1		TI 2		TI 1		TI 3		TI 3		TI 3		TI 3		TI 3		TI 3					
		T clear																			
		A-O Dentin										A-O Incisal									
Opal Effect																					
	OE 1		OE 2		OE 3		OE 4		OE 5		OE violet										
Special Incisal																					
	SI yellow		SI grey				II white-blue						CT yellow		CT orange-pink		CT khaki		CT orange		
E 09 emerald		E 10 terracotta		E11 mahogany		E12 cappuccino		E 13 espresso		E 14 terra		E 15 profundo		E 16 ocean		E 17 sapphire		E 18 anthracite		E 19 black	
Shade 1				Shade 2						Shade 3						Shade 4					

# IPS e.max® Ceram — COMBINATION

Chromascope	010	020	030	040	110	120	130	140	210	220	
IPS e.max Ceram ZirLiner	 ZL clear				 ZL 1						
IPS e.max Ceram Intensive ZirLiner					 yellow				 orange		
IPS e.max Ceram Margin	 M 010/020	 M 010/020	 M 030/040	 M 030/040	 M 110	 M 120	 M 130	 M 140	 M 210	 M 220	
IPS e.max Ceram Intensive Margin					 yellow				 yellow-green		
IPS e.max Ceram Deep Dentin	 DD 010/020	 DD 010/020	 DD 030/040	 DD 030/040	 DD 110	 DD 120	 DD 130	 DD 140	 DD 210	 DD 220	
IPS e.max Ceram Dentin	 D 010	 D 020	 D 030	 D 040	 D 110	 D 120	 D 130	 D 140	 D 210	 D 220	
IPS e.max Ceram Incisal	 TI 1	 TI 1	 TI 1	 TI 1	 I 1	 I 1	 I 1	 I 2	 I 2	 I 2	
IPS e.max Ceram Transpa									 T neutral		
IPS e.max Ceram Add-On					 A-O Margin						
IPS e.max Ceram Impulse	Occlusal Dentin		 OD orange	 OD brown	Mamelon		 MM light	 MM salmon	 MM yellow-orange		
	Incisal Edge		 Incisal Edge	Transpa		 T blue	 T brown-grey	 T orange-grey			
IPS e.max Ceram Essence	 E 01 white	 E 02 creme	 E 03 lemon	 E 04 sunset	 E 05 copper	 E 06 hazel	 E 07 olive	 E 08 khaki			
IPS e.max Ceram Shade	 Shade Incisal 1		 Shade Incisal 2			 Shade 0					



# TABLE CHROMASCOP

230	240	310	320	330	340	410	420	430	440	510	520	530	540
													
ZL 2			ZL 3				ZL 4				ZL 4		
													
brown						incisal							
													
M 230	M 240	M 310	M 320	M 330	M 340	M 410	M 420	M 430	M 440	M 510	M 520	M 530	M 540
													
orange						orange-pink							
													
DD 230	DD 240	DD 310	DD 320	DD 330	DD 340	DD 410	DD 420	DD 430	DD 440	DD 510	DD 520	DD 530	DD 540
													
D 230	D 240	D 310	D 320	D 330	D 340	D 410	D 420	D 430	D 440	D 510	D 520	D 530	D 540
													
I 3	I 3	I 3	I 3	I 3	I 3	I 3	I 3	I 3	I 3	I 3	I 3	I 3	I 3
													
T clear													
													
A-O Dentin						A-O Incisal							
Opal Effect													
		OE 1	OE 2	OE 3	OE 4	OE 5	OE violet						
Special Incisal				Inter Incisal			Cervical Transpa						
		SI yellow	SI grey			II white-blue			CT yellow	CT orange-pink	CT khaki	CT orange	
													
E 09 emerald	E 10 terracotta	E11 mahogany	E12 cappuccino	E 13 espresso	E 14 terra	E 15 profundo	E 16 ocean	E 17 sapphire	E 18 anthracite	E 19 black			
													
Shade 1				Shade 2				Shade 3				Shade 4	

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