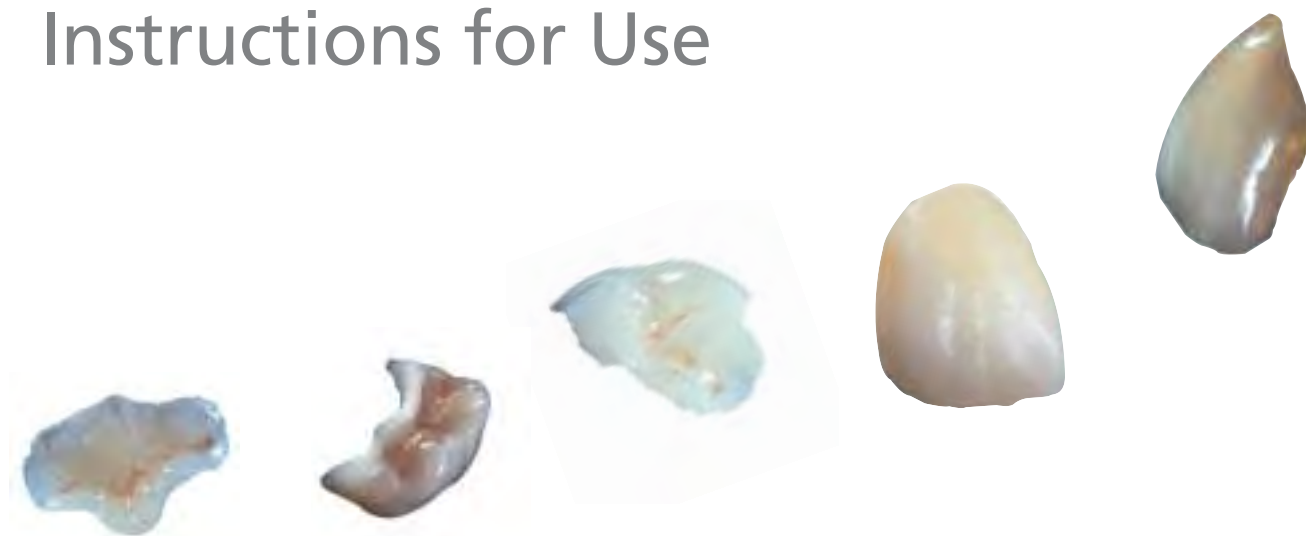




Instructions for Use



CE 0123

Table of Contents

| | | |
|--|----|--|
| | 3 | IPS Empress Esthetic |
| | 4 | Combination at a glance |
| | 5 | IPS Empress Esthetic colour code |
| | 6 | Composition |
| | 7 | Description of the kits |
| | 7 | IPS Empress Esthetic Ingot Kit |
| | 8 | IPS Empress Esthetic Veneer Kit |
| | 11 | IPS Empress Esthetic Speed Investment Material |
| | 12 | IPS Empress Universal Shade Kits |
| | 13 | IPS Empress Universal Stains Kit |
| | 14 | IPS Empress Die Material Kit |
| | 14 | IPS Empress Accessories Kit |
| | 15 | CEM Kit |
| | 16 | Liquids |
| | 17 | Shade determination, die shade selection, and ingot selection |
| | 19 | Preparation guidelines and minimum requirements |
| | 22 | Processing procedure IPS Empress Esthetic Fully Anatomical |
| | 22 | Fabricating the model |
| | 22 | Applying the spacer |
| | 23 | Contouring |
| | 24 | Sprueing the wax pattern |
| | 27 | Investing |
| | 28 | Preheating |
| | 29 | Calibration |
| | 30 | Pressing |
| | 31 | Divesting |
| | 32 | Removing the pressed object / finishing |
| | 33 | Occlusion / surface structures |
| | 33 | Die material / control die |
| | 34 | Cleaning |
| | 34 | Glaze and stain firing |
| | 35 | Glazing |
| | 37 | Processing procedure IPS Empress Esthetic Veneer |
| | 38 | Fabricating the model |
| | 38 | Contouring the wax-up |
| | 40 | Cut-back |
| | 42 | IPS Empress Esthetic Veneer wash firing |
| | 44 | IPS Empress Esthetic Veneer incisal firing |
| | 46 | Shape adjustment |
| | 47 | Stain firing |
| | 47 | Glaze firing |
| | 49 | Subsequent adjustments |
| | 49 | Etching |
| | 49 | Cementation |
| | 50 | Press and firing parameters |
| | 52 | Materials combination table |
| | 54 | IPS Empress Esthetic |

Processing principle – easy and efficient

An anatomical wax-up of the restoration is fabricated, sprued, and invested. After preheating the investment ring, the ceramic material is pressed into the investment ring in the EP500 / EP600 / EP 600 Combi. After divesting the pressed objects, complete the restorations according to the esthetic requirements using the IPS Empress staining technique and the IPS Empress Esthetic Veneer materials.

Material

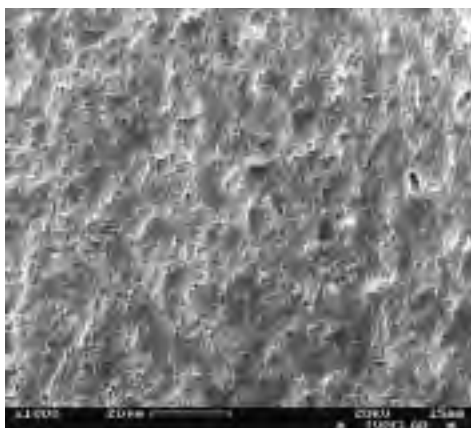
Leucite-reinforced glass-ceramic

The IPS Empress glass-ceramic material is made of a glass phase and a type leucite crystal phase. The growth of the leucite crystals starts at the grain boundaries of the glass frit. The leucite crystals are grown in a multi-step fabrication process up to a size of few microns.

The semi-finished product in powder form is then pressed to ingots and fired. These ingots are components of the IPS Empress Esthetic System and are used to fabricate individual restorations.

The compressive stress resulting from the leucite crystal structure in a silicate glass matrix provides increased strength.

The material is based on a system of $\text{SiO}_2 - \text{Al}_2\text{O}_3 - \text{K}_2\text{O}$ and complies with the requirements of ISO 6872 "Dental Ceramic" and ADA Specification No. 69.



- Homogeneous distribution of the leucite crystals
- Small leucite grain sizes
- Higher precipitation density of the leucite crystals

The product-related technical features, i.e. homogeneity, stability, and esthetic appearance, of the IPS Empress Esthetic Ingots were increased as a result of modified manufacturing processes.

Indications

- Inlays (glazed)
- Onlays (glazed)
- Veneers (glazed or partially layered)
- Anterior crowns (glazed or partially layered)
- Posterior crowns (glazed)

Contraindication

- Fully veneered crowns
- Bridge constructions
- Very deep sub-gingival preparations
- Patients with severely reduced residual dentition
- Bruxism
- Limited space

Important processing restrictions

If the following restrictions are not observed, successful working with IPS Empress Esthetic cannot be ensured.

- Not observing the required wall thickness (see pages 23, 38)
- Combination with IPS Empress and IPS Empress 2 layering materials
- Combination with metal-ceramic systems (e.g. IPS d.SIGN)
- Mixing of powder material with materials in paste form
- Use of investment materials and press furnaces of other manufacturers

Side effects

If patients are known to be allergic to any of the components in the materials, IPS Empress Esthetic restorations should not be placed.



IPS Empress Esthetic Line

Technique

IPS Empress
Esthetic

Indication

Inlays, onlays, veneers, crowns



Ceramic

IPS Empress Esthetic Ingots / IPS Empress Esthetic Veneer

Investing

IPS Empress Esthetic Speed Investment Material /
IPS Empress 2 Special Investment Material

Pressing

EP500 / EP600 / EP600 Combi

Accessories

IPS Empress Accessories / IPS Empress Die Material

Staining and
glazing

IPS Empress Universal Shades / Stains / Glaze

Cementation

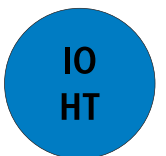
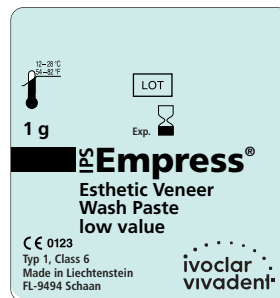
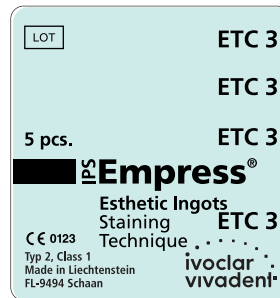
CEM Kit Esthetic Cementation System / CEM Kit Professional Set

Empress Esthetic Line

colour code

In order to ensure clear differentiation of the various materials, the products are now equipped with the following labels and colour codes:

All the IPS Empress Esthetic products are equipped with red lids.



Composition

The ceramic materials of the IPS Empress Esthetic System consist of the following main components:

- SiO₂ > 55 % wt.
Additional components: K₂O, Al₂O₃, Na₂O, B₂O₃, CaO, TiO₂, CeO₂ and pigments
- IPS Empress Esthetic Veneer Build-Up Liquid 60 ml
Components: water, butandiol-chloride solution
- IPS Empress Universal Glaze and Stain Liquid 15 ml
Components: 100 % wt. butandiol
- IPS Empress Die Material
Components: polyester urethane dimethacrylate:
48–50 % wt.; paraffin oil: 4 % wt.; SiO₂ and copolymer:
47–50 % wt.
- IPS Empress Die Material Separating Liquid, 60 ml
Components: wax dissolved in > 95 % wt. hexane
- IPS Empress 2 Special Investment Material Liquid, 1000 ml
Components: 30 % wt. colloidal silicic acid in water
- IPS Empress 2 Special Investment Material Powder
Components: SiO₂ (quartz powder) 80 % wt.; MgO and NH₄H₂PO₄ 20 % wt.
- IPS Empress Esthetic Speed Investment Material Liquid, 500 ml
Components: 30 % wt. colloidal silicic acid in water
- IPS Empress Esthetic Speed Investment Material Powder
Components: SiO₂ (quartz powder) 80 % wt.; MgO and NH₄H₂PO₄ 20 % wt.

Description of the Kits

IPS Empress Esthetic Ingot Kit



IPS Empress Esthetic Ingot Kit



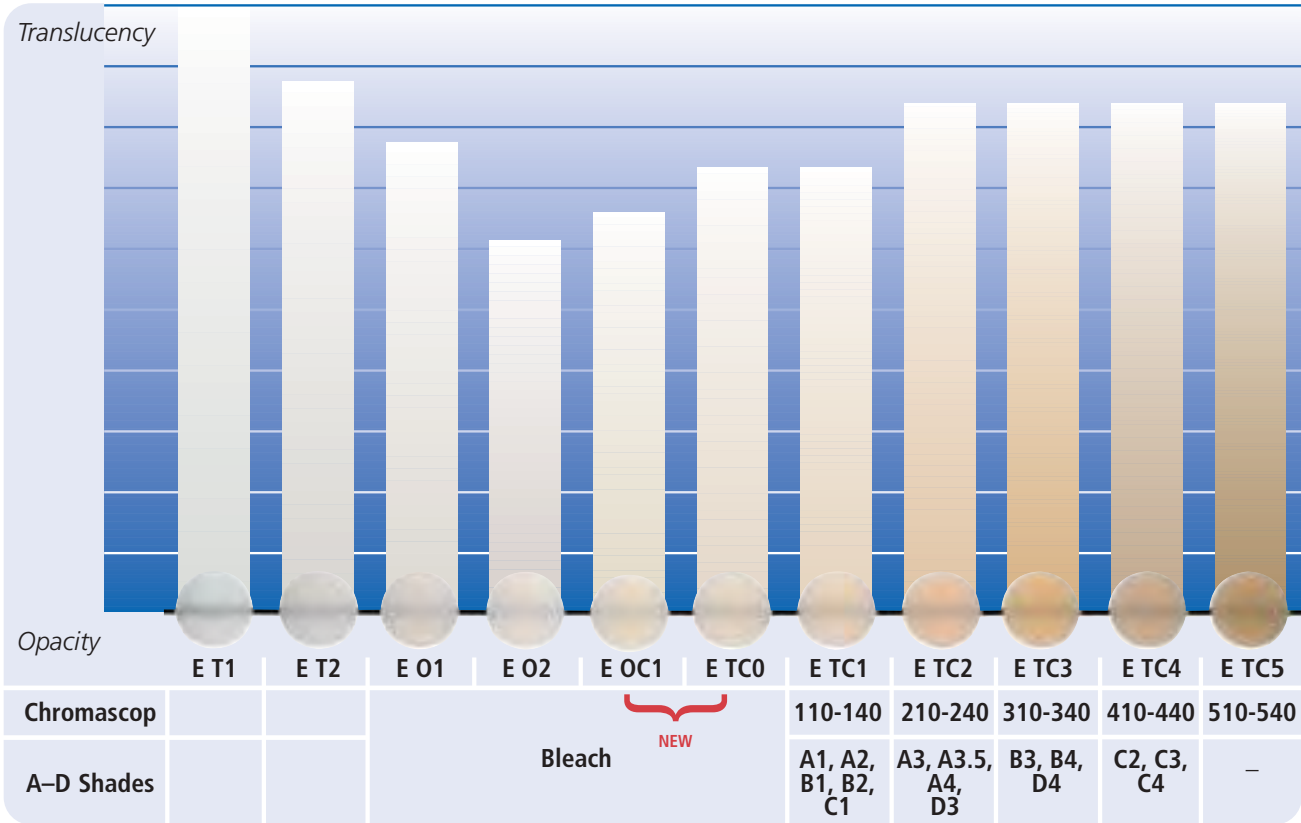
IPS Empress Esthetic Ingot Shade Guide

Delivery form

IPS Empress Esthetic Ingot Kit

- 1 vial of IPS Empress Esthetic ingots ET1 (5 ingots)
 - 1 vial of IPS Empress Esthetic ingots ET2 (5 ingots)
 - 1 vial of IPS Empress Esthetic ingots EO1 (5 ingots)
 - 1 vial of IPS Empress Esthetic ingots EO2 (5 ingots)
 - 1 vial of IPS Empress Esthetic ingots ETC1 (5 ingots)
 - 1 vial of IPS Empress Esthetic ingots ETC2 (5 ingots)
- 1 vial of IPS Empress Esthetic ingots ETC3 (5 ingots)
 - 1 vial of IPS Empress Esthetic ingots ETC4 (5 ingots)
 - 1 vial of IPS Empress Esthetic ingots ETC5 (5 ingots)
 - 1 vial of IPS Empress Esthetic ingots ETC0 (5 ingots)
 - 1 vial of IPS Empress Esthetic ingots EOC1 (5 ingots)
 - 1 IPS Empress Esthetic Ingot shade guide

Translucency and shade of IPS Empress Esthetic ingots



IPS Empress Esthetic Veneer Kit



Delivery form

IPS Empress Esthetic Veneer Kit

- 3 IPS Empress Esthetic Veneer Incisal Opal Materials, 20 g each; low translucency, medium translucency, high translucency
- 6 IPS Empress Esthetic Veneer Incisal Materials, 20 g each; white, grey, orange, edge, yellow, orange-pink
- 2 IPS Empress Esthetic Veneer Chroma Modifiers, 20 g each; 110/A1, 210/A3
- 1 IPS Empress Esthetic Veneer Brightener, 20 g
- 2 IPS Empress Esthetic Veneer Transparent Materials, 20 g each; blue, neutral
- 11 IPS Empress Esthetic Veneer Wash Pastes, 1 g each; neutral, low value, high value, MM light-salmon, MM yellow-orange, MM reddish-orange, Modifier copper, Modifier orange, Modifier sky blue, Modifier basic yellow, Modifier basic red
- 2 vials of IPES Empress Esthetic Ingots, 5 ingots each; E TCO, E OC1
- 1 IPS Empress Esthetic Veneer Build-Up Liquid, 60 ml
- 1 IPS Empress Universal Glaze/Staining Liquid, 15 ml
- 1 IPS Empress Universal Glaze, 3 g
- 1 IPS Empress Add-On 770 °C / 1418 °F
- 1 IPS Empress Esthetic Veneer Foam Model
- 1 IPS Empress Esthetic Veneers Shade Guide
- 1 IPS Empress Esthetic Ingot Shade Guide
- 1 Firing Pillow

IPS Empress Esthetic Veneer Incisal Opal



The opalescent materials are available in three different gradations (low, medium, and high translucency).

