

 **IPS Empress® System**

IPS Empress® Esthetic

Instructions for Use

CE 0123


ivoclar
vivadent®

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Empress® – the Original

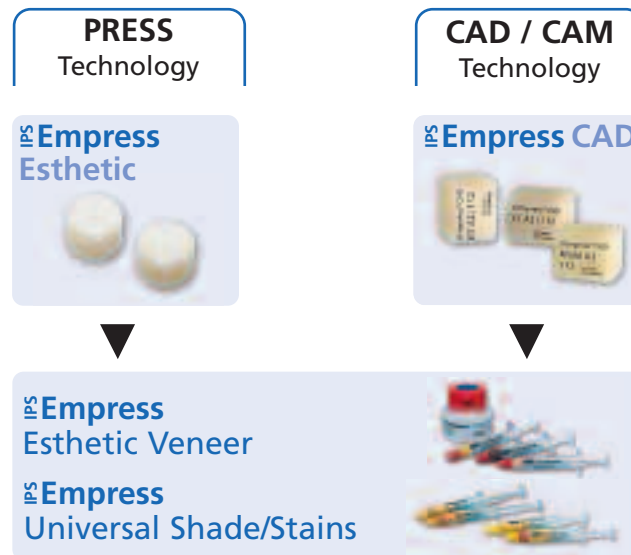
Nearly 20 years ago, IPS Empress revolutionized the processing of ceramic and thanks to its many advantages, such as aesthetics, IPS Empress has been established as the “benchmark”. More than 33 million restorations fabricated of IPS Empress throughout the world and the use of “IPS Empress” as a synonym for all-ceramics speak for the durable life-like appearance, the ongoing success, and the high quality standard of the material.

In addition to the tried-and-tested PRESS technology, the CAD/CAM technology has also developed in the area of all-ceramics. In order to supply the “benchmark” for this technology as well, the future IPS Empress System will comprise products for both processing technologies. You will be able to benefit from roughly 20 years of clinical experience and convincing aesthetics, irrespective of whether the restorations were fabricated with the PRESS or CAD/CAM technique.

IPS Empress Esthetic is available for the **PRESS technology**, while **IPS Empress CAD** is used in the **CAD/CAM technology**. Both products consist of the highly aesthetic, leucite-reinforced glass-ceramic that has been clinically tried-and-tested for many years. The two ceramics are characterized by excellent strength values and outstanding aesthetic appearance. They may thus be used for the fabrication of fully anatomic single-unit restorations, such as inlays, onlays, veneers, and crowns.

Both products may subsequently be stained and/or glazed using **IPS Empress Universal Shades/Stains**, or individually veneered using the **IPS Empress Esthetic Veneer** layering ceramic.

In this way, the IPS Empress System will remain synonymous for highly aesthetic, fully anatomical all-ceramic restorations, irrespective of the processing technology.



IPS Empress Esthetic – Product Information

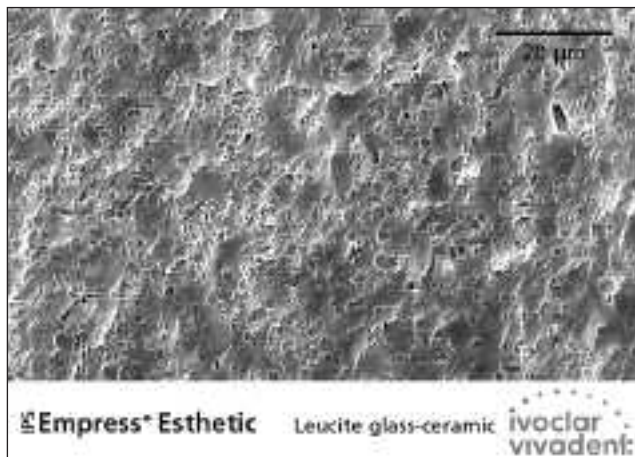
Material

IPS Empress Esthetic is used for the fabrication of highly aesthetic single-tooth restorations by means of the PRESS technique.

IPS Empress Esthetic ingots are made of a leucite-reinforced glass-ceramic which consists of a glass and a crystal phase. Leucite crystals of a few microns evenly grow in a multi-stage process directly from the amorphous glass phase. During the fabrication of the ingots, the semi-finished product in powder form is pressed to ingots in a fully automated process, which enables a maximum of homogeneity.

Given the difference in the coefficients of thermal expansion (CTE) between the glass phase and the crystal phase (leucite), cooling after sintering produces compressive stress in the glass phase. This mechanism results in an increase in strength and enables IPS Empress Esthetic to achieve a flexural strength of 160 MPa.

This type of material has been successful as well as proven for almost 20 years. The pressed restorations feature excellent accuracy of fit and a homogeneous surface. Subsequently, the restorations may be stained using IPS Empress Universal Stains and/or individually veneered using IPS Empress Esthetic Veneer.



CTE (100–400°C) [10^{-6} /K]	16.6
CTE (100–500°C) [10^{-6} /K]	17.5
Flexural strength (biaxial) [MPa]*	160
Fracture toughness [MPa m ^{0.5}]	1.3
Vickers hardness [MPa]	6200
Chemical solubility [$\mu\text{g}/\text{cm}^2$]*	25

*according to ISO 6872

Uses

Indications

IPS Empress Esthetic ingots can be used for the following adhesively cemented restorations.

- Inlays
- Onlays
- Veneers
- Anterior crowns
- Posterior crowns
- Implant superstructures for single-tooth restorations (anterior and posterior region)

For further processing of IPS Empress Esthetic restorations, users have the following options:

- Aesthetic characterization and glazing of fully anatomical restorations using IPS Empress Universal Shades, Stains, and Glaze pastes.
- Aesthetic veneering in the incisal third of reduced restorations (veneers and anterior crowns) using IPS Empress Esthetic Veneer and additional staining and glazing

Contraindications

- Bridge reconstructions
- Conventional cementation
- Very deep, subgingival preparations
- Patients with severely reduced residual dentition
- Bruxism
- Fully (circularly) veneered anterior crowns using IPS Empress Esthetic Veneer
- Veneering of posterior crowns

Important processing restrictions

Failure to observe the following restrictions may compromise the success achieved with IPS Empress Esthetic:

- The fully anatomical IPS Empress Esthetic restorations must not fall below the required minimum thickness
- The reduced IPS Empress Esthetic restorations must not fall below the required minimum thickness
- Observe the extent of the layering area in the cut-back technique
- The maximum layer thickness of IPS Empress Esthetic Veneer layering materials must not be exceeded
- IPS Empress Esthetic restorations must not be stained and veneered using materials other than IPS Empress Esthetic Veneer
- IPS Empress Esthetic restorations must not be stained and glazed using materials other than IPS Empress Universal Shades, Stains, and Glaze
- Combination with metal-ceramic systems (e.g. IPS d.SIGN)
- Powder materials must not be mixed with paste materials
- Do not use investment materials and press furnaces from other manufacturers

Side effects

If patients are known to be allergic to any of the ingredients of IPS Empress Esthetic, the material should not be used.

Composition

- **IPS Empress Esthetic Ingots**
Components: SiO₂
Additional contents: K₂O, Al₂O₃, Na₂O, CaO, B₂O₃, TiO₂, CeO₂ and pigments
- **IPS Empress Esthetic Veneer**
Components: SiO₂
Additional contents: Al₂O₃, K₂O, Na₂O, CaO, oxides and pigments
- **IPS Empress Universal Shades, Stains and Glaze Paste**
Components: Oxides, glycerine, butandiol, poly(vinylpyrrolidone)
- **IPS Empress Esthetic Veneer Build-Up Liquid**
Components: water, butandiol, chloride
- **IPS Empress Universal Glaze and Stain Liquid**
Components: Butandiol
- **IPS Natural Die Material**
Components: Polyester urethane dimethacrylate, paraffin oil, SiO₂ and copolymers
- **IPS Natural Die Material Separator**
Components: Wax dissolved in hexane
- **IPS PressVEST Investment Material Powder**
Components: SiO₂ (quartz powder), MgO and NH₄H₂PO₄
- **IPS PressVEST Investment Material Liquid 1000 ml**
Components: Colloidal silicic acid in water
- **IPS Empress Esthetic Speed Investment Material Powder**
Components: SiO₂ (quartz powder), MgO and NH₄H₂PO₄
- **IPS Empress Esthetic Speed Investment Material Liquid 500 ml**
Components: Colloidal silicic acid in water
- **IPS Ceramic Etching Gel**
Components: Hydrofluoric acid

Warnings

- Butandiol is irritating – avoid contact with skin and eyes and do not inhale the vapours.
- Hexane is highly flammable and detrimental to health. Avoid contact with skin and eyes. Do not inhale the vapours and keep away from sources of ignition.
- Do not inhale ceramic grinding dust during processing - use suction equipment and a face mask.
- Etching gel contains hydrofluoric acid. Avoid contact with skin, eyes, and clothing at any time, since the material is highly toxic and corrosive. The etching gel is intended for professional use only and must not be applied intra-orally (in the oral cavity).