IPS Empress Esthetic Veneer Incisal



The incisal materials are available in 6 shade nuances (white, grey, orange, edge, yellow, orange-pink) and are used to apply additional characterizations in the incisal area.

IPS Empress Esthetic Veneer Chroma Modifier



These materials are used to enhance the shade of the pressed/reduced ingot and are available in shades 110/A1 and 210/A3.

IPS Empress Esthetic Veneer Brightener



The veneer brightener material is used to increase the brightness value.

IPS Empress Esthetic Veneer Transparent



These shaded transparent materials are available in two shade nuances (blue and neutral).

IPS Empress Esthetic Veneer Wash Pastes



With the **6 Standard Wash Pastes**, the pressed/reduced ingots are individually / internally characterized. The ideal gradation of shade nuances (neutral, low value, high value, MM light-salmon, MM yellow-orange, and MM reddish-orange) enables the fabrication of highly esthetic restorations.

The **5 Wash Paste Modifiers** (copper, orange, sky blue, basic yellow, basic red) permit individual shading with the 6 Standard Wash Pastes.

IPS Empress Add-On 770°C/1418°F



IPS Empress Add-On 770 °C / 1418 °F is a low-fusing add-on material for post-glaze adjustments, such as proximal and occlusal contact points in

- IPS Empress Esthetic technique restorations
- IPS Empress layering technique restorations

IPS Empress Universal Glaze IPS Empress Universal Glaze and Stain Liquid



Used to glaze all IPS Empress Esthetic, IPS Empress layering technique, and IPS Empress 2 / IPS Eris for E2 layering technique restorations.

IPS Empress Esthetic Speed Investment



The new, phosphate bonded IPS Empress Esthetic Speed Investment is used for the range of indications of IPS Empress Esthetic. The system consists of a powder and a liquid.

With the IPS Empress Esthetic Speed Investment, high-quality press results can be achieved within a very short period of time. The quick-heating investment material enables the fabrication of accurately fitting inlays, onlays, veneers, and crowns.

If desired, conventional overnight preheating with IPS Empress 2 Special Investment may also be selected. For more detailed information, please refer to the Instructions for Use of the IPS Empress 2 Special Investment in accordance with the IPS Empress staining technique.

Delivery form

IPS Empress Esthetic Speed Investment Material Kit, 2.5 kg

- 1 IPS Empress Esthetic Speed Investment Material, 25 x 100 g
- 1 IPS Empress Esthetic Speed Liquid, 0.5 l
- 30 Paper rings
- 1 Measuring cup

IPS Empress Esthetic Speed Investment Material Kit, 5 kg

- 2 IPS Empress Esthetic Speed Investment Material, 25 x 100 g each
- 2 IPS Empress Esthetic Speed Liquid, 0.5 l each
- 60 Paper rings
- 2 Measuring cups



Please refer to the Instructions for Use of the corresponding investment material for the relevant processing parameters. The IPS Empress Esthetic Speed Liquid is sensitive to freezing. The investment materials contain quartz powder. Avoid dust inhalation.

IPS Empress Universal Shade Kits



These dentin stains in paste form enable the reproduction of all the Chromascop and A–D shades.



Delivery form

IPS Empress Universal Shade Kit

- 1 IPS Empress Universal Shade, 3 g, 110/120
- 1 IPS Empress Universal Shade, 3 g, 130
- 1 IPS Empress Universal Shade, 3 g, 140/210
- 1 IPS Empress Universal Shade, 3 g, 220/230
- 1 IPS Empress Universal Shade, 3 g, 240
- 1 IPS Empress Universal Shade, 3 g, 310
- 1 IPS Empress Universal Shade, 3 g, 320
- 1 IPS Empress Universal Shade, 3 g, 330
- 1 IPS Empress Universal Shade, 3 g, 340
- 1 IPS Empress Universal Shade, 3 g, 410/420
- 1 IPS Empress Universal Shade, 3 g, 430/440
- 1 IPS Empress Universal Shade, 3 g, 510
- 1 IPS Empress Universal Shade, 3 g, 520
- 1 IPS Empress Universal Shade, 3 g, 530
- 1 IPS Empress Universal Shade, 3 g, 540
- 1 IPS Empress Universal Glaze, 3 g
- 1 IPS Empress Universal Glaze and Stain Liquid, 15 ml

IPS Empress Universal Shade Kit A–D

- 1 IPS Empress Universal Shade, 3 g, A1
- 1 IPS Empress Universal Shade, 3 g, A2/A3/A3.5
- 1 IPS Empress Universal Shade, 3 g, A4
- 1 IPS Empress Universal Shade, 3 g, B1
- 1 IPS Empress Universal Shade, 3 g, B2/B3/B4
- 1 IPS Empress Universal Shade, 3 g, C1/C2
- 1 IPS Empress Universal Shade, 3 g, C3/C4
- 1 IPS Empress Universal Shade, 3 g, D2/D3
- 1 IPS Empress Universal Shade, 3 g, D4
- 1 IPS Empress Universal Glaze, 3 g
- 1 IPS Empress Universal Glaze and Stain Liquid, 15 ml



Make sure that the Universal Shades and Stains are not mixed with powder materials.

IPS Empress Universal Stains Kit



These intensive stains are available in 14 different shades. They are used to reproduce the natural characteristics of a tooth and are suitable for all the ceramic materials of the IPS Empress. With the three primary shades basic blue, basic red, and basic yellow, the shades may be individually adjusted.



Delivery form

IPS Empress Universal Stains Kit

- 1 IPS Empress Universal Stains, 1 g, white
- 1 IPS Empress Universal Stains, 1 g, mahogany
- 1 IPS Empress Universal Stains, 1 g, khaki
- 1 IPS Empress Universal Stains, 1 g, orange
- 1 IPS Empress Universal Stains, 1 g, grey
- 1 IPS Empress Universal Stains, 1 g, vanilla
- 1 IPS Empress Universal Stains, 1 g, crackliner
- 1 IPS Empress Universal Stains, 1 g, olive
- 1 IPS Empress Universal Stains, 1 g, yellow
- 1 IPS Empress Universal Stains, 1 g, black
- 1 IPS Empress Universal Stains, 1 g, maroon
- 1 IPS Empress Universal Stains, 1 g, basic red
- 1 IPS Empress Universal Stains, 1 g, basic blue
- 1 IPS Empress Universal Stains, 1 g, basic yellow
- 1 IPS Empress Universal Glaze, 3 g
- 1 IPS Empress Universal Glaze and Stain Liquid, 15 ml



Make sure that the Universal Shades and Stains are not mixed with powder materials.

IPS Empress Die Material Kit



The light-cured IPS Empress die material simulates the shade of the prepared tooth. This shade represents the optimum basis for a true-to-nature shade reproduction for pressed IPS Empress restorations.

Delivery form

IPS Empress Die Material Kit

- 1 syringe IPS Empress Die material, 8 g, ST1
- 1 syringe IPS Empress Die material, 8 g, ST2
- 1 syringe IPS Empress Die material, 8 g, ST3
- 1 syringe IPS Empress Die material, 8 g, ST5
- 1 syringe IPS Empress Die material, 8 g, ST8
- 1 syringe IPS Empress Die material, 8 g, ST9
- 1 pack IPS Empress Die holders, 10 holders
- 1 IPS Empress Die material separating liquid, 20 ml
- 1 set IPS Empress Condenser, 10 condensers
- 1 IPS Empress Die material shade guide

IPS Empress Accessories Kit



This accessories assortment contains all the accessories necessary for the successful fabrication of IPS Empress restorations.

Delivery form

IPS Empress Accessories Kit

- 1 IPS Empress honey-combed tray with crown holders
- 1 IPS Empress tweezers for crowns
- 2 IPS Empress AlOx plungers
- 1 IPS Empress ingot and plunger support tray
- 1 IPS Empress firing pillow

CEM Kit – Professional Set



The CEM Kit has been especially developed for adhesive cementation. It permits quick and reliable placement of metal-free restorations.



The CEM Kit - Professional Set contains the Syntac Classic dentin bonding agent.

Delivery form

CEM Kit – Professional Set

The contents may vary from country to country.

CEM Kit – Esthetic Cementation System



The CEM Kit has been especially developed for adhesive cementation. It permits quick and reliable placement of metal-free restorations.



The CEM Kit - Esthetic Cementation System contains the Excite DSC dentin bonding agent.

Delivery form

CEM Kit – Esthetic Cementation System

The contents may vary from country to country.

The product ranges may vary from country to country.

Liquids for the IPS Empress Esthetic Technique

IPS Empress Esthetic Veneer Build-up Liquid, 60 ml



This liquid is used to mix the IPS Empress Esthetic Veneer materials and the IPS Empress Add-on material. Only this build-up liquid should be used, since others contain various organic additives, which do not fire without leaving residue at the stipulated firing temperatures and may result in discolouration.

Components: water, butandiol-chloride solution

IPS Empress Die Material Separating Liquid, 60 ml



This isolating liquid is exclusively used to separate the pressed IPS Empress restorations during the fabrication of the resin die. It prevents the die material from sticking to the ceramic material.

Components: wax dissolved in > 95 % wt. hexane



Warning

Hexane is highly flammable and detrimental to health. Avoid contact of the material with skin and eyes. Do not inhale vapours. Keep away from sources of ignition.

IPS Empress Universal Glaze and Stain Liquid, 15 ml



This liquid is used to adjust the consistency of the IPS Empress Universal Shades, IPS Empress Universal Stains, and IPS Empress Universal Glaze. Only this build-up liquid should be used, since others contain various organic additives, which do not fire without leaving residue at the stipulated firing temperatures and may result in discolouration.

Components: butandiol

IPS Empress Esthetic Speed Investment Liquid, 500 ml



This liquid is exclusively used to mix the IPS Empress Esthetic Speed Investment material. The concentrated liquid must only be mixed with distilled or deionized water to achieve the desired liquid concentration.

Components: 30 % wt. colloidal silicic acid in water.



Warning

Butandiol is irritating. Avoid contact. Do not inhale vapours.

Shade determination, die shade selection, and ingot selection



The Chromascop shade guide represents the shade standard for Ivoclar Vivadent products. With the logical arrangement of the individual shades, the Chromascop shade guide permits exact and efficient shade determination. The 20 shades are divided into five detachable shade

groups. Additionally, the Chromascop shade group for bleached teeth provides four ultra-light shades. Once the basic shade group has been selected, the correct shade within the shade group can be determined. Consequently ignoring any superfluous effects (e.g. cervicals, transparent areas,

intensive discolouration in the incisal and dentin areas, as well as surface characterizations) greatly helps determine the correct shade. The following Ivoclar Vivadent products are coordinated with the Chromascop shade guide:

- IPS d.SIGN
- IPS Empress
- IPS Empress Esthetic
- IPS Empress 2
- IPS Eris for E2
- SR Adoro
- SR Ivocron,
- C&B Veneering materials
- SR Antaris / SR Postaris
- Tooth Lines
- Tetric Ceram
- restorative materials

Die shade selection



In order to facilitate the reproduction of the tooth shade, dentists can communicate the shade of the preparation of the given clinical situation to the dental laboratory using the IPS Empress die material shade guide. The corresponding shades of the dentin ingots are listed in the combination table (Page 52).

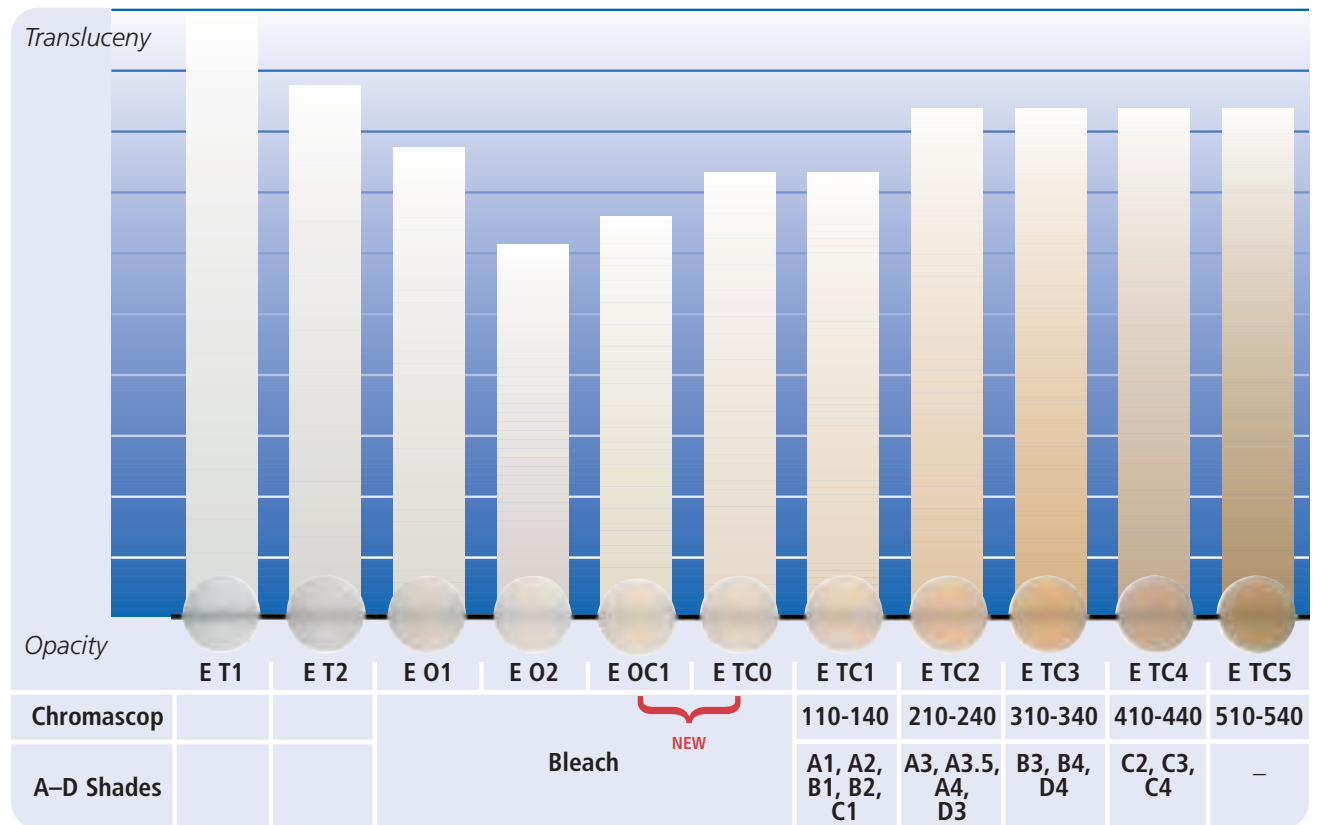
IPS Empress Esthetic shade guide

For reasons of light refraction, the new sample teeth are anatomically shaped and feature a surface structure. The rear of the sample teeth has been designed without any surface texture and is smooth. This facilitates shade comparison with the prepared die and shaded cementation media. The shade tabs may be ground on the smooth side in order to determine the layering. The shade tabs have been fired from original materials under laboratory conditions and, therefore, correspond with the final result.