Ingots concept

IPS Empress Esthetic ingots are available in 12 shades and 7 levels of translucency to fulfil even the most discerning requirements.

Non-shaded ingots are supplied in 5 levels of opacity: E T1, E T2, E O1, E O2 and E O3. The IPS Empress Esthetic TC ingots are slightly shaded to reduce the need for characterization. In addition, 3 further shades are available, which are ideal for the veneering technique. The E TC0, E O1 and E O3 ingots can be used for cases in which a bright shade effect is desired, e.g. with a very bright tooth shade or after bleaching.



E T1: Inlays and onlays

For older patients with very translucent glassy residual dentition.



E O2: Crowns and veneers

For patients with a residual dentition that features a very high opacity.



E T2: Inlays and onlays

For younger patients with a residual dentition that features a low opacity.



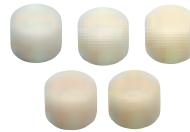
E O3: Crowns and veneers

For patients with a residual dentition that features a very high opacity and for matching bleached teeth.



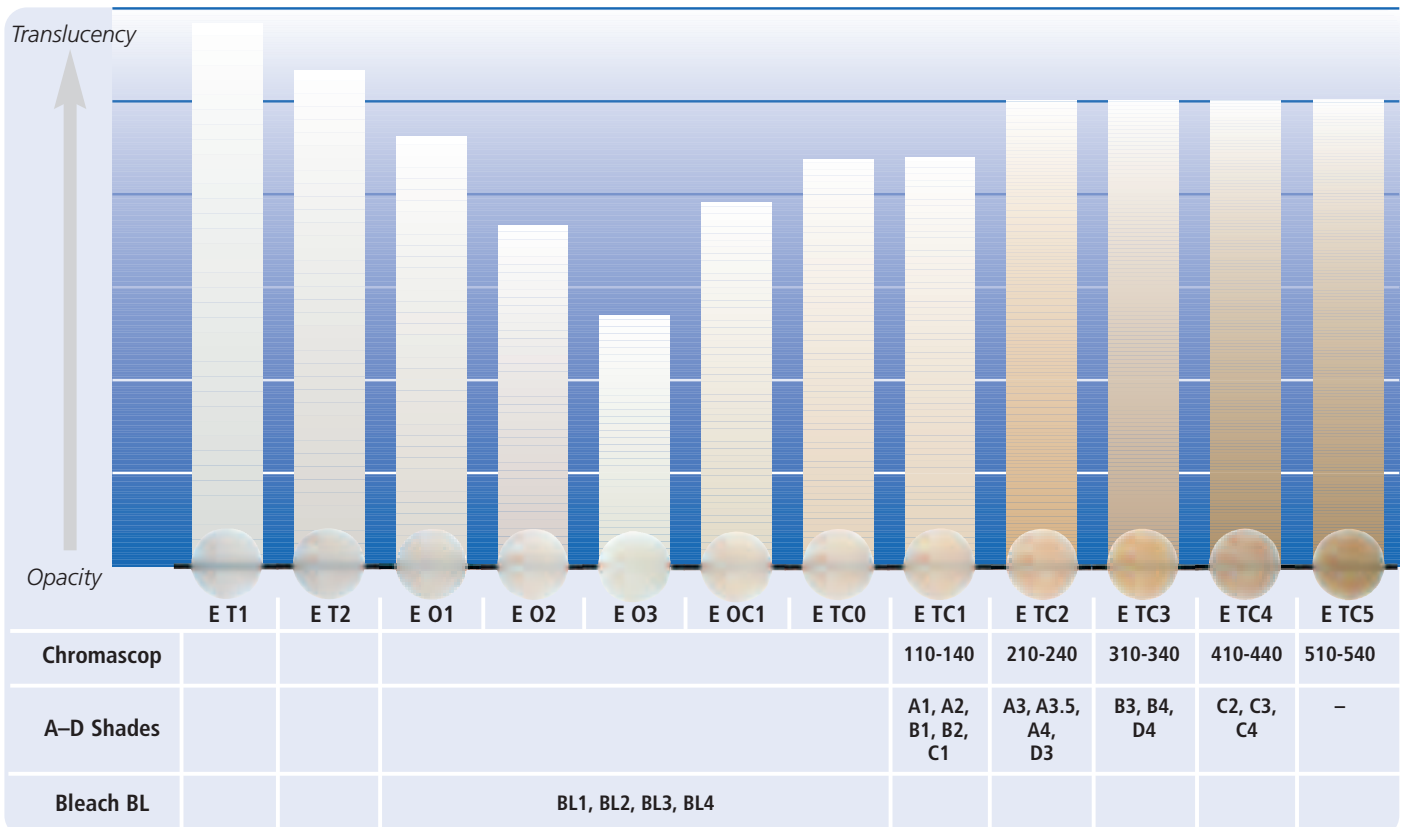
E O1, E OC1: Crowns and veneers

For patients with a residual dentition that features a medium opacity.



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

The shades of the IPS Empress Esthetic Translucent Colour ingots are coordinated with the Chromascope shade guide. They can be combined with A-D shades.



Product overview and description



IPS Empress Esthetic Basic Kit

The IPS Empress Esthetic Basic Kit contains all the ingots, as well as the necessary accessories. The Basic Kit is supplied in the new material cabinet and can be supplemented with any other Ivoclar Vivadent all-ceramic assortment, e.g. IPS e.max.

Delivery form:

IPS Empress Esthetic Basic Kit

- 12x 5 IPS Empress Esthetic ingots;
Farben T1, T2, O1, O2, O3, OC1, TC0, TC1, TC2, TC3, TC4, TC5
- 2x IPS Empress ring base; size 100 g and 200 g
- 2x IPS Empress ring gauge; size 100 g and 200 g
- 2x IPS Silicone Ring; size 100 g and 200 g
- 2x IPS Sprue Guide; size 100 g and 200 g
- 1x 2 IPS Empress Alox plungers
- 1x 12 g IPS Object Fix
- 1x IPS UniTray
- 1x IPS Empress Esthetic Ingots shade guide



IPS Empress Veneer Kit

The IPS Empress Veneer Kit comprises a selection of the most popular wash pastes and layering materials for the veneering (cut-back technique) of IPS Empress restorations (Esthetic and CAD). With the wash pastes, an excellent and homogeneous bond with the reduced restoration is achieved. The leucite-reinforced layering materials feature incisal-like fluorescence and a true-to-nature opalescence. The additional wash pastes and layering materials available as Refills are indicated on the materials shade guide supplied with the Kit.

Delivery form:

IPS Empress Veneer Kit

- 6x 1 g IPS Empress Esthetic Veneer Wash Pastes;
Shades: neutral, low value, high value, MM light-salmon, MM yellow-orange, MM red-orange
- 6x 20 g IPS Empress Esthetic Veneer;
Shades: Incisal Opal LT, Incisal Opal MT, Incisal Opal HT, Incisal white, Transpa neutral, Transpa blue
- 1x 20 g IPS Empress Add-On 770°C/1418°F
- 1x 60 ml IPS Empress Esthetic Veneer Build-Up Liquid
- 1x 3 g IPS Empress Universal Glaze Paste
- 1x 15 ml IPS Empress Universal Glaze and Stain Liquid
- 1x 12 g IPS Object Fix
- 1x IPS Empress Esthetic Veneer Material Shade Guide
- Various accessories

IPS Empress Universal Shade/Stains Kit (A–D and Chromascop)

The IPS Empress Universal Shade/Stains Kits comprise a selection of the most popular Dentin and Intensive stains. The stains are suitable to apply surface characterizations. For the final glazing of the IPS Empress restorations, a smooth and fine-grained glazing paste is provided.