Ingot selection

Recommended areas of application:



E T1: Inlays and onlays

For older patients with a strongly translucent, glassy dentition.

E T2: Inlays and onlays

For younger patients with a dentition of average opacity.

E O1, E OC1: Crowns and veneers

For patients with a dentition of average opacity.

E O2: Crowns and veneers

For patients with a dentition of higher opacity.

E TC0 – E TC5: Inlays, onlays, veneers, and crowns

The shades of the IPS Empress Esthetic Translucent Colour ingots are coordinated with the Chromascop shade groups. However, combination with A–D shades is also possible.

Preparation guidelines and minimum requirements

Crowns

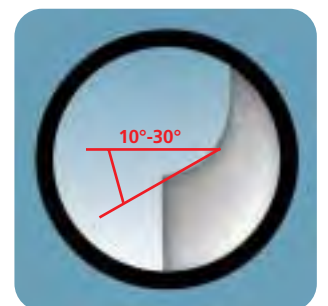
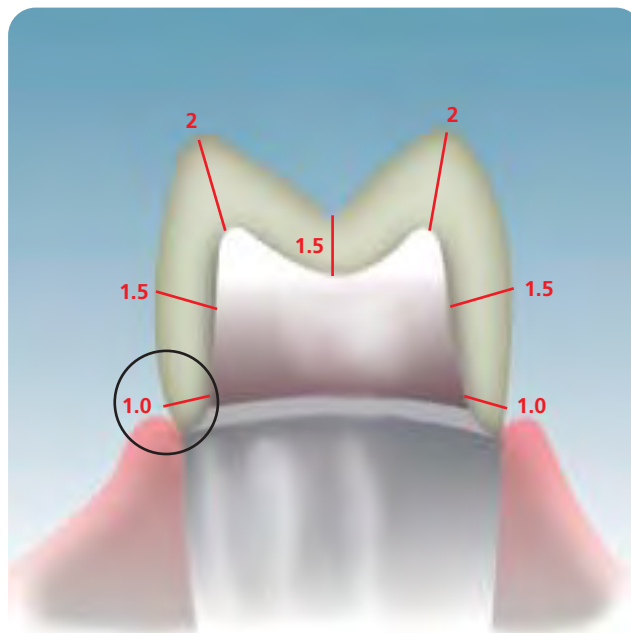
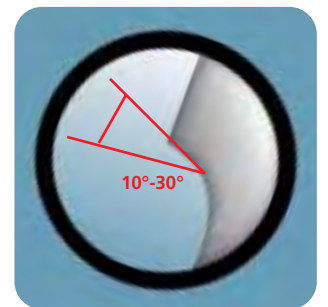
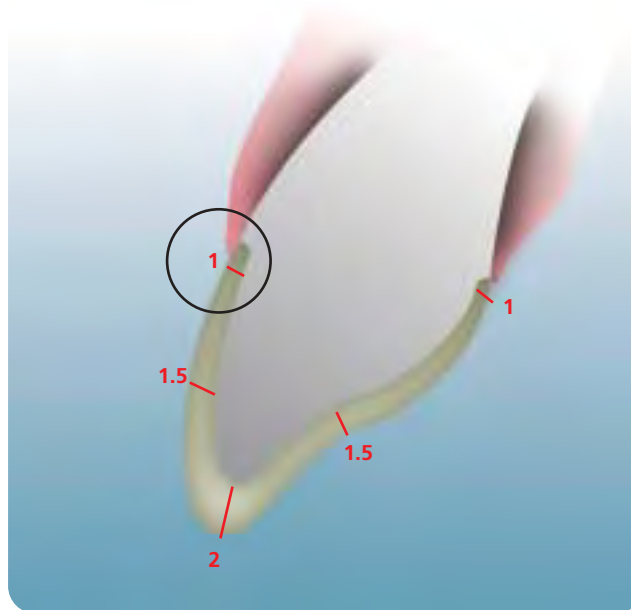
Evenly reduce the anatomical shape and observe the required minimum thickness.

Prepare a 360° chamfer with an angle of approx. 10°–30°. The width of the circular shoulder/ chamfer is approx. 1 mm.

Reduce the incisal crown third by approx. 1.5 mm.

Reduce the incisal and occlusal length by approx. 1.5–2 mm.

For anterior crowns, the reduction in the labial and/or palatal/lingual area is approx. 1.0–1.5 mm.



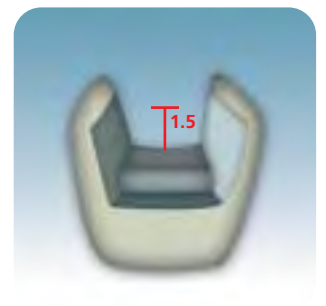
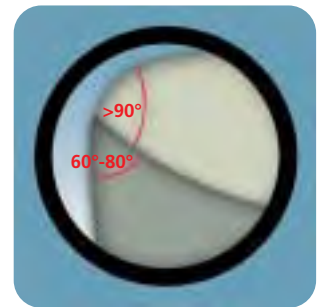
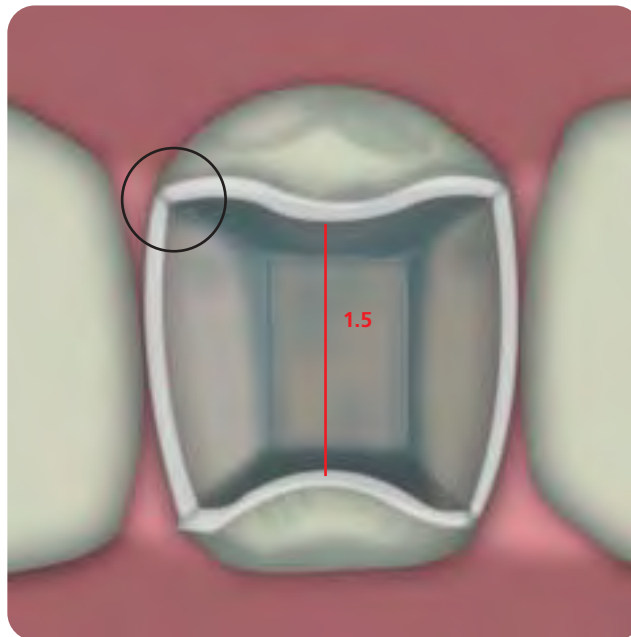
Observe the indicated material thickness. Exactly contour the restoration, particularly in the area of the preparation margins.

Inlay

Take antagonist contacts into account.

Observe at least 1.5 mm preparation depth and an isthmus width of 1.5 mm in the fissure area.

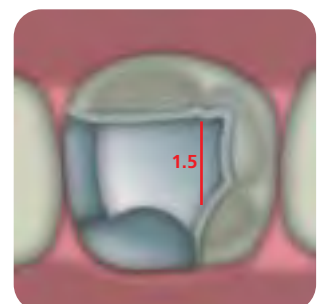
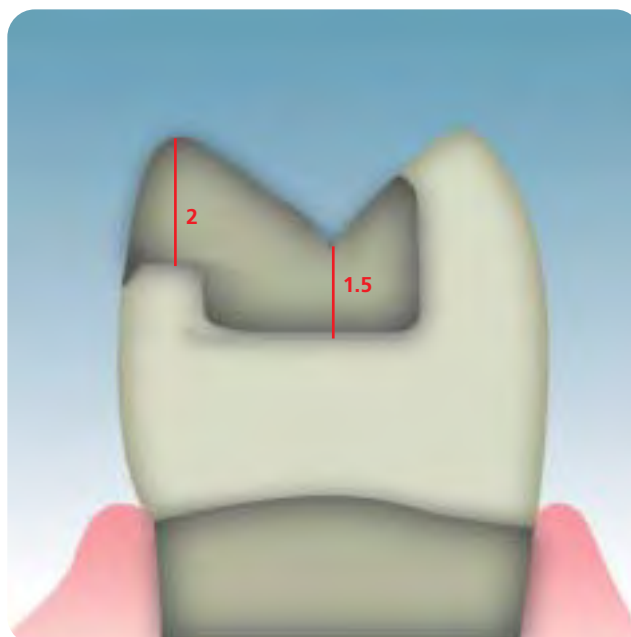
Prepare the proximal box with a slightly diverging flare. Observe a $>60^\circ$ angle between the proximal cavity walls and the prospective proximal surfaces of the inlays. Break the internal edges in order to prevent stress concentration in the ceramic material. Remove proximal contacts on all sides. Do not prepare a slice-cut or feather edges.



Onlays

Observe the same procedure as for inlays.

Provide for 2 mm space requirement in the area of the cusp tips. The shoulder should be prepared with a chamfer ($10^\circ-30^\circ$) to improve the esthetic appearance of the transitions between the ceramic material and the tooth. Onlays are indicated if the preparation margin is less than 0.5 mm away from the cusp tip or if the enamel is strongly undermined.



Observe the indicated material thickness. Exactly contour the restoration, particularly in the area of the preparation margins.

Veneers

If possible, the preparation should be exclusively located in the enamel. Either design a classical preparation with lingual-incisal, chamfer-type embrasure of the incisal edge, or a simple incisal reduction without embrasure of the incisal edge. Make sure that the incisal preparation margin is not located in the area of the abrasion surfaces.

The extent of the incisal reduction depends on the desired translucency of the incisal area to be reconstructed. The more transparent the incisal edge of the veneer is planned to appear, the larger the

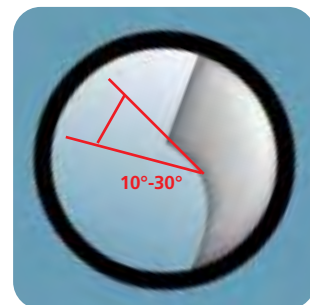
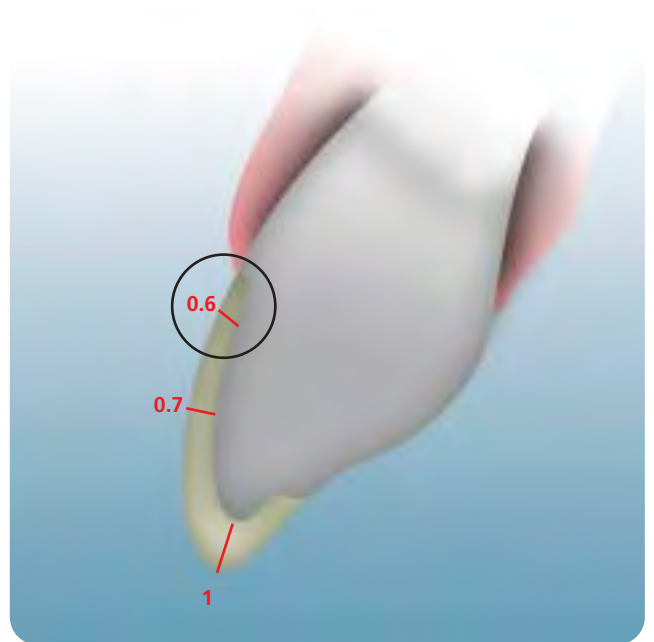
reduction should be (incisal reductions: approx. 1.0–1.5 mm). By providing orientation grooves with a groove bur, a controlled enamel reduction can be achieved.

The minimum preparation thickness is approx. 0.6–1.0 mm depending on the preparation technique selected.

Removing the proximal contacts is not required. Discoloured teeth may have to be further reduced. Prepare a cervical chamfer or shoulder with an angle of approx. 10°–30° (same as for crowns).



Observe the indicated material thickness. Exactly contour the restoration, particularly in the area of the preparation margins.



Processing procedure

Empress Esthetic Fully Anatomical

Fabricating the model

Fabricate a hard stone model with detachable segments according to the impression.



Hard stone (Type IV)

Applying the spacer

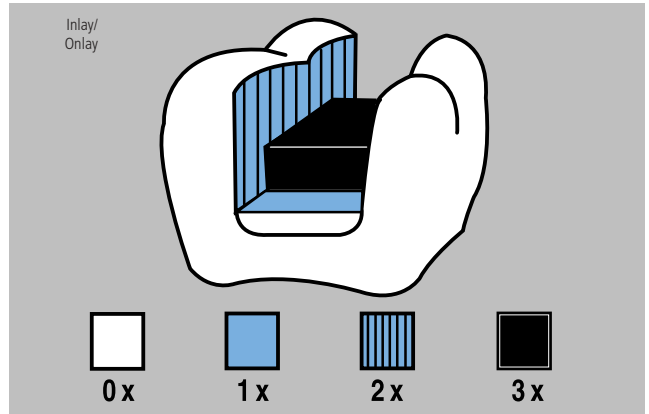
It is advisable to apply a sealer to harden the surface and to protect the die. The application of a sealer must not cause any changes in the dimensions of the die.



Apply the spacer according to the following diagrams.

a) Applying the spacer to inlays/onlays

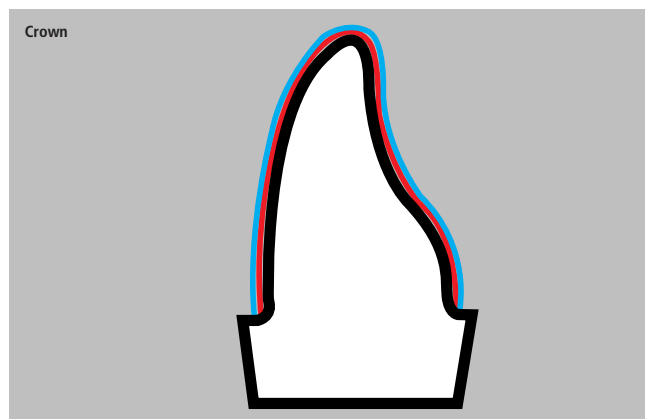
Up to three layers of spacer are applied to inlays/onlays. The surfaces are covered up to the preparation margin.



Number of space layers required for inlays/onlays.

b) Applying the spacer to crowns

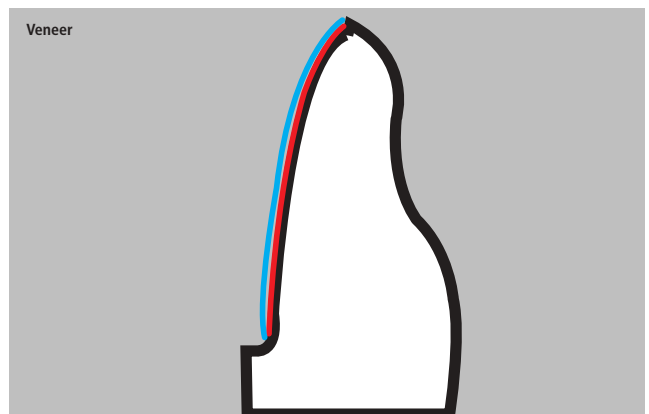
Two layers of spacer are applied approximately 1 mm from the preparation margin. This measure helps prevent undesired friction.



Schematic diagram of the space layers.

c) Applying the spacer to veneers

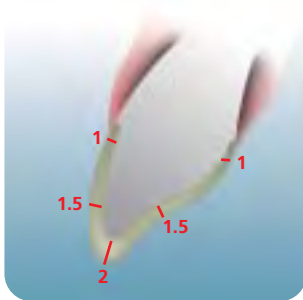
Here as well, two layers of spacer are applied approximately 1 mm from the preparation margin.



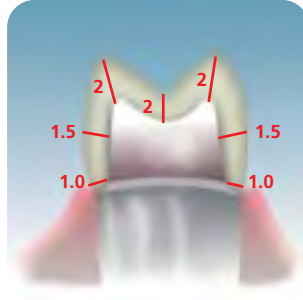
Contouring

Fabricate a fully anatomical, functional wax-up for the staining technique. You can use any dental wax that burns out without leaving residue.

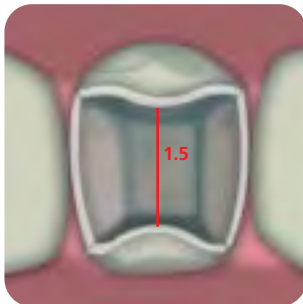
Wall thickness



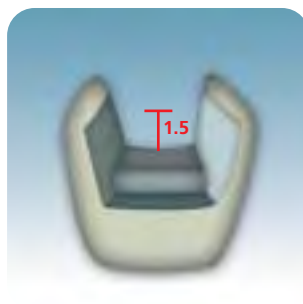
For anterior and posterior crowns.....



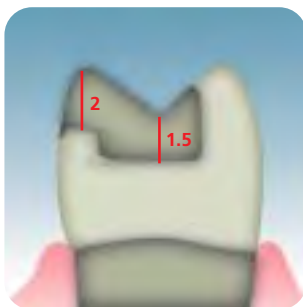
Waxed-up posterior crown



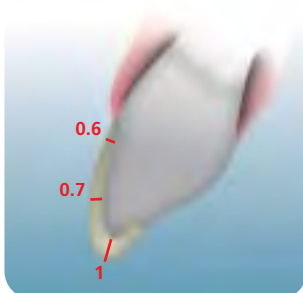
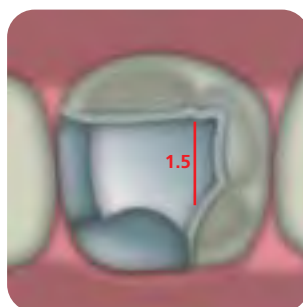
.....inlays.....



Waxed-up inlay



.....onlays.....



.....and veneers.



Observe the indicated material thickness. Exactly contour the restoration, particularly in the area of the preparation margins. Do not over-contour, since this would require time-consuming and risky fitting procedures. Possible sub-articulation must be taken into consideration as early as during the wax-up, since the final firing (Shade/Stains/Glaze) also results in a surface enlargement.

Sprueing the wax pattern

Depending on the size of the waxed-up pattern, directly attach a wax sprue (diameter 2.5–3 mm / 8 gauge) to the object.

The length of the sprues depends on the size of the objects. The sprues should measure 3 mm to max 8 mm in length (see diagram on page 25-26).

- large (long) wax pattern = shorter sprue
- small (short) wax pattern = longer sprue



Observe the indicated material thickness. Exactly contour the restoration, particularly in the area of the preparation margins.



Length of the sprues: 3 mm to max. 8 mm

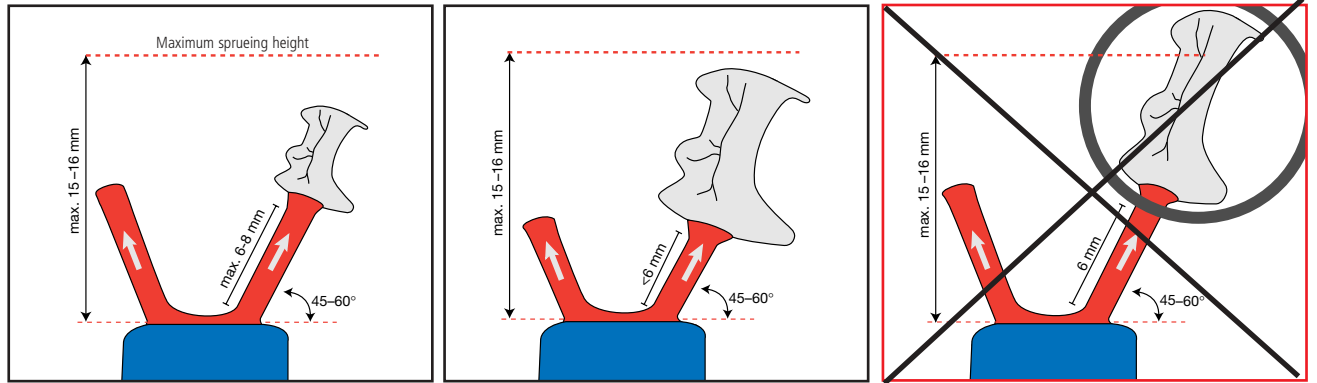


The attachment points of the sprue to the object and sprue former must be rounded and smooth. Avoid sharp edges.

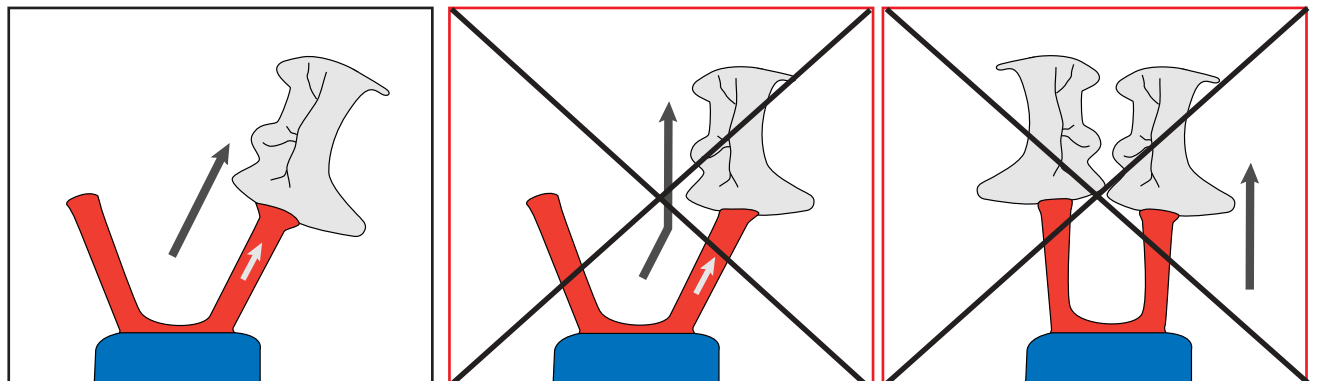


If several veneers are sprued at the same time, they should be arranged in a turbine shape.

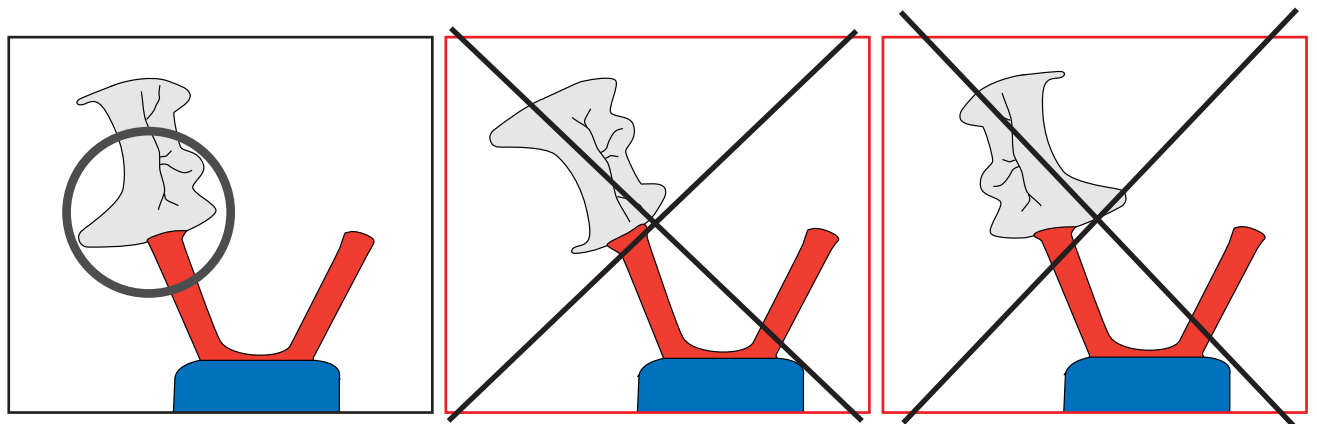
Correct spruing



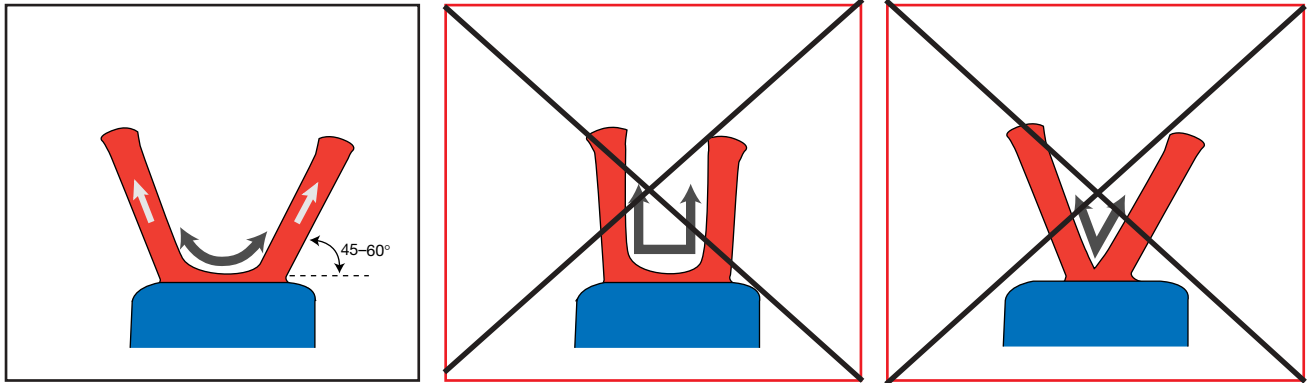
The sprue and wax pattern should not be longer than 15–16 mm. Observe a 45–60° angle.



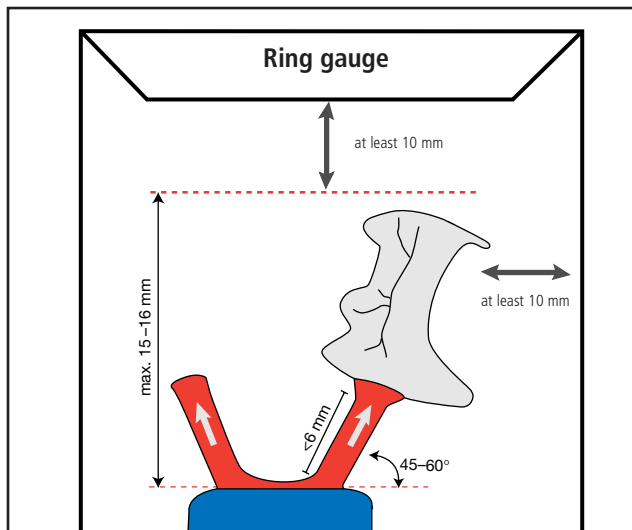
Provide sprues in the direction of flow of the ceramic material.



Always attach the sprue to the thickest part of the wax pattern. The internal surface of the wax pattern points outwards.



The attachment points of the sprues must be rounded. Observe a 45–60° angle.



The distance between the wax patterns to be pressed and the paper ring/ring gauge must be at least 10 mm. This applies to all the above diagrams.



Observe a distance of at least 3 mm between the individual wax pattern.

Observe a distance of at least 10 mm between the paper ring/ring gauge and the wax patterns to be pressed.

Remove excess separating material.

Consider the direction of flow of the ceramic material when positioning the sprues. Invest a phantom sprue together with very small wax patterns.

Investing

Investment is carried out with the IPS Empress Esthetic Speed Investment material (please refer to the IPS Empress Esthetic Speed Investment material Instructions for Use for the processing parameters).

If desired, the IPS Empress 2 Special Investment material may also be used (please refer to the IPS Empress 2 Special Investment material/Staining Technique Instructions for Use for the processing parameters).

We recommend the following procedure to determine the accurate wax weight:

1. Weigh the ring base (seal the opening of the ring base with wax).
2. Position the wax patterns to be pressed on the ring base and attach them with wax. Weigh again.
3. The difference between the two values is the weight of the wax used.

- Large investment ring
Up to max. 1.4 g wax weight and two ingots
- Small investment ring
Up to max. 0.6 g wax weight and one small ingot

Invest a phantom sprue with very small wax patterns in order to activate the abort criterion of the EP 500/EP 600/EP 600 Combi.