Delivery form:

IPS Empress Universal Shade/Stains Kit A–D

- 6x 3 g IPS Empress Universal Shade;
Shades: A1, A2/A3/A3.5, B1, B2/B3/B4, C1/C2, D2/D3
- 2x 3 g IPS Empress Universal Shade Incisal;
Shades: I1, I2
- 5x 1 g IPS Empress Universal Stains;
Shades: white, orange, mahogany, khaki, maroon
- 1x 3 g IPS Empress Universal Glaze Paste
- 1x 15 ml IPS Empress Universal Glaze and Stain Liquid
- Various accessories

Delivery form:

IPS Empress Universal Shade/Stains Kit Chromascop

- 6x 3 g IPS Empress Universal Shade;
Shades: 110/120, 130, 140/210, 220/230, 310, 410/420
- 2x 3 g IPS Empress Universal Shade Incisal;
Shades: I1, I2
- 5x 1 g IPS Empress Universal Stains;
Shades: white, orange, mahogany, khaki, maroon
- 1x 3 g IPS Empress Universal Glaze Paste
- 1x 15 ml IPS Empress Universal Glaze and Stain Liquid
- Various accessories

IPS Empress Esthetic Veneer Wash Pastes

Given the 2 : 1 effect of the wash pastes, i.e. bonding and characterization in one step, highly aesthetic restorations can be fabricated very efficiently.

The **Wash Paste neutral** produces the direct bond to the reduced restorations and is always applied first on the restoration; it enables a homogeneous bond.

Delivery form:

- 1x 1 g IPS Empress Esthetic Wash Paste neutral



Subsequently, the reduced restorations are individually characterized using the **5 Standard Wash Pastes**. Ideal shade gradations permit individualized characterizations of the highest order.

Delivery form:

- 5x 1 g IPS Empress Esthetic Wash Paste;
Shades: low value, high value, MM light-salmon, MM yellow-orange, MM reddish-orange



The 5 standard wash pastes may then be individually shaded using the **5 Wash-Paste Modifiers** or the neutral paste.

Delivery form:

- 5x 1 g IPS Empress Esthetic Wash Paste;
Shades: Modifier copper, Modifier orange, Modifier sky blue, Modifier basic yellow, Modifier basic red





IPS Empress Esthetic Veneer Incisal Opal

These opalescent materials are available in three different gradations (low, medium, and high translucency). They feature an incisal-like fluorescence and true-to-nature opalescence. The high stability and excellent modelling properties permit detailed layering of life-like incisal edges. The opalescent effect demonstrates high firing stability and is thus clearly visible even after several firing cycles.

Delivery form:

- 3x 20 g IPS Empress Esthetic Veneer Incisal Opal;
Shades: low translucent, medium translucent, high translucent



IPS Empress Esthetic Veneer Incisal

These Incisal materials are available in 6 shade nuances and are used for additional characterizations in the incisal area.

Delivery form:

- 6x 20 g IPS Empress Esthetic Veneer Incisal;
Shades: white, grey, orange, edge, yellow, orange-pink



IPS Empress Esthetic Veneer Transpa

The Transparent materials in 2 shade nuances are used for the true-to-nature reproduction of transparent areas, particularly in the incisal third.

Delivery form:

- 2x 20 g IPS Esthetic Veneer Transpa;
Shades: blue, neutral



IPS Empress Esthetic Veneer Chroma Modifier

These materials support the shade intensity of the reduced restoration and are available in shades 110/A1 and 210/A3.

Delivery form:

- 2x 20 g IPS Empress Esthetic Veneer Chroma Modifier;
Shades: 110/A1, 210/A3



IPS Empress Esthetic Veneer Brightener

Used to increase the brightness value.

Delivery form:

- 1x 20 g IPS Empress Esthetic Veneer Brightener

IPS Empress Add-On 770°C/1418°F

IPS Empress Add-On 770 °C/1418 °F is a low-fusing add-on material for subsequent adjustment, e.g. proximal and occlusal contact points, of IPS Empress Esthetic and IPS Empress CAD restorations.

Delivery form:

- 1x 20 g IPS Empress Add-On 770°C/1418°F



IPS Empress Esthetic Veneer Build-Up Liquid

The Build-Up Liquid is used to mix the IPS Empress Esthetic Veneer materials and the IPS Empress Add-On corrective material. Since build-up liquids contain various organic additives that do not fire without leaving residue at the used firing temperatures and thus may cause discolouration, only the IPS Empress Esthetic Veneer Build-Up Liquid must be used.

Delivery form:

- 1x 60 ml IPS Empress Esthetic Veneer Build-Up Liquid



IPS Empress Universal Shade

The IPS Empress Universal Shades are available in 9 A–D and 15 Chromascop shades. They are used for the exact reproduction of the A–D and Chromascop shades.

Delivery form:

- 9x 3 g IPS Empress Universal Shade;
A–D shades: A1, A2/A3/A3,5, A4, B1, B2/B3/B4, C1/C2, C3/C4, D2/D3, D4
- 15x 3 g IPS Empress Universal Shade;
Chromascop shades: 110/120, 130, 140/210, 220/230, 240, 310, 320, 330, 340, 410/420, 430/440, 510, 520, 530, 540

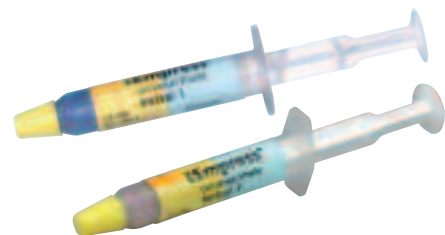


IPS Empress Universal Shade Incisal

These 2 pastes are especially suitable for fully anatomical restorations. They are used to imitate the incisal area and provide the incisal third with optical translucency and an in-depth effect.

Delivery form:

- 2x 3 g IPS Empress Universal Shades Incisal;
Shades: I1, I2



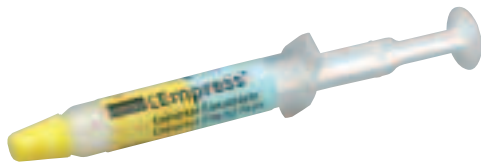


IPS Empress Universal Stains

These intensive stains are available in 14 different shades. They are used to reproduce natural characteristics. With the three complementary shades basic blue, basic red, and basic yellow, the shades can be individually adjusted.

Delivery form:

- 14x 1 g IPS Empress Universal Stains;
Shades: white, mahogany, khaki, orange, grey, vanilla, crackliner, olive, yellow, black, maroon, basic red, basic blue, basic yellow



IPS Empress Universal Glaze Paste

IPS Empress Universal Glaze Paste is used to apply the final glaze to IPS Empress restorations. The glazing paste demonstrates a smooth, fine-grained consistency and thus permits easy and quick application of the glazing material layer.

Delivery form:

- 1x 3 g IPS Empress Universal Glaze Paste



IPS Empress Universal Glaze and Stain Liquid

The IPS Empress Universal Glaze and Stain Liquid is used to adjust the consistency of all materials in paste form (Wash pastes, Shades, Stains, and Glaze). No other liquid may be used for this purpose, since those liquids contain various organic additives that do not fire without leaving residue at the defined firing temperatures, which may result in discolouration.

Delivery form:

- 1x 15 ml IPS Empress Universal Glaze and Stain Liquid

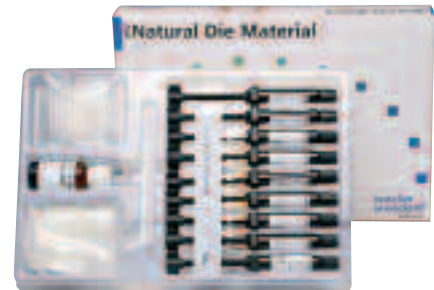
Accessories, auxiliaries and equipment

IPS Natural Die Material

The light-curing IPS Natural Die Material simulates the shade of the prepared tooth and thus is the optimum basis for true-to-nature shade match with the oral situation during fabrication of the all-ceramic restorations. The IPS Natural Die Material Kit comprises 9 shades. The shade arrangement was newly designed. The assortment contains all the shade variants necessary for the fabrication of life-like all-ceramic restorations.