Remove the protective tape from the 2-in-1 IPS Empress paper ring. Form a cylinder exactly along the marked line. **Tightly press the two ends together along the entire line (risk of predetermined breaking points if the adhesive areas overlap or even turn loose).** When working with ready-to-use paper rings, double-check the adhesive area for optimum adhesion.



Form a ring exactly along the marked line.



Set the paper ring on the base of the investment ring and check for correct fit. Use the ring stabilizer to stabilize the paper ring.



Mix IPS Empress Esthetic Speed Investment material under vacuum. Check the vacuum.



Pour the investment material slowly. Avoid the formation of air bubbles.



Remove the stabilizing ring and slowly place the ring gauge on the investment ring with a hinged movement.



Check the correct fit of the paper ring around the ring base and the ring gauge.

After the setting time remove the ring gauge and ring base with a turning movement. Remove the paper ring. Remove rough spots on the bottom surface of the investment ring with a plaster knife. Check the 90° angle.



Remove rough spots on the bottom surface of the investment cylinder with a plaster knife.



The light material overlap created by the paper ring is also removed with a plaster knife until the line is no longer visible.



Investment material residue must not enter the sprues. Blow into the sprues if necessary.

Preheating



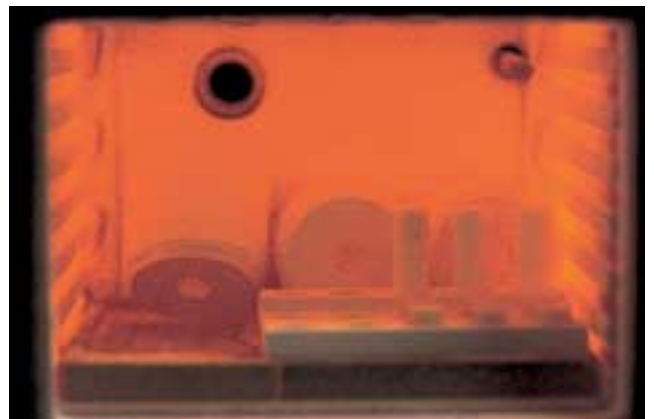
The ingot support and AlOx plungers are placed in the cold furnace.



- Always preheat IPS Empress Esthetic ingots
- Switch on the preheating furnace in time.

When placing the investment rings in the preheating furnace, make sure that the furnace temperature does not drop substantially.

The ingot support and AlOx plungers are placed in the cold furnace or preheated in the Programat®. The investment ring, however, is only placed in the furnace once the final temperature has been reached.



Do not preheat together with other casting objects (e.g. soldering models, metal casting rings, etc.). Oxides may settle on the objects.



Thoroughly clean the AlOx plungers after every use to remove investment material and ceramic residue. Make sure that the marked side of the AlOx plunger always points upwards.

For successful everyday work in the laboratory, an excellent reliable infrastructure, particularly as far as the preheating furnaces are concerned, is imperative. This also involves their maintenance, cleaning the furnaces using a vacuum cleaner while they are cold, as well as regular checks of the temperature controls and heating elements, etc. by the manufacturer.



In order to ensure thorough heating of the investment rings in the preheating furnace, the following points have to be observed:

- Always place the investment rings in the rear part of the firing chamber. This allows homogeneous preheating.
- The investment rings must be placed in the hot preheating furnace as quickly as possible. Make sure that the furnace temperature does not drop significantly. If several investments are carried out at one, the investment rings should be placed into the preheating furnace in 30 minutes intervals.
- Always place in the investment rings in the preheating furnace with the opening pointing downwards.
- The investment rings must not touch each other. This would negatively influence the heat absorption and stability.

If desired, overnight pre-heating using IPS Empress 2 Special Investment material may be selected (no overnight pre-heating with IPS Empress Esthetic Speed Investment material). Do not invest over the weekend, since the investment material might effloresce.

Calibrating the press furnace

Calibrate the EP500 with the Temperature Checking Set 2 and the EP600 with the Automatic Temperature Checking Set 1.



Calibrate your furnace regularly. Please refer to the corresponding Instructions for Use of either the Temperature Checking Set 2 for the EP500 or the Automatic Temperature Checking Set 1 for the EP600 for information about the furnace calibration procedure.



EP500

1. Switch on the EP500 and allow the furnace heat up to the stand-by-temperature of 700 °C/1292 °F. Hold this temperature for at least 30 minutes.
2. Select a program for the staining technique T=1075 °C/ 1967 °F. Run the program with the furnace empty. After activation of the holding time H=20 min., which the EP500 does automatically, interrupt the program after

15 minutes (set timer) by pressing the STOP key twice. If you fail to interrupt the program, the ER16 error message appears. Rectify this error by following the instructions given on the corresponding list of error messages. Allow the furnace to cool until the stand-by-temperature of 700 °C/1292 °F has been reached with the furnace head closed. Hold this temperature for at least 30 minutes.

3. Place the calibration set on the honey-combed firing tray in order to ensure the appropriate height (temperature range) in the furnace.
4. Conduct the calibration using the Temperature Checking Set 2.

EP600

1. Place the melting sample in the ceramic base.
2. Tighten the contact pin to secure the melting sample.



Important:

Do not use tweezers or tongs. Apply slight pressure to secure the melting sample in place.

3. Select the calibration program in the 'Miscellaneous' menu. The furnace head opens.
4. Remove the firing plate from the furnace and place it on the cooling plate using the firing tongs.
5. Place the calibration tray in the holes for the Automatic Temperature Checking Set ATK 1 in the stone lining.
6. Slightly press the calibration tray into place with the firing tongs until you feel it click into place.
7. Start the calibration program
8. Once the program is completed, remove the calibration tray from the furnace using the tongs and allow it to cool.



Contraindication

Do not pull at the melting sample. The ceramic base may fracture when you do so.

9. Replace the firing tray and select the firing program. The furnace head closes automatically.
10. Once it is cooled, disassemble the calibration tray.
11. Use a new melting sample for the next calibration procedure and start with item 1.

Press parameters for the EP500 / EP600 / EP600 Combi

Pressing in the EP500

| P | B | t ↑ | T | H | V ₁ | V ₂ | Pressure | N |
|----|--------|-------|--------|----|----------------|----------------|----------|---|
| 01 | 700°C | 60°C | 1075°C | 20 | 500°C | 1075°C | 5 bar | – |
| 01 | 1292°F | 108°F | 1967°F | 20 | 932°F | 1967°C | 5 bar | – |

No postpressing time!

Pressing in the EP600/EP600 Combi

| P | B | t ↑ | T | H | V ₁ | V ₂ | E |
|----|--------|-------|--------|----|----------------|----------------|--------|
| 05 | 700°C | 60°C | 1075°C | 20 | 500°C | 1075°C | 250 µm |
| 05 | 1292°F | 108°F | 1967°F | 20 | 932°F | 1967°C | 250 µm |

P = Program number
B = Stand-by temperature
t ↑ = Temperature increase
T = Firing temperature

H = Holding time
V₁ = Vacuum on
V₂ = Vacuum off
E = Abort speed µm/min.

Pressing

Placing the ingots



Switch on the press furnace in time.

Leave the ingot tray support in the preheating furnace and allow it to cool slowly after you have removed the last AlOx plunger.

Large investment ring

Max. 2 ingots per pressing cycle

Small investment ring

Max. 1 ingot per pressing cycle

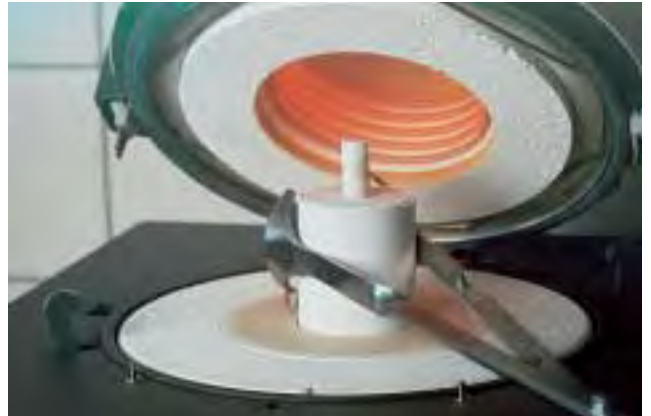
Remove the investment ring from the preheating furnace. Place the corresponding preheated ingot for the IPS Empress Esthetic Technique that matches the desired tooth shade (refer to the material combination table for further details) into the ring.



Remove the investment ring from the preheating furnace. Place the **preheated** IPS Empress Esthetic ingot in the investment ring. Place the rings in the preheating furnace as quickly as possible.



Next, position the AlOx plunger.



Select the program for the IPS Empress staining / Esthetic technique. Place the investment ring with the ingot and the AlOx plunger at the center of the EP500/EP600 press furnace. Close the furnace head. Activate the selected program by pressing START.

EP500 = 01

EP600 = Staining technique/large or small investment ring



Check the vacuum!



The press cycle runs automatically. An acoustic signal indicates the end of the press cycle.



Remove the investment ring form the furnace immediately after the program is completed and close the furnace.

Place the investment ring on a wide-meshed grid (IPS Empress cooling rack) and allow to cool to room temperature. The grid ensures quick and even cooling of the investment ring and prevents undesired heat accumulation.

Clean the furnace regularly.

Divesting

(After approx. 60 minutes)

After cooling, the investment ring may show cracks. These cracks develop (immediately around the AlOx plunger) during cooling as a result of the different CTEs of the various materials (AlOx plunger, investment material, and pressed materials). They do not compromise the result of the pressing cycle.



Mark the length of the AlOx plunger on the cooled investment ring.



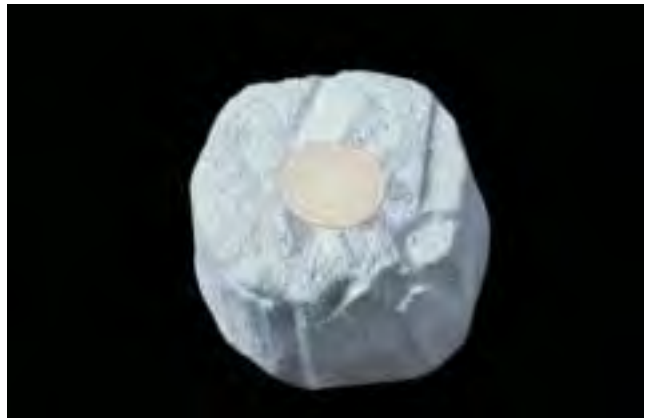
Separate the investment ring using a separating disk. This predetermined breaking point enables reliable separation of the AlOx plunger and the ceramic material.



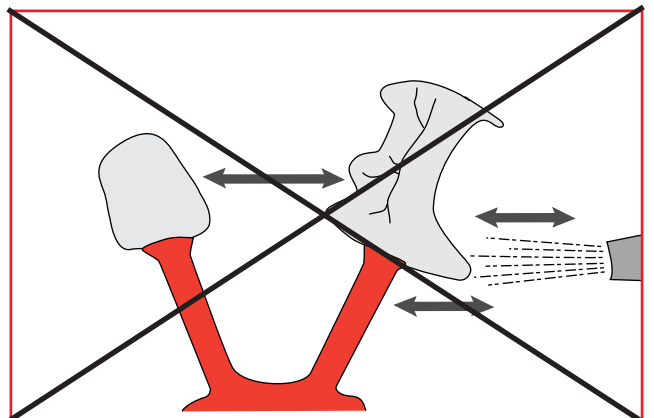
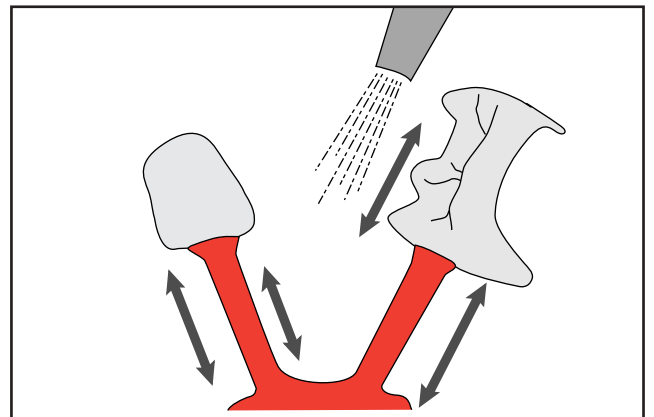
Break the investment ring at the predetermined breaking point using a plaster knife.



Rough divestment is carried out with Ivoclar Vivadent Polishing Jet Medium at 4 bar (60 psi) pressure.



For fine divestment, only 2 bar (30 psi) pressure is applied.



When divesting the object, blast from the direction indicated in the schematic at the top.



Always use glass beads (Type 100 microns) to divest ceramic restorations.

Completely remove the investment material from the object at 2 bar (30 psi) pressure. Even the smallest bit of remaining investment material can lead to adverse results (bonding problems and/or discolouration).

Apply. max 2 bar (30 psi) pressure for fine divestment (risk of fracture).

Do not use aluminium oxide to blast ceramic restorations (too abrasive).

Thoroughly remove ceramic residue from the AlOx plunger with aluminium oxide at 4 bar (60 psi) pressure. Ceramic residue on the AlOx plunger may cause the plunger to stick to the investment ring.

The investment material contains quartz powder. Avoid the inhalation of dust.

Removing the pressed object / Finishing

a) Use a fine diamond disk to cut the sprues. Use ceramic burs to process the attachment points of the sprues. Avoid excess pressure and overheating.



Use a fine diamond disk to cut the sprues.

b) Remove spacer. Carefully place the pressed object on the die. In case of interfering irregularities, cover the die with a thin layer of a suitable control paste. Place the object on the die again. Carefully remove irregularities with a fine diamond. Use finishing diamonds to adjust the margins.



Using a suitable control paste,....



.... Interfering irregularities are identified and removed with fine diamonds.

Occlusion / Surface structures



The anatomical, functionally waxed-up restoration is accurately reproduced in ceramic.



Check contact points and occlusion of the restorations using control paste or occlusion paper.



Apply surface structures with suitable grinders.

Avoid the inhalation of grinding dust.

Shade control die

Fabricate a shade control die according to the shade information supplied by the dentist (shade selection), using the IPS Empress Die Material Kit. This die enhances the shading of the restorations.



The IPS Empress Die Material is the basis for shading the restoration in the shade selected by the dentist.



Coat the inner surfaces of the ceramic object with IPS Empress Die Material Isolating Liquid.



Apply the corresponding Die Material to the inner surface of the restoration, using the IPS Empress Die Material Condenser.



Close syringe immediately after use.

Maximum working time: 10 minutes.



Insert a die holder into the material.

The Die Material is cured with a suitable light-polymerization device, e.g. Lumamat.

Cleaning the restoration

Blast the inner surface of the ceramic restoration with glass beads at 2 bar (30 psi) pressure.

Blast the outer surface of the ceramic restoration with the Ivoclar Vivadent Special Jet Medium (Type 100 microns) at maximum 0.5 bar (7.5 psi) pressure (Caution: abrasive). Thoroughly clean the restoration with steam before applying the stains.

Glaze and stain firing with IPS Empress Universal Shades/Stains/Glaze

The IPS Empress Universal Shades/Stains, and Glaze have been especially developed for the ceramic materials of the IPS Empress System from Ivoclar Vivadent. They can be used for the following techniques:

- IPS Empress Esthetic technique
- IPS Empress layering technique
- IPS Empress 2 layering technique
- IPS Empress 2 / IPS Eris for E2 layering technique



Do not mix the Universal Shades and Stains in paste form with the powder materials.



Before starting the staining procedure, make sure the restoration is free of dirt and grease. A slightly roughened ceramic surface is favourable.

Stain and characterization firing

Extrude the desired IPS Empress Universal Shade/Stains from the syringe and dilute it to the desired consistency using the Universal Glazing and Staining Liquid and mix.



Apply the stains as thinly as possible. Avoid pooling and too thick layers. Depending on the desired tooth shade, up to three layers and firings are required.



More intensive shades are achieved by several staining procedures, not by applying thicker layers. To check the shade, wet inner aspects of the crown with Universal Glazing and Staining Liquids, replace the object on the shaded die and compare the shade with the corresponding Chromascop or A-D shade.



There are 14 IPS Empress Universal Stains available for individualized characterizations. They can be applied with the last stain firing.

Firing parameters for IPS Empress Universal Shade/Stains (220 V)

| P | B | t ↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|---------------|-----------------|--------|--------|----------------|-------------------|--------|
| | 403°C 757°F | 60°C 108°F | 770°C 1418°F | 4 4 | 1 1 | 450°C 842°F | 769°C 1416.2°F | – – |

Firing parameters for IPS Empress Universal Shade/Stains (110 V)

| P | B | t ↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|--------------|-----------------|--------|--------|----------------|-------------------|--------|
| | 403°C 757°F | 55°C 99°F | 780°C 1436°F | 4 4 | 1 1 | 450°C 842°F | 779°C 1434.2°F | – – |



Important
When working with a furnace from another manufacturer, these parameters have to be adjusted accordingly.

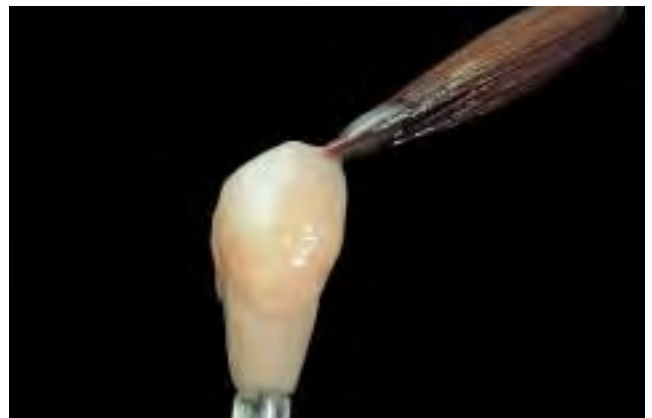
Never place the objects to be fired directly onto the firing tray. Contamination may cause discolouration of the restorations. Therefore, inlays/onlays and veneers that cannot be secured on a firing pin, must be placed on a firing pillow.

Use only the recommended firing set. Blast metal firing pins regularly using Al₂O₃ at 1 bar pressure to clean them. Replace dirty firing pillows in time.

Glazing



Remove IPS Empress Universal Glaze from its container and mix thoroughly. Adjust the consistency by diluting the material with IPS Empress Universal Glaze and Stain Liquid, if required. After that, apply the glazing material in the usual manner using a brush. Do not apply the glazing material in too thick or too thin layers.



Evenly apply the glaze paste with the glaze and stain liquid on the restoration.



Two glaze firing cycles are required for the IPS Empress Esthetic technique. The following basic rule applies: the longer the holding time, the more pronounced the lustre will be.

Firing parameters for IPS Empress Universal Glaze (220 V)

| P | B | t ↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|---------------|-----------------|--------|------------|----------------|-------------------|--------|
| | 403°C 757°F | 60°C 108°F | 770°C 1418°F | 6 6 | 1–2 1–2 | 450°C 842°F | 769°C 1416.2°F | – – |

Firing parameters for IPS Empress Universal Glaze (110 V)

| P | B | t ↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|--------------|-----------------|--------|------------|----------------|-------------------|--------|
| | 403°C 757°F | 55°C 99°F | 780°C 1436°F | 6 6 | 1–2 1–2 | 450°C 842°F | 779°C 1434.2°F | – – |



Important
When working with a furnace from another manufacturer, these parameters have to be adjusted accordingly.

The result



Convincing ...

Etching

Etching the internal surfaces is necessary for all IPS Empress restorations. This procedure increases the shear bond strength between the IPS Empress material and the composite cement. The fracture resistance of the restoration is also increased.



Etch the IPS Empress Esthetic technique restoration for 60 seconds using IPS Ceramic Etching Gel.

Observe the note accompanying the IPS Ceramic Etching Gel.



... for all the indications.

Cementation

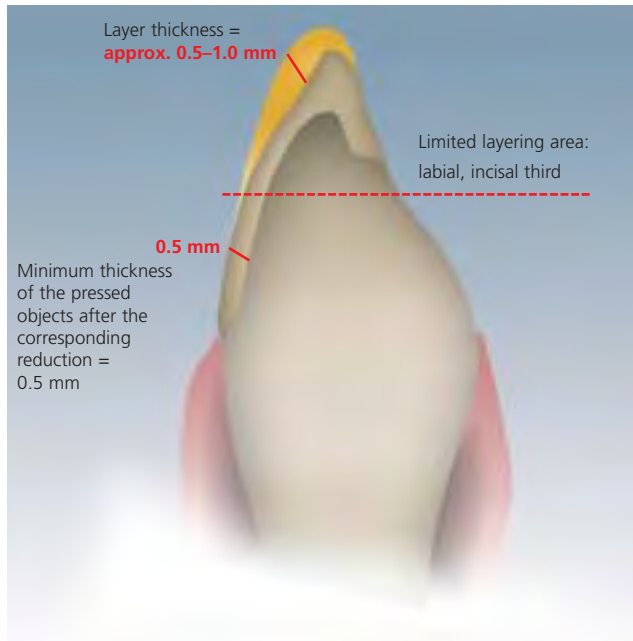
Adhesive cementation is required for restorations fabricated in the IPS Empress Esthetic technique.

Processing procedure

Empress Esthetic Veneer Technique

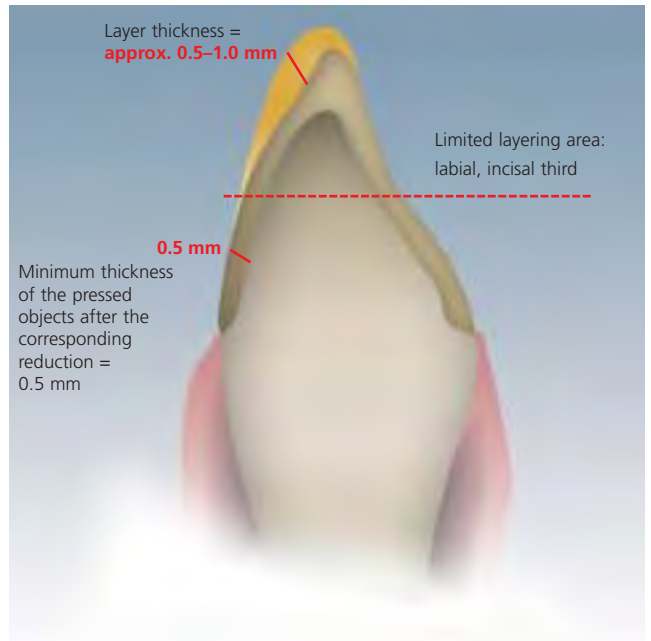
With IPS Empress Esthetic Veneer, you may choose between several ready-mixed IPS Esthetic Veneer ceramic materials. These new materials are suitable for quick and efficient layerings on IPS Empress Esthetic ingots.

Anterior veneer



Fully anatomical, pressed anterior veneer, which is reduced in the incisal area.

Anterior crown



Fully anatomical, pressed anterior crown, which is reduced in the incisal area.

Indication

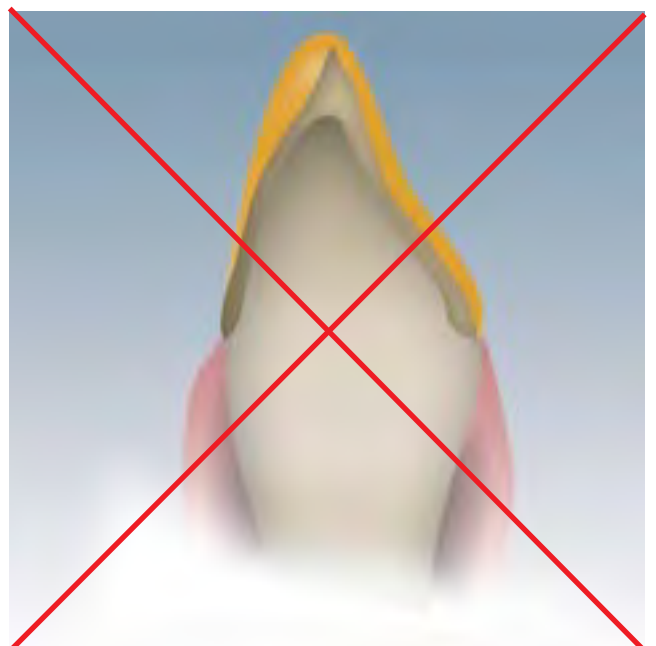
- Esthetic layering of pressed anterior veneers and crowns in the incisal area
- Minimum thickness of the pressed objects = 0.5 mm
- Layering area: Incisal third
- Maximum layer thickness = 0.5–1 mm

Contraindication

- Circularly layered crowns for the anterior and posterior region
- Combination with other pressed ceramic materials (e.g. IPS Empress and IPS Empress 2 / IPS Eris for E2 layering materials) or materials of other manufacturers
- Combination with metal-ceramic systems (e.g. IPS d.SIGN)
- Patients with severely reduced residual dentition
- Bruxism
- The technique with self-mixed materials in combination with IPS Empress Esthetic ingots

Important processing restrictions

- If the following restrictions are not observed, successful working with IPS Empress Esthetic Veneer cannot be ensured:
- The necessary wall thicknesses must be observed.
 - Powder materials must not be mixed with materials in paste form



Circularly layered crowns for the anterior and posterior region.

The basic fabrication procedures (model fabrication, spacer application, contouring, sprueing, investing, pre-heating, pressing, divesting, separating, finishing, etc.) are described in these Instructions for Use on pages 22–37.

Fabricating the model

Fabricate a hard stone model with detachable segments according to the impression (Type IV hard stone).



Applying the spacer

It is advisable to apply a sealer to harden the surface and to protect the die.

Wax-up contouring

A fully anatomical wax-up should be fabricated for veneer restorations.

For that purpose, use a dental wax that burns without leaving residue. Also, ensure a wall thickness of at least 0.8 mm.



For better distinction, a basic wax in a different colour can be used.



Fully anatomical contouring of the veneers.



Veneers with the sprues in place.

The IPS Empress Esthetic ingots selected according to the individual patient shade are used to press the veneers.



Sprued veneers on the 200 g investment ring base



Veneers after pressing in the EP500/EP600/EP600 Combi according to the IPS Empress Esthetic press parameters.



Sprued veneers on the 100 g investment ring base

After pressing, the veneers are placed on the corresponding working model.



Cut-back

Fabricate a silicone key to prepare the veneering procedure.



You are now ready to begin the cut-back technique. The fully anatomical pressed veneers are now reduced in the incisal area. Use the appropriate ceramic-bonded or diamond grinding instruments for the reduction.



Note:
Too much pressure and overheating must be prevented.



The cut-back can be easily checked using the silicone key. Note: A minimum wall thickness of 0.5 mm must be maintained.

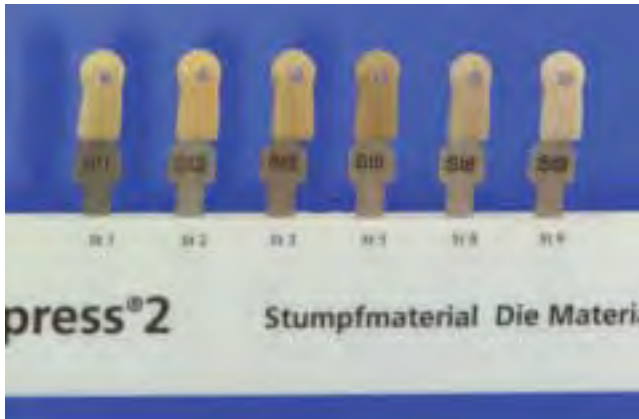


Do not design mamelons with an extreme morphology or with undercuts.



Control die for optimum shade adaptation

Fabricate a shade control die using IPS Empress die material according to the shade information provided by the dentist (shade selection).



Coat the contact surface of the ceramic object with IPS Empress Die Material Isolating Liquid. Subsequently, the corresponding die material can be adapted to the restoration and polymerized with a suitable curing light.



Cleaning the restoration

Carefully blast the outer surface of the ceramic object using Ivoclar Vivadent Special Jet Medium Al_2O_3 (Type 100) at max. 0.5 bar pressure (Caution: abrasive) and thoroughly clean with steam before continuing.

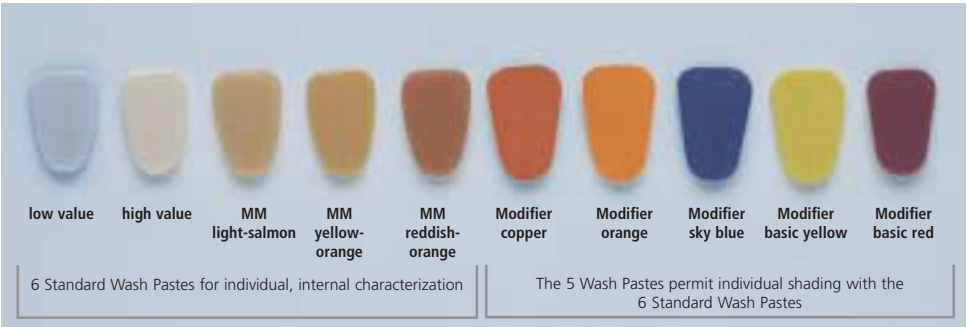


Before further processing, the restoration must be free of dirt and grease.



IPS Empress Esthetic Veneer wash firing

Conduct the wash firing using the corresponding wash paste. Apply the Wash Pastes thinly and cover the entire restoration. The Wash Pastes must be fired separately. If required, the pastes can be slightly diluted using IPS Empress Universal Glaze and Stain Liquid.