New items in the assortment are as follows:

- 1 shade for the imitation of bleached preparations (ND1)
- 1 shade for the imitation of intensively shaded secondary dentin (ND 6)
- 1 shade for the imitation of severely discoloured / devitalized preparations (ND 9)



The arrangement and designations of the IPS Natural Die shades compared to the IPS Empress Die shades is as follows:

IPS Natural Die Material	ND 1	ND 2	ND 3	ND 4	ND 5	ND 6	ND 7	ND 8	ND 9
IPS Empress Die Material	–	St 9	St 1	St 2	St 3	–	St 8	St 5	–

Delivery form:

IPS Natural Die Material Kit

- 9x 8 g IPS Natural Die Material,
Shades: ND 1, ND 2, ND 3, ND 4, ND 5, ND 6, ND 7, ND 8, ND 9
- 1x 20 ml IPS Natural Die Material Separator
- 8x 10 IPS Condensers
- 8x 10 IPS Condenser Tips
- 2x Universal Holders
- 1x IPS Natural Die Shade Guide

IPS Sprue Guide

The IPS Sprue Guide helps check the correct sprueing of the objects to be pressed on the ring base.

Delivery form:

- IPS Sprue Guide 100 g
- IPS Sprue Guide 200 g

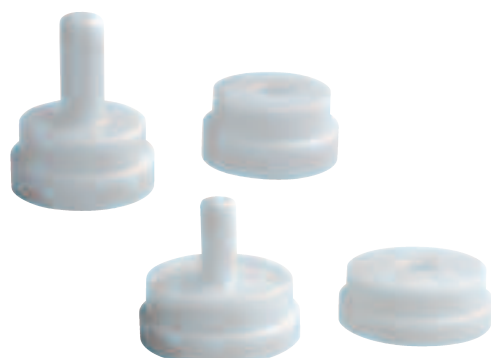


IPS Empress Investment Ring System

The investment ring system is used to sprue the contoured restorations. The 100-g investment ring system is used for individual restorations, whereas the 200-g ring system is suitable for several single-tooth restorations. Due to the different diameters of the pressed ingots and Alox plungers, the IPS Empress investment ring system is only suitable for materials from the IPS Empress System.

Delivery form:

- IPS Empress Investment Ring System 100 g
(3x ring base, 3x ring gauge)
- IPS Empress Investment Ring System 200 g
(3x ring base, 3x ring gauge)





IPS Silicone Rings

- IPS Silicone Ring, small, for the IPS Empress and IPS e.max investment ring system 100 g
- IPS Silicone Ring, big, for the IPS Empress and IPS e.max investment ring system 200 g

Delivery form:

- IPS Silicone Ring small 100 g
- IPS Silicone Ring big 200 g



IPS Empress Esthetic Speed Investment Material

The phosphate-bonded Esthetic Speed investment material is suitable for the indication range of IPS Empress Esthetic and is composed of powder and liquid.

IPS Empress Esthetic Speed investment material helps achieve high-quality press results in no time at all. The investment material allows quick heating and the fabrication of accurately fitting inlays, onlays, veneers and crowns.

Delivery form:

- 25x 100 g IPS Empress Esthetic Speed Investment Material Powder
- 1x 0.5 l IPS Empress Esthetic Speed Liquid



IPS PressVEST

Alternatively, the IPS PressVEST investment material can be used. It is an optimized, phosphate-bonded investment material for the conventional heating technique (over night) and consists of powder and liquid. It ensures highly accurate press results and can be used with the following Ivoclar Vivadent pressed ceramics in the EP 500 EP 600 and EP 600 Combi press furnaces:

- IPS Empress Esthetic
- IPS e.max Press
- IPS e.max ZirPress
- IPS Empress Cosmo

For detailed information on processing please refer to the IPS PressVEST Instructions for Use.

Delivery form:

IPS PressVEST Investment Material, 2.5 kg

- 25x 100 g IPS PressVEST Investment Material Powder
- 1x 0.5 l IPS PressVEST Liquid

IPS PressVEST Investment Material, 5 kg

- 50x 100 g IPS PressVEST Investment Material Powder
- 1x 1 l IPS PressVEST Liquid

Investment tongs

The investment tongs ensure safe working with the investment rings. They are used to place the ingots and AlOx plungers into the investment ring before the press procedure is started.

Delivery form:

- 1x Investment Tongs



IPS UniTray

The IPS UniTray is a universal firing tray that has been designed to accommodate objects to be fired, or pressed ingots and AlOx plungers. If the IPS UniTray is used in a ceramic furnace, the restorations are placed in the furnace using the enclosed metal pins.

Delivery form:

- 1x IPS UniTray
- 3x 4 Metal Pins



IPS Object Fix

IPS Object Fix is an auxiliary firing paste to support all-ceramic restorations during firing. The paste is used for easier securing of the restorations on the metal pins of the honey-comb firing tray. Due to its consistency, IPS Object Fix is easy to apply and convenient to remove after firing.

Delivery form:

- 1x 12 g IPS Object Fix



EP 600/EP 600 Combi

The EP 600 furnace is ideally coordinated with the IPS Empress and IPS e.max pressed ceramics. The furnace delivers excellent press results due to the electronic press drive, automatic temperature calibration, as well as a fast and easy operation by means of the graphic display and menu controls. The EP 600 Combi is a combination of a press and ceramic furnace, which unites the advantages of the EP 600 with those of a high-quality ceramic furnace. The furnace is ideal for both pressing ceramics of the IPS Empress and IPS e.max systems and firing layering ceramics, such as IPS Empress Esthetic Veneer.

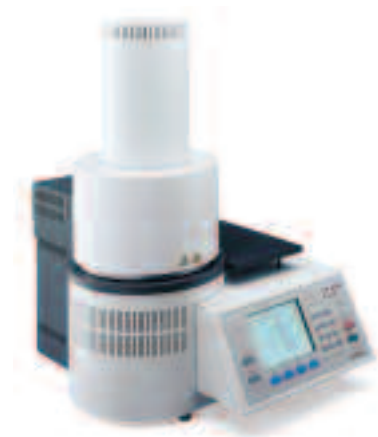
Delivery form:

EP 600 Basic Equipment

- EP 600
- Power Cord

EP 600 Combi Basic Equipment

- EP 600
- Power Cord





Programat® P300

The new Programat P300, which is reduced to the essentials, is an inspiration due to its cost-effectiveness. Furthermore, it features a convincing and easy operating concept. A simple menu structure with clearly arranged symbols guides the user during the application of the programs. The furnace is equipped in the factory with preset programs for IPS e.max, IPS d.SIGN, IPS InLine, and the IPS Empress System and it convinces users with its modern, timeless design.

Delivery form:

Programat P300 Basic Equipment

- Programat P300
- Power Cord, Vacuum Hose, Calibration Test Package, Programat Firing Tray Kit



Programat® P500

Optimum firing results for glazing materials, stains, and ceramic materials can be achieved with the user-friendly Programat P500 ceramic furnace. This new ceramic furnace combines high-tech and design. The combination of the membrane-sealed keypad and the large, clearly-arranged graphic display with touch function facilitate operation. The homogeneous heat emission due to the new muffle technology, the easy, precise and automatic temperature calibration, as well as the 300 firing programs make the P500 an indispensable companion in the laboratory.

Delivery form:

Programat P500 Basic Equipment

- Programat P500
- Power Cord, Vacuum Hose, Calibration Test Package (ATK2), Programat Firing Tray Kit, USB Download Cable, USB Stick Programat



IPS® Ceramic Etching Gel

IPS Ceramic Etching Gel is used to produce retentive bonding surfaces on ceramic restorations in the composite cementation technique. It enhances the bonding effect between the luting composite and the ceramic surface. IPS Ceramic Etching Gel is exclusively intended for professional use and must not be applied in the oral cavity.

Advantages

- Usable in conjunction with most glass-ceramic materials
- No environmental pollution due to neutralization

Contraindications

- Application in the oral cavity
- Enamel etching of natural teeth
- Use in conjunction with oxide ceramics

Delivery form:

IPS Ceramic Etching Gel Kit

- 1x 5 ml IPS Ceramic Etching Gel
- 1x 30 g Neutralization Powder
- 1 Measuring Spoon

IPS Empress Esthetic – Practical Working Steps

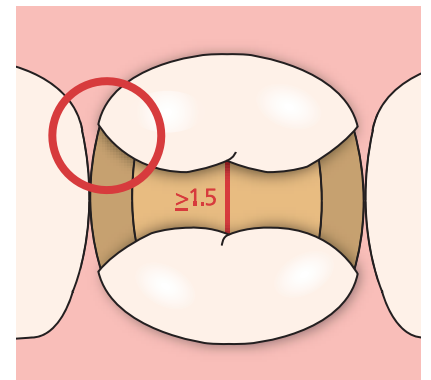
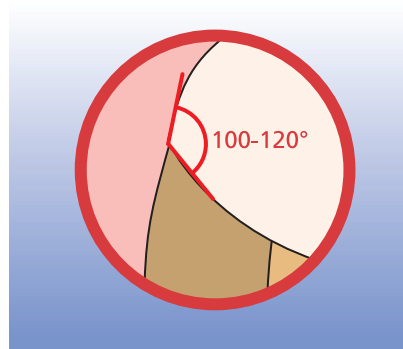
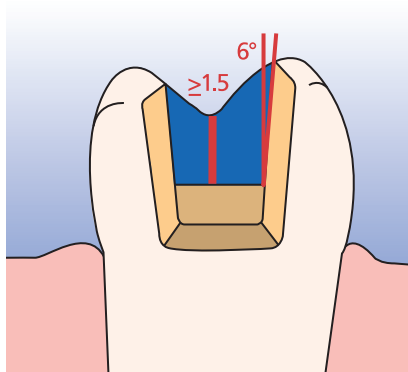
Preparation guidelines and minimum thicknesses

Successful results with IPS Empress Esthetic can only be achieved if the guidelines below and minimum layer thicknesses are strictly observed.

Inlays and onlays

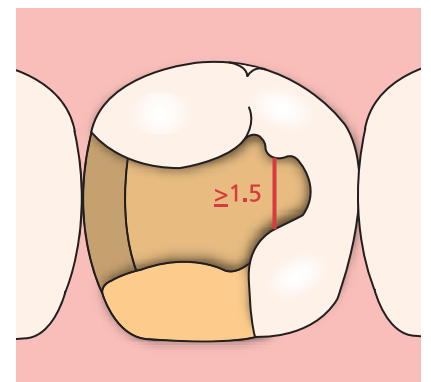
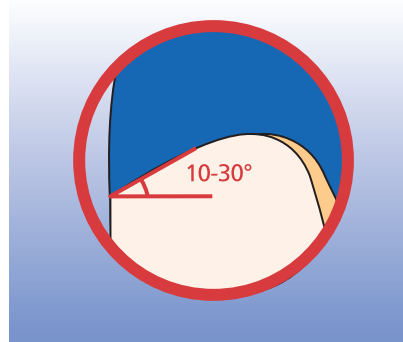
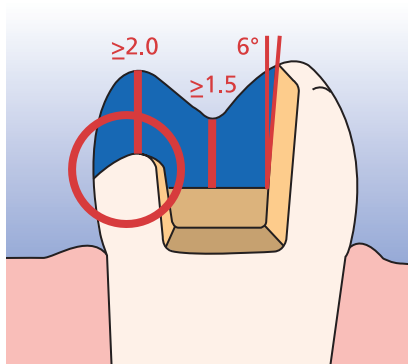
Static and dynamic antagonist contacts must be taken into consideration. The preparation margins must not be located on centric antagonist contacts.

A preparation depth of at least 1.5 mm and an isthmus width of at least 1.5 mm must be observed in the fissure area. Prepare the proximal box with slightly diverging walls and observe an angle of 100 - 120° between the proximal cavity walls and the prospective proximal inlay surfaces. For inlays with pronounced, convex cavity walls without adequate support by the proximal shoulder, marginal ridge contacts should be avoided. Round out internal edges in order to prevent stress concentration within the ceramic material. Eliminate the proximal contacts on all sides. Do not prepare slice-cuts or feather edges.



Dimensions in mm

For onlays, provide at least 2 mm of space in the cusp areas. On the vestibular side, the shoulder should be prepared with a chamfer ($10^\circ-30^\circ$) to improve the aesthetic appearance of the transitions between the ceramic material and the tooth. Partial crowns are indicated if the preparation margin is less than approximately 0.5 mm away from the cusp tip, or if the enamel is severely undermined.

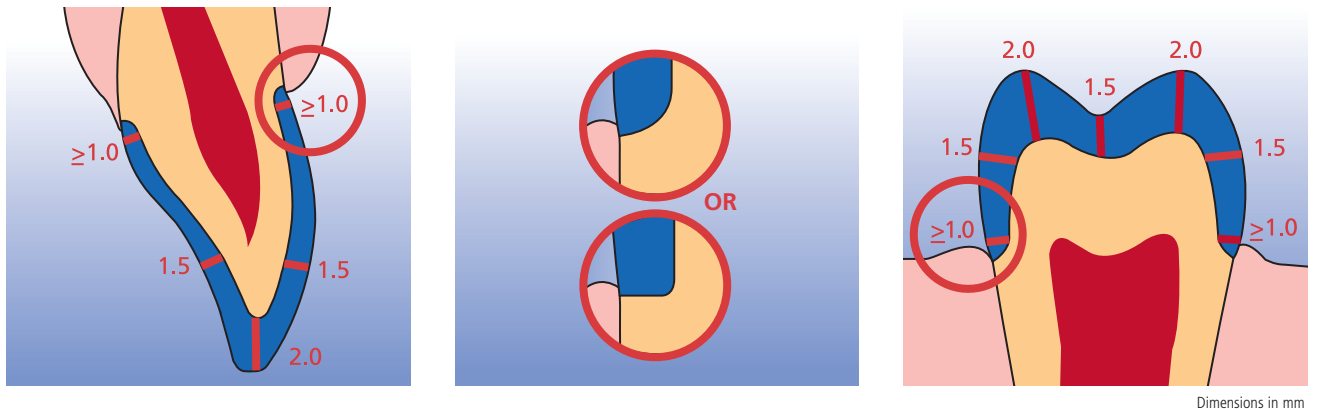


Dimensions in mm

Full crown

Anterior and posterior crown

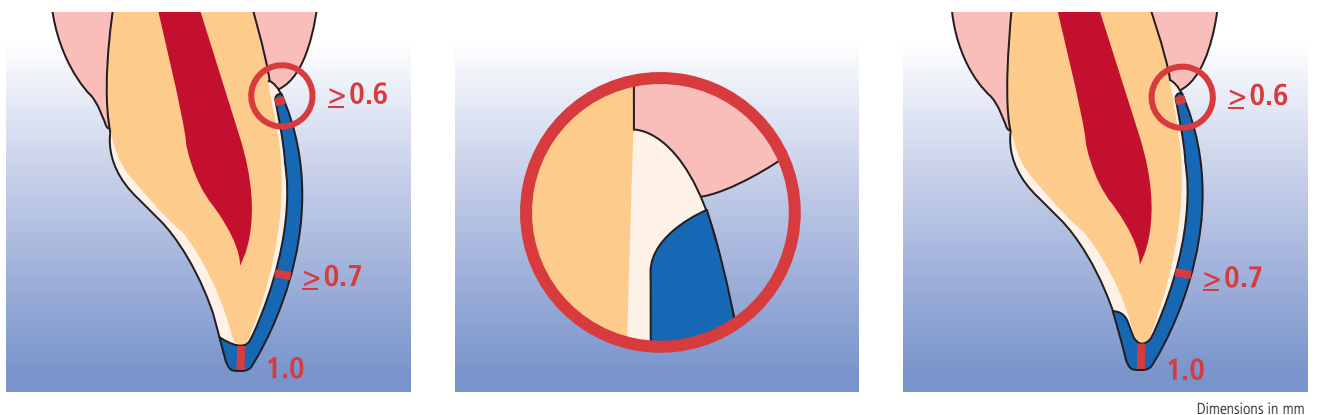
The anatomical shape is evenly reduced while observing the given minimum thicknesses. A circumferential shoulder is prepared with rounded inner edges or a chamfer. The width of the circular shoulder or chamfer should be ≥ 1 mm. The incisal/occlusal third of the crown is reduced by approximately 1.5 mm. The incisal or occlusal part should be reduced by approximately 2 mm.