Not shown: Wash Paste neutral

Examples of Wash Paste application prior to the firing procedure





Place the objects on a honey-combed firing tray and conduct the wash firing.

Firing parameters for the IPS Empress Esthetic Veneer wash firing (220 V)

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|---------------|-----------------|--------|--------|----------------|-----------------|--------|
| | 403°C 757°F | 60°C 108°F | 840°C 1544°F | 4 4 | 2 2 | 450°C 842°F | 839°C 1542°F | – – |

Firing parameters for the IPS Empress Esthetic Veneer wash firing (110 V)

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|--------------|-----------------|--------|--------|----------------|-----------------|--------|
| | 403°C 757°F | 55°C 99°F | 850°C 1562°F | 4 4 | 2 2 | 450°C 842°F | 849°C 1560°F | – – |



Important:

When working with a furnace from another manufacturer, these parameters have to be adjusted accordingly.

Never place the objects to be fired directly onto the firing tray. Contamination may cause discolouration of the restorations. Therefore, inlays/onlays and veneers that cannot be secured on a firing pin, must be placed on a firing pillow.

Use only the recommended firing set. Blast metal firing pins regularly using Al₂O₃ at 1 bar pressure to clean them. Replace dirty firing pillows in time.



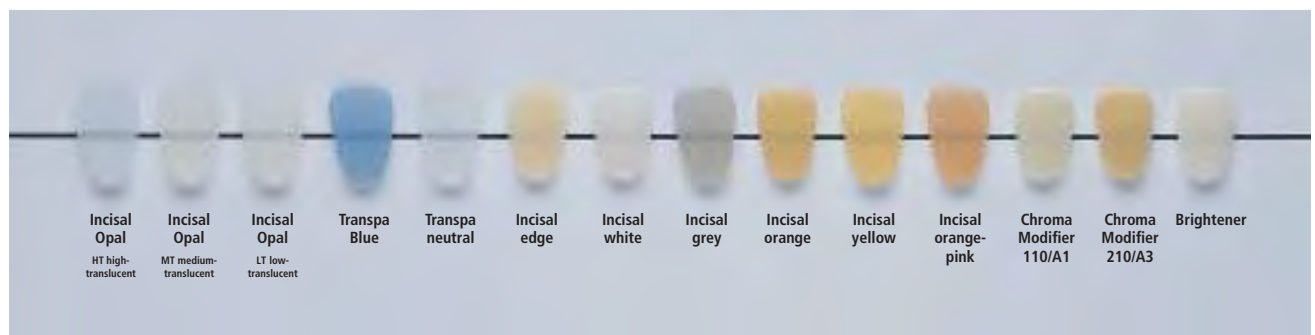
Completely fired characterizations using the available IPS Empress Esthetic Veneer wash pastes.

IPS Empress Esthetic Veneer incisal firing

With the opalescent IPS Empress Esthetic Veneer ceramic materials, the veneering technique has come yet another step closer to nature. Partial areas, such as marginal edges, can be efficiently and quickly layered with the new materials. The materials are mixed using the IPS Empress Esthetic Veneer Build-Up Liquid.



If required, the IPS Empress Esthetic Veneer build-up liquid may be diluted with distilled water.



After wash firing.



Apply the available IPS Empress Esthetic Veneer incisal materials.



The layered structure should be slightly bigger than the final shape.



After incisal firing.

Firing parameters for the IPS Empress Esthetic Veneer 1st and 2nd incisal firing (220 V)

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|-------|--------|---|---|----------------|----------------|---|
| | 403°C | 60°C | 830°C | 4 | 2 | 450°C | 829°C | – |
| | 757°F | 108°F | 1526°F | 4 | 2 | 842°F | 1524°F | – |

Firing parameters for the IPS Empress Esthetic Veneer 1st and 2nd incisal firing (110 V)

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|------|--------|---|---|----------------|----------------|---|
| | 403°C | 55°C | 840°C | 4 | 2 | 450°C | 839°C | – |
| | 757°F | 99°F | 1544°F | 4 | 2 | 842°F | 1542°F | – |



When working with a furnace from another manufacturer, these parameters have to be adjusted accordingly.
The same firing program can be used for any subsequent firing procedures.

Shape and surface adjustments

Shape adjustments may subsequently be carried out using suitable ceramic-bonded grinding instruments.



Note:
Too much pressure and overheating must be prevented.



The shape of the veneers can be checked with the help of the silicone key and a colour varnish.



The surface texture must be completed before the stains and glazing materials are applied.



Completing the final shape.

Stain firing

The IPS Empress Universal Shades / Stains are used to shade and characterize the IPS Empress Esthetic Veneer restorations.



Before starting the staining procedure, make sure the restoration is free of dirt and grease.



Shade check: If necessary, the shade can be enhanced using the IPS Empress Universal Shades.



IPS Empress Universal Shades or Stains are used for staining.



More intensive shades are achieved by several staining procedures, not by applying thicker layers. To check the shade, wet inner aspects of the restorations with IPS Empress Universal Glaze and Stain Liquid before placing the restoration on the shade control die.

Firing parameters for IPS Empress Universal Shade/Stains (220 V)

| P | B | t ↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|---------------|-----------------|--------|--------|----------------|-------------------|--------|
| | 403°C 757°F | 60°C 108°F | 770°C 1418°F | 4 4 | 1 1 | 450°C 842°F | 769°C 1416.2°F | – – |

Firing parameters for IPS Empress Universal Shade/Stains (110 V)

| P | B | t ↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|--------------|-----------------|--------|--------|----------------|-------------------|--------|
| | 403°C 757°F | 55°C 99°F | 780°C 1436°F | 4 4 | 1 1 | 450°C 842°F | 779°C 1434.2°F | – – |

Glaze firing

IPS Empress Universal Glaze can be used to complete the IPS Empress Esthetic Veneer restorations.



The IPS Empress Universal Glaze is used for the final glaze firing.

Firing parameters for IPS Empress Universal Glaze (220 V)

| P | B | t ↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|---------------|-----------------|--------|------------|----------------|-------------------|--------|
| | 403°C 757°F | 60°C 108°F | 770°C 1418°F | 6 6 | 1–2 1–2 | 450°C 842°F | 769°C 1416.2°F | – – |

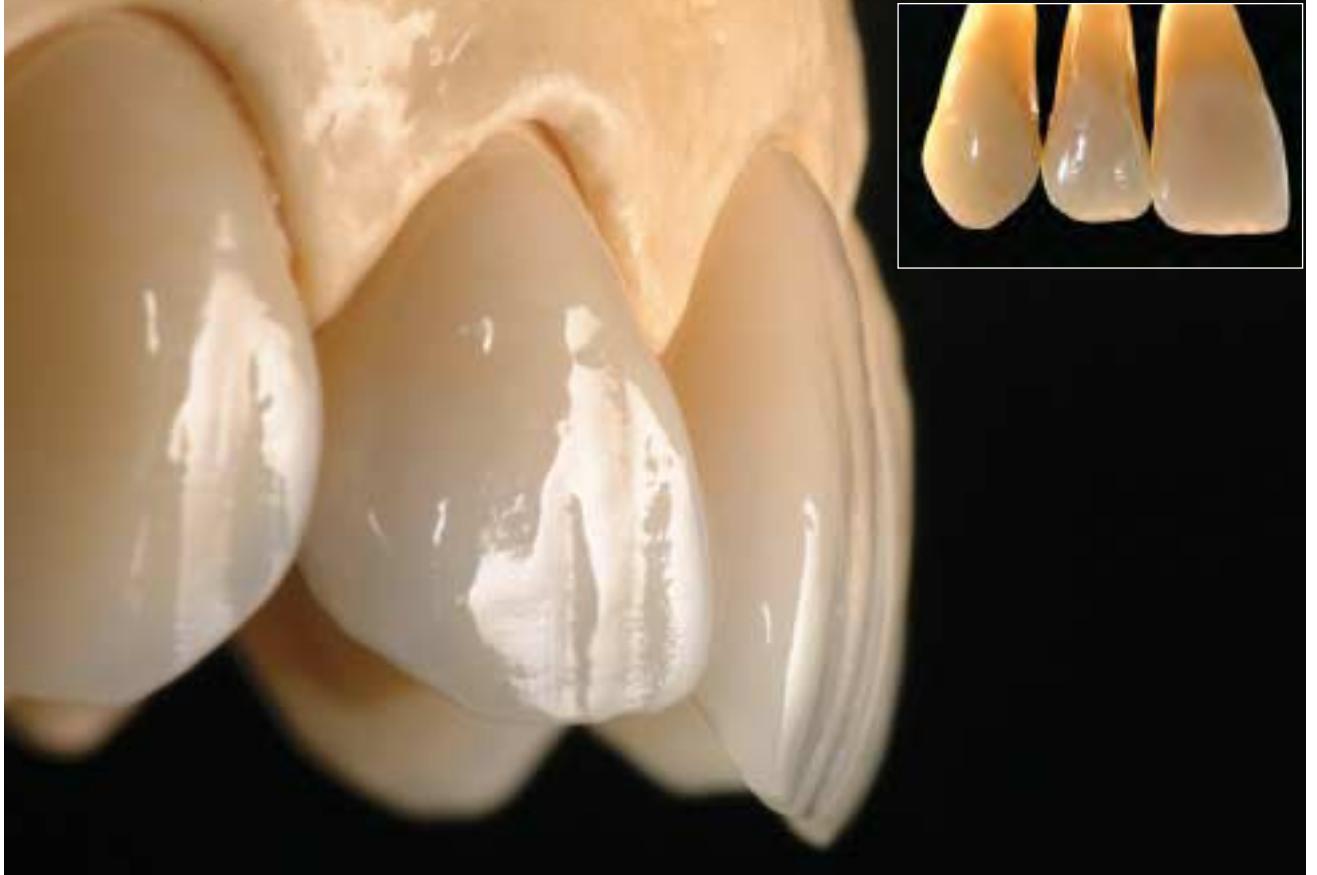
Firing parameters for IPS Empress Universal Glaze (110 V)

| P | B | t ↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|--------------|-----------------|--------|------------|----------------|-------------------|--------|
| | 403°C 757°F | 55°C 99°F | 780°C 1436°F | 6 6 | 1–2 1–2 | 450°C 842°F | 779°C 1434.2°F | – – |



When working with a furnace from another manufacturer, these parameters have to be adjusted accordingly.

Esthetic par excellence.....



Completed IPS Empress Esthetic veneers on the model.

Subsequent adjustments



IPS Empress Add-On 770 °C / 1418 °F is a low-fusing add-on material for subsequent adjustments, such as proximal and occlusal contact points in

- IPS Empress Esthetic restorations
- IPS Empress staining technique restorations, and
- IPS Empress layering technique restorations

Processing

- The restoration must be free of dirt and grease prior to adjustment. Carefully blast the areas to be adjusted with Ivoclar Vivadent Special Jet Medium Al₂O₃ (Type 100) at max. 0.5 bar pressure. Then, thoroughly clean the restoration with steam.
- Mix IPS Empress Add-On 770 °C / 1418 °F with IPS Empress Build-Up liquid to a workable consistency. Make sure that the add-on material and liquid are evenly mixed so that an optimum firing result can be achieved.
- Carefully apply the mixed add-on material on the reduced, blasted, and cleaned areas using a brush. Slightly blot dry with an absorbent cloth.
- The adjusted restoration is then placed on a firing tray and only placed in the ceramic furnace once the furnace head is completely open.

Firing parameters for IPS Empress Add-On 770 °C/1418 °F (220 V)

| P | B | t ↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|---------------|-----------------|--------|--------|----------------|-----------------|--------|
| | 400°C 752°F | 60°C 108°F | 770°C 1418°F | 4 4 | 2 2 | 450°C 842°F | 769°C 1416°F | – – |

Firing parameters for IPS Empress Add-On 770 °C/1418 °F (110 V)

| P | B | t ↑ | T | S | H | V ₁ | V ₂ | L |
|---|----------------|--------------|-----------------|--------|--------|----------------|-----------------|--------|
| | 400°C 752°F | 55°C 99°F | 780°C 1436°F | 4 4 | 2 2 | 450°C 842°F | 779°C 1435°F | – – |



When working with a furnace from another manufacturer, these parameters have to be adjusted accordingly. The basic rule is: the longer the holding time, the higher the lustre will be.

- Once the firing program has been completed and the buzzer has sounded, place the firing tray on the cooling tray using the firing tongs and allow the restoration to cool to room temperature.

Etching

Etching the internal surfaces is necessary for all IPS Empress restorations. This procedure increases the shear bond strength between the IPS Empress material and the composite cement. The fracture resistance of the restoration is also increased.



Etch IPS Empress Esthetic technique restorations for 60 seconds using IPS Ceramic Etching Gel.

Observe the note accompanying the IPS Ceramic Etching Gel.

Cementation

Adhesive cementation is required for restorations fabricated in the IPS Empress Esthetic technique.

IPS Empress Esthetic – Pre-heating, press and firing parameters (220 V)

Press parameters EP500 / EP600 / EP600 Combi

Pressing in the EP500

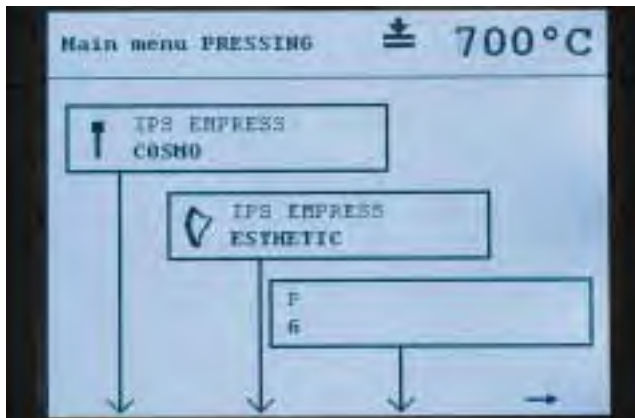
| P | B | t↑ | T | H | V ₁ | V ₂ | Pressure | N |
|----|--------|-------|--------|----|----------------|----------------|----------|---|
| 01 | 700°C | 60°C | 1075°C | 20 | 500°C | 1075°C | 5 bar | – |
| 01 | 1292°F | 108°F | 1967°F | 20 | 932°F | 1967°F | 5 bar | – |

Pressing in the EP600/EP600 Combi

| P | B | t↑ | T | H | V ₁ | V ₂ | E |
|----|--------|-------|--------|----|----------------|----------------|--------|
| 05 | 700°C | 60°C | 1075°C | 20 | 500°C | 1075°C | 250 µm |
| 05 | 1292°F | 108°F | 1967°F | 20 | 932°F | 1967°F | 250 µm |

P = Program number
B = Stand-by temperature
t↑ = Temperature increase
T = Firing temperature

H = Holding time
V₁ = Vacuum on
V₂ = Vacuum off
E = Abort speed µm/min.



In the EP600 and EP600 Combi, program space 5 will be used for the IPS Empress Esthetic press program from software version 3.1.