Veneer

If possible, the preparation should be entirely located in the enamel, either without involving reduction of the incisal edge or traditional preparation involving reduction of the incisal edge. The incisal preparation margins should not be 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 built up. The more transparent the incisal edge of the intended veneer, the more pronounced the reduction should be. The incisal edge must be reduced by at least 1 mm. By preparing orientation grooves using a depth marker, controlled enamel reduction can be achieved. The minimum preparation thickness is $\geq 0.6 - 1$ mm, depending on the preparation technique selected. Dissolution of the proximal contacts is not required. Discoloured teeth may require more preparation. In the cervical area, prepare a chamfer.



Shade determination

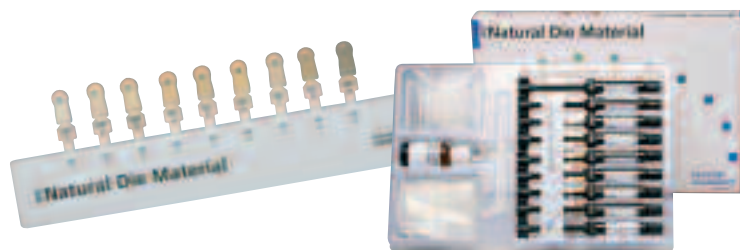
The correct tooth shade is the basis for a restoration with a life-like appearance. After tooth cleaning, the tooth shade of the non-prepared tooth and/or the adjacent teeth is determined. Individual characteristics have to be taken into consideration when determining the tooth shade. If a crown preparation is planned, for example, the cervical shade should also be determined. In order to achieve the best possible true-to-nature results, shade determination should be carried out at daylight. Furthermore, the patient should not wear clothes of intensive colours and/or lipstick. Basically, it has to be kept in mind that the final shade of the restoration is the result of the following individual shades:

- Die shade
- Shade of the ingot
- Shade of the layering ceramic
- Shade of the cementation material



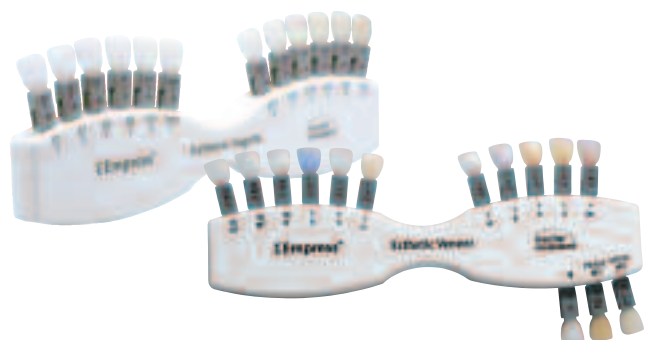
IPS Natural Die Material

In order to facilitate the reproduction of the tooth shade, the shade of the prepared tooth can be determined with the help of the IPS Natural Die Material shade guide. This facilitates the fabrication of the all-ceramic restoration and the individual characteristics of the preparation may also be taken into consideration. By determining the shade of the prepared tooth, the shade and brightness value of the restorations may be checked during the individual fabrication steps.



IPS Empress Esthetic Shade Guide

With the IPS Empress Esthetic shade guide, the shade of the ingot to be used can already be determined in the dental practice. In addition, the shade guide may be used to select the suitable pressed ingot and layering materials in the laboratory. The shade tabs have been fired and pressed from original materials under laboratory conditions and, therefore, correspond with the final result.



Cementation

For cementation, the IPS Empress Esthetic restoration must be conditioned. For this purpose, the completed restoration is etched with IPS Ceramic Etching Gel and subsequently silanated using Monobond-S.

Total Etch

For the preparation of adhesive cementation with Variolink II/ Variolink Veneer, Total Etch is used. It is an enamel etching and dentin conditioning gel used during the adhesive cementation of all-ceramic restorations.



For the adhesive cementation of IPS Empress Esthetic restorations, you may choose between tried-and-tested luting composites from Ivoclar Vivadent. Adhesive cementation achieves an excellent bond between the preparation and the restoration.

	Variolink® (Variolink II, Variolink Veneer)	Multilink® (Multilink, Multilink Automix)
Veneers	✓	—
Inlays	✓	✓
Onlays	✓	✓
Partial crowns	✓	✓
Anterior and posterior crowns	✓	✓

✓ indicated
 — contraindicated

Variolink® II

The dual-curing luting composite Variolink II has been used for more than ten years and in over 20 million restorations. It is the world's leading highly aesthetic material concept. Numerous awards as the best product in the category of adhesive luting composites and excellent results from clinical long-term studies are testimony to this success.



Variolink® Veneer

Purely light-curing luting composite in 7 "Value" shades for the adhesive cementation of translucent all-ceramic restorations with a layer thickness of < 2.0 mm (veneers, inlays, onlays).



Multilink® Automix

The universal, self-curing (with light-curing option) resin based luting cement Multilink offers a broad range of indications and produces very high adhesive strength on all material surfaces. Together with the self-etching Primer, which is applied as a simple preliminary layer on enamel and dentin, Multilink is processed quickly and efficiently.



IPS Empress Esthetic – Processing Procedure

IPS Empress Esthetic Inlays / Onlays / Crowns – stained/glazed

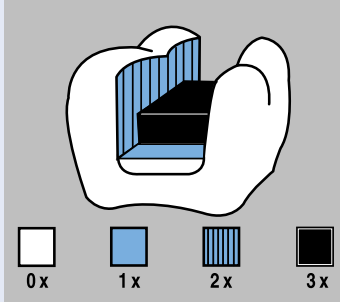
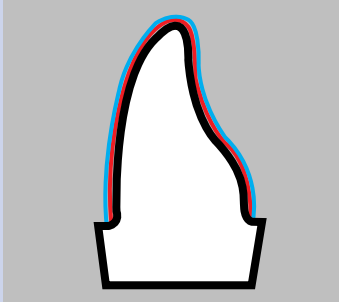
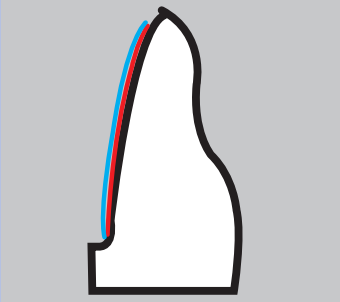



Model and die preparation

Fabricate a working model with removable die segments as usual. The application of a sealer is recommended to harden the surface and to protect the stone die. However, the sealer layer must not result in any changes of the dimensions of the stone die.

Subsequently, the spacer is applied as described below. Please be aware of the fact that the expansion of the investment materials is coordinated with this procedure.

- For inlays/onlays, the spacer is applied in up to 3 layers and up to the preparation margin.
- For single crowns, the spacer is applied in two layers up to max. 1 mm from the preparation margin (spacer application 9–11 µm per layer).
- Two sealer layers are also applied up to max. 1 mm from the preparation margin for veneers.

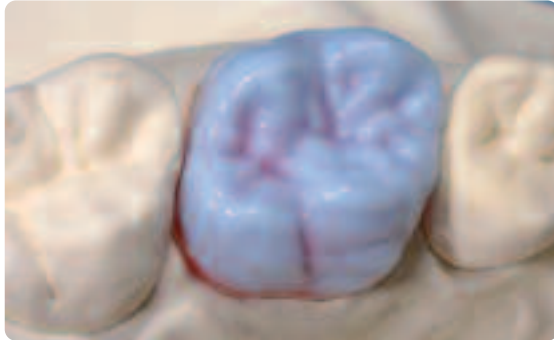
Applying the spacer

for inlay/onlay preparation	for crown preparation	for veneer preparation
		
		
<p>Up to three layers of spacer are applied to inlays/onlays. The surfaces are covered up to the preparation margin.</p>	<p>Two layers of spacer are applied up to max. 1 mm from the preparation margin. This measure helps prevent undesired friction.</p>	<p>Two layers of spacer are applied up to max. 1 mm from the preparation margin.</p>

Wax-up

Fabricate a fully anatomical, functional wax-up for the Esthetic technique. You can use any organic waxes that burn out without leaving residue. Please observe the following notes for contouring:

- Observe the stipulated minimum wall thicknesses.
- Exact contouring of the restoration, particularly in the area of the preparation margins, is indispensable. Do not over-contour, since this would require time-consuming and risky fitting procedures.
- Possible occlusal relief must be taken into consideration as early as during the wax-up, since the final firing of Shades, Stains and Glaze also results in added surface dimension.



Waxed up posterior crown



Waxed up inlays

Sprueing

Always place the sprues in the direction of flow of the ceramic and at the thickest part of the wax-up in order to achieve unimpeded flow of the viscous ceramic material. The 100-g or 200-g investment ring base is selected depending on the number of objects to be invested and their wax weight.

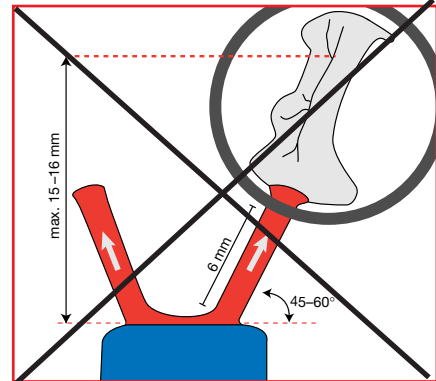
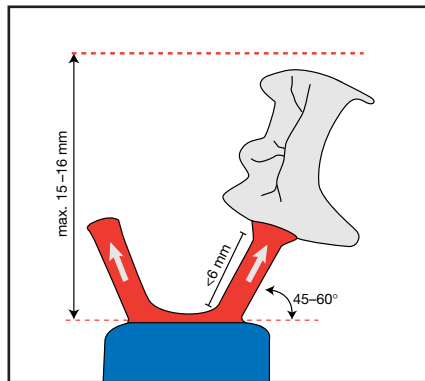
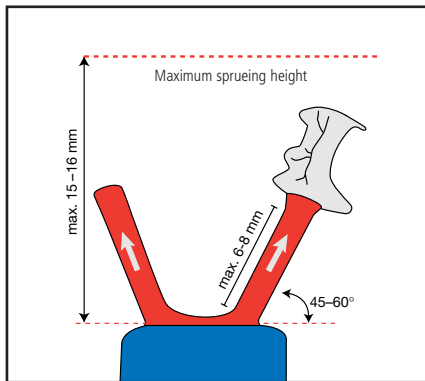
The following guidelines are recommended to determine the proper wax weight:

- Weigh the IPS Empress investment ring base (seal the opening of the ring base with wax).
- Position the objects to be pressed on the ring base and attach them with wax. Weigh again.
- The difference between the two values is the weight of the wax used.
- Remove excess separating material prior to investing.

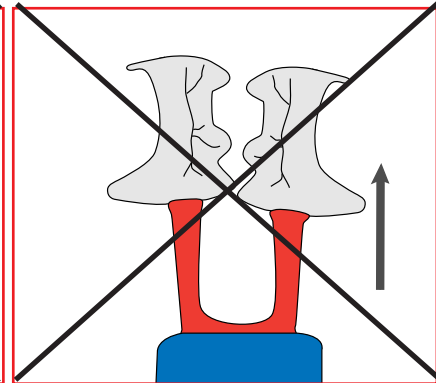
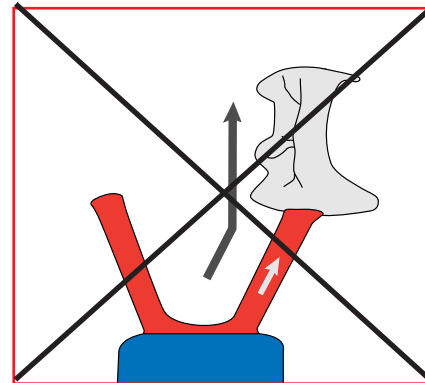
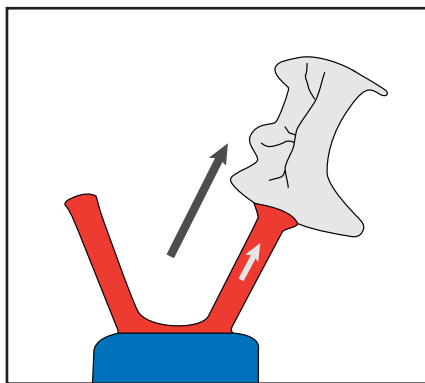
The following sprueing guidelines must be observed:

	Inlays, onlays, veneers, single crowns
Investment ring system	<p>100 g max. 1 ingot; max. 0.6 g wax weight</p> <p>200 g max. 2 ingots; up to max. 1.4 g wax weight</p>
Wax wire ø	2.5–3 mm
Wax wire length	min. 3 mm, max. 8 mm
Length wax wire including object	max. 15–16 mm
Sprueing angle to the wax object	axial
Sprueing angle to the investment ring base	45–60°
Design of the attachment points	rounded and slightly tapered; no sharp angles or edges
Distance between objects	min. 3 mm
Distance to the silicone ring	min. 10 mm
Important	A dummy object must be invested with very small single wax objects in order to activate the abort criterion of the EP 500/EP 600/EP 600 Combi furnace.

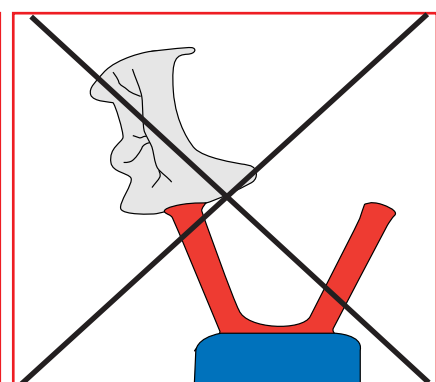
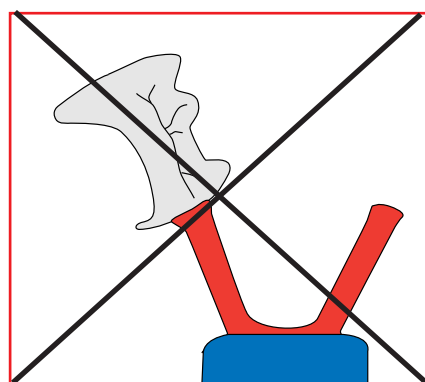
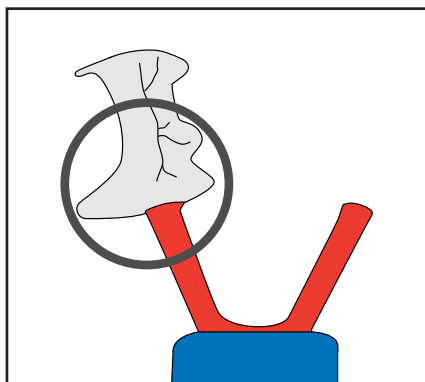
Correct sprueing:



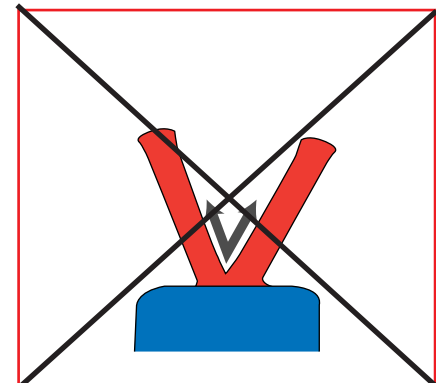
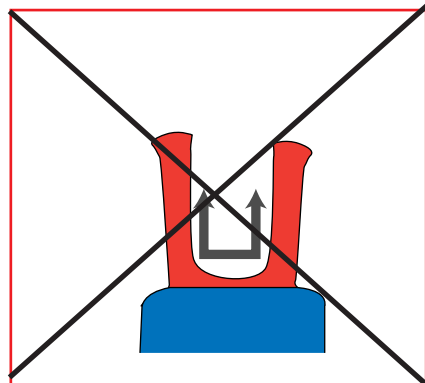
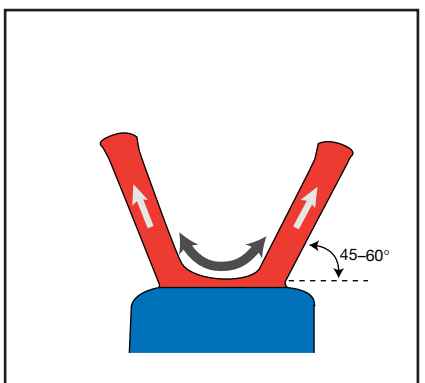
The sprue and wax pattern should not be longer than 15-16 mm. Observe a 45-60° angle.