These press parameters are mandatory for the EP500 / EP600 / EP600 Combi press furnaces.

Firing parameters Programat (220 V)

Firing parameters for the IPS Empress Esthetic Veneer wash firing

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|-------|--------|---|---|----------------|----------------|---|
| | 403°C | 60°C | 840°C | 4 | 2 | 450°C | 839°C | – |
| | 757°F | 108°F | 1544°F | 4 | 2 | 842°F | 1542°F | – |

Firing parameters for the IPS Empress Esthetic Veneer 1st and 2nd incisal firing

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|-------|--------|---|---|----------------|----------------|---|
| | 403°C | 60°C | 830°C | 4 | 2 | 450°C | 829°C | – |
| | 757°F | 108°F | 1526°F | 4 | 2 | 842°F | 1524°F | – |

Firing parameters for IPS Empress Universal Shade/Stains

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|-------|--------|---|---|----------------|----------------|---|
| | 403°C | 60°C | 770°C | 4 | 1 | 450°C | 769°C | – |
| | 757°F | 108°F | 1418°F | 4 | 1 | 842°F | 1416.2°F | – |

Firing parameters for IPS Empress Universal Glaze

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|-------|--------|---|-----|----------------|----------------|---|
| | 403°C | 60°C | 770°C | 6 | 1–2 | 450°C | 769°C | – |
| | 757°F | 108°F | 1418°F | 6 | 1–2 | 842°F | 1416.2°F | – |

Firing parameters for IPS Empress Add-On 770 °C/1418 °F

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|-------|--------|---|---|----------------|----------------|---|
| | 400°C | 60°C | 770°C | 4 | 2 | 450°C | 769°C | – |
| | 752°F | 108°F | 1418°F | 4 | 2 | 842°F | 1416°F | – |



These firing parameters represent standard values applicable to the P80, P100, P200, and PX1 furnaces from Ivoclar Vivadent. The temperatures indicated also apply to furnaces of older generations, such as the P20, P90, and P95. 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 a non-Ivoclar Vivadent furnace is used, temperature corrections 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 Empress Esthetic – Pre-heating, press and firing parameters (110 V)

Press parameters EP500 / EP600 / EP600 Combi

Pressing in the EP500

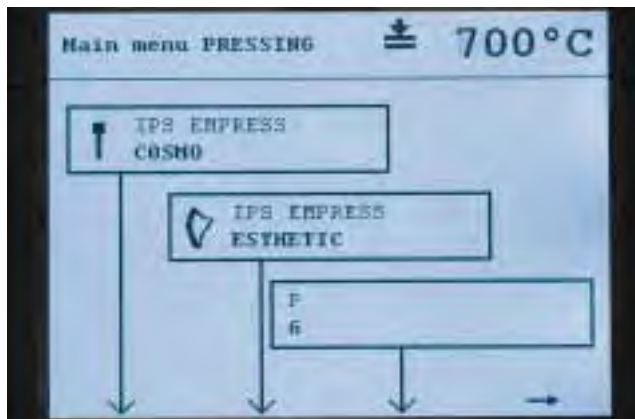
| P | B | t↑ | T | H | V ₁ | V ₂ | Pressure | N |
|----|--------|-------|--------|----|----------------|----------------|----------|---|
| 01 | 700°C | 60°C | 1075°C | 20 | 500°C | 1075°C | 5 bar | – |
| 01 | 1292°F | 108°F | 1967°F | 20 | 932°F | 1967°F | 5 bar | – |

Pressing in the EP600/EP600 Combi

| P | B | t↑ | T | H | V ₁ | V ₂ | E |
|----|--------|-------|--------|----|----------------|----------------|--------|
| 05 | 700°C | 60°C | 1075°C | 20 | 500°C | 1075°C | 250 µm |
| 05 | 1292°F | 108°F | 1967°F | 20 | 932°F | 1967°F | 250 µm |

P = Program number
B = Stand-by temperature
t↑ = Temperature increase
T = Firing temperature

H = Holding time
V₁ = Vacuum on
V₂ = Vacuum off
E = Abort speed µm/min.



In the EP600 and EP600 Combi, program space 5 will be used for the IPS Empress Esthetic press program from software version 3.1.



These press parameters are mandatory for the EP500 / EP600 / EP600 Combi press furnaces.

Firing parameters Programat (110 V)

Firing parameters for the IPS Empress Esthetic Veneer wash firing

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|------|--------|---|---|----------------|----------------|---|
| | 403°C | 55°C | 850°C | 4 | 2 | 450°C | 849°C | – |
| | 757°F | 99°F | 1562°F | 4 | 2 | 842°F | 1560°F | – |

Firing parameters for the IPS Empress Esthetic Veneer 1st and 2nd incisal firing

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|------|--------|---|---|----------------|----------------|---|
| | 403°C | 55°C | 840°C | 4 | 2 | 450°C | 839°C | – |
| | 757°F | 99°F | 1544°F | 4 | 2 | 842°F | 1542°F | – |

Firing parameters for IPS Empress Universal Shade/Stains

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|------|--------|---|---|----------------|----------------|---|
| | 403°C | 55°C | 780°C | 4 | 1 | 450°C | 779°C | – |
| | 757°F | 99°F | 1436°F | 4 | 1 | 842°F | 1434.2°F | – |

Firing parameters for IPS Empress Universal Glaze

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|------|--------|---|-----|----------------|----------------|---|
| | 403°C | 55°C | 780°C | 6 | 1–2 | 450°C | 779°C | – |
| | 757°F | 99°F | 1436°F | 6 | 1–2 | 842°F | 1434.2°F | – |

Firing parameters for IPS Empress Add-On 770 °C/1418 °F

| P | B | t↑ | T | S | H | V ₁ | V ₂ | L |
|---|-------|------|--------|---|---|----------------|----------------|---|
| | 400°C | 55°C | 780°C | 4 | 2 | 450°C | 779°C | – |
| | 752°F | 99°F | 1436°F | 4 | 2 | 842°F | 1435°F | – |

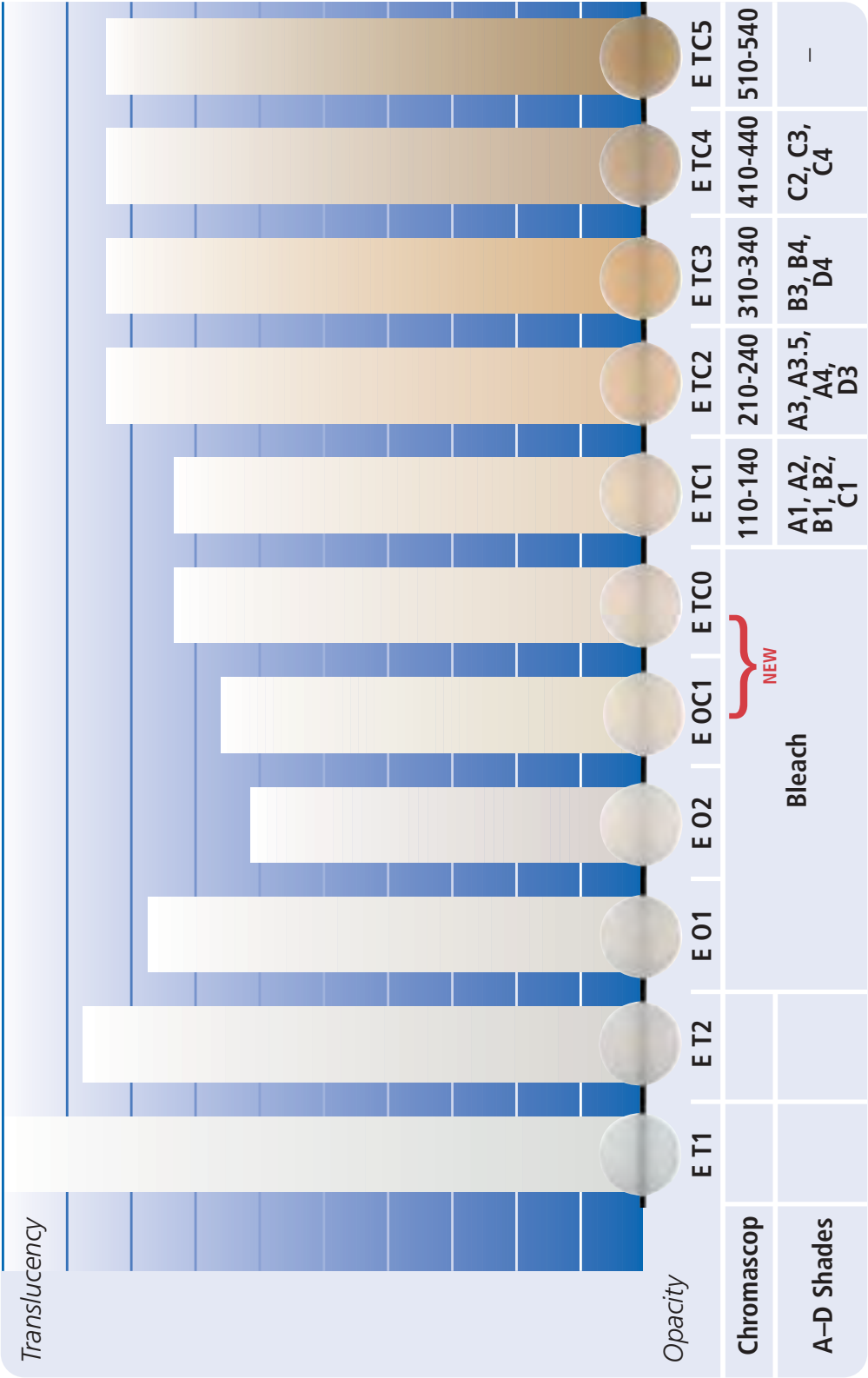


These firing parameters represent standard values applicable to the P80, P100, P200, and PX1 furnaces from Ivoclar Vivadent. The temperatures indicated also apply to furnaces of older generations, such as the P20, P90, and P95. If one of these furnaces is used, however, the temperatures may deviate by ± 10 °C/50 °F, depending on the age and type of the heating muffle.

If a non-Ivoclar Vivadent furnace is used, temperature corrections 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.

Combination Table –





These are suggested die material shades if the dentist does not supply die material (preparation) shade.

Chromascop

| 110 | 120 | 130 | 140 | 210 | 220 | 230 | 240 | 310 | 320 | 330 | 340 | 410 | 420 | 430 | 440 | 510 | 520 | 530 | 540 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ST 9 | ST 9 | ST 9 | ST 9 | ST 1 | ST 1 | ST 2 | ST 2 | ST 3 | ST 3 | ST 3 | ST 3 | ST 8 | ST 8 | ST 8 | ST 8 | ST 5 | ST 5 | ST 5 | ST 5 |

A-D

| A1 | A2 | A3 | A3.5 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ST 9 | ST 9 | ST 1 | ST 2 | ST 5 | ST 9 | ST 9 | ST 3 | ST 3 | ST 9 | ST 8 | ST 8 | ST 8 | ST 8 | ST 9 | ST 1 |

Empress® Esthetic



Cut-back



Fired wash paste characterization



Completed, fired restoration

IPS Empress® Esthetic



Restorations in situ
Dental lab work by Jürgen Seger, ICDE, Ivoclar Vivadent AG Schaan

Ivoclar Vivadent – worldwide

Ivoclar Vivadent AG

Bendererstrasse 2
FL-9494 Schaan
Liechtenstein
Tel. +423 235 35 35
Fax +423 235 33 60
www.ivoclarvivadent.com

Ivoclar Vivadent Pty. Ltd.

1 – 5 Overseas Drive
P.O. Box 367
Noble Park, Vic. 3174
Australia
Tel. +61 3 979 595 99
Fax +61 3 979 596 45

Ivoclar Vivadent Ltda.

Rua Maestro João Gomes de
Araújo 50; Salas 92/94
Sao Paulo, CEP 02332-020
Brasil
Tel. +55 11 69 59 89 77
Fax +55 11 69 71 17 50

Ivoclar Vivadent Inc.

2785 Skymark Avenue, Unit 1
Mississauga
Ontario L4W 4Y3
Canada
Tel. +1-905 238 57 00
Fax +1-905 238 57 11

Ivoclar Vivadent Marketing Ltd.

Calle 134 No. 13-83, Of. 520
Bogotá
Colombia
Tel. +57 1 627 33 99
Fax +57 1 633 16 63

Ivoclar Vivadent SAS

B.P. 118
F-74410 Saint-Jorioz
France
Tel. +33 450 88 64 00
Fax +33 450 68 91 52

Ivoclar Vivadent GmbH

Dr. Adolf-Schneider-Str. 2
D-73479 Ellwangen, Jagst
Germany
Tel. +49 (0) 79 61 / 8 89-0
Fax +49 (0) 79 61 / 63 26

Ivoclar Vivadent UK Limited

Meridian South
Leicester
LE19 1WY
Great Britain
Tel. +44 116 265 40 55
Fax +44 116 265 40 57

Ivoclar Vivadent s.r.l.

Via dell'Industria 16
I-39025 Naturno (BZ)
Italy
Tel. +39 0473 67 01 11
Fax +39 0473 66 77 80

Ivoclar Vivadent S.A. de C.V.

Av. Mazatlán No. 61, Piso 2
Col. Condesa
06170 México, D.F.
Mexico
Tel. +52 (55) 55 53 00 38
Fax +52 (55) 55 53 14 26

Ivoclar Vivadent Ltd

12 Omega St, Albany
PO Box 5243 Wellesley St
Auckland, New Zealand
Tel. +64 9 914 9999
Fax +64 9 914 9990

Ivoclar Vivadent Polska Sp. z o.o.

ul. Jana Pawła II 78
PL-01-501 Warszawa
Poland
Tel. +48 22 635 54 96
Fax +48 22 635 54 69

Ivoclar Vivadent S.A.

c/Emilio Muñoz, 15
Esquina c/Albarracín
E-28037 Madrid
Spain
Tel. + 34 91 375 78 20
Fax + 34 91 375 78 38

Ivoclar Vivadent AB

Dalvägen 16
S-169 56 Solna
Sweden
Tel. +46 8 514 93 930
Fax +46 8 514 93 940

Ivoclar Vivadent, Inc.

175 Pineview Drive
Amherst, N.Y. 14228
USA
Tel. +1 800 533 6825
Fax +1 716 691 2285

Date information prepared: 04/2004

These materials have been developed solely for use in dentistry. Processing should be carried out strictly according to the Instructions for Use. Liability cannot be accepted for damages resulting from failure to observe the Instructions or the stipulated are of application. The user is responsible for testing the material for its suitability for any purpose not explicitly stated in the Instructions. Descriptions and data constitute no warranty of attributes and are not binding.

Printed in Liechtenstein
© Ivoclar Vivadent AG, Schaan / Liechtenstein
582189/0404/e/2/BVD



ivoclar
vivadent
technical