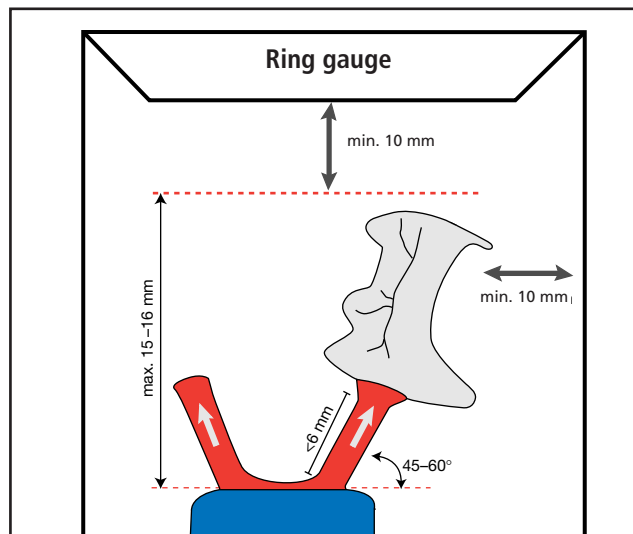
Provide sprues in the direction of flow of the ceramic material.



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



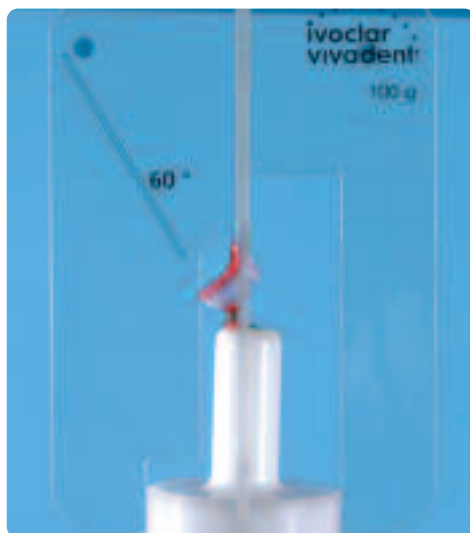
The attachment points of the sprues must be rounded. Observe an angle of 45 - 60°.



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

Checking the sprueing

The IPS Sprue Guide will help you to easily check the correct sprueing of the objects to be pressed on the investment ring base. By turning the IPS Sprue Guide on the investment ring base, the required distance to the silicone ring, the proper height, as well as the sprueing angle can be quickly checked.



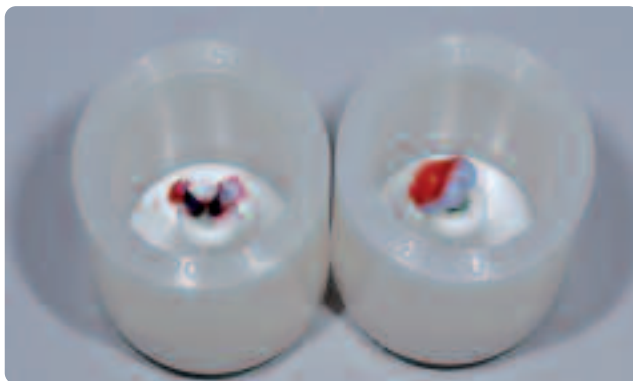
Checking the position of the wax patterns by means of the IPS Sprue Guide.

Investing

Investing is carried out with either IPS PressVEST or IPS Empress Esthetic Speed. The corresponding IPS Silicone Ring with matching ring gauge is used for that purpose.

Please refer to the Instructions for Use of the corresponding investment material regarding the detailed processing parameters. The following procedure is recommended:

- Do not apply a debubbler to the wax objects.
- Mix investment material. The investment material contains quartz powder. Therefore, the inhalation of dust must be avoided.
- Use a suitable instrument for the fine investment of the cavity. Make sure that the delicate wax margins are not damaged.
- Carefully position the IPS Silicone Ring on the investment ring base without damaging the wax objects. The IPS Silicone Ring must sit flush on the investment ring base.
- Subsequently, carefully fill the investment ring with investment material up to the marking and position the ring gauge with a hinged movement.
- Allow the investment material to set without manipulating the investment ring.
- Do not use IPS PressVEST for investment over the weekend to prevent crystallization.



Use the IPS Silicone Ring for investment. Pour the investment material slowly and carefully. Avoid the formation of bubbles.

Preheating

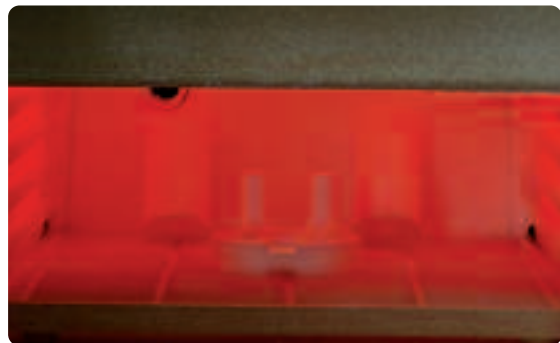
After the stipulated setting time of the respective investment material (IPS PressVEST or IPS Empress Esthetic Speed), the investment ring is prepared for preheating as follows:

- Remove the ring gauge and ring base with a turning movement,
- Carefully push the investment ring out of the IPS Silicone Ring.
- Remove rough spots on the bottom surface of the investment ring with a plaster knife and check the 90° angle.
- Investment material residue must not enter the sprues. Blow into the sprues if necessary.
- If several investment rings are preheated together, mark them with the respective ingot shade.

	IPS PressVEST	IPS Empress Esthetic Speed
Setting time	min. 60 min.	min. 30 min., max. 45 min.
Temperature of the preheating furnace	Room temperature	850 °C (1562 °F); switch on preheating furnace in time
Preheating temperature	850°C (1562 °F)	850°C (1562 °F)
Position of the investment ring in the furnace	Towards the rear wall; tipped with the opening facing down	Towards the rear wall; tipped with the opening facing down
IPS Empress Esthetic Ingots	Always preheat	Always preheat
IPS Empress Alox Plunger	Always preheat	Always preheat
Important	<p>If several Speed investments are required, they should be invested with a time difference and placed in the preheating furnace at intervals of approximately 20 minutes. When placing the investment rings in the preheating furnace, make sure that the furnace temperature does not drop too much. The indicated holding time starts when the preheating temperature is reached again.</p>	



Position the IPS Empress Esthetic ingots and AIOx plungers on the IPS UniTray.



Place the investment rings and IPS UniTray with AIOx plungers and ingots in the preheating furnace.

In order to ensure smooth working procedures in the laboratory on a daily basis, impeccable functioning of the infrastructure and the preheating furnaces is essential. This includes their maintenance, cleaning with a vacuum cleaner in a cool state as well as regular checks of the temperature controls and heating elements, etc. by the manufacturer.

Calibration

The furnace must be regularly calibrated to achieve optimum press results. Calibrate the EP 500 with the Temperature Checking Set 2 and the EP 600 with the Automatic Temperature Checking Set 1.



EP 500

1. Switch on the EP 500 and allow the furnace to 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.

EP 600

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 sample 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 sample.
11. Use a new melting sample for the next calibration procedure and start with item 1.

Pressing

Before the preheating cycle for the investment ring has ended, the following preparations for pressing must be carried out:

- Switch on the press furnace in time to ensure that the self-test and preheating phase are completed.
- Select the press program for IPS Empress Esthetic and the respective investment ring size (EP 600/EP 600 Combi).
- Place the ingots and AlOx plungers in the investment ring and position it quickly (in less than 1 min.) in the furnace.
- Do not use the IPS e.max AlOx Plunger Separator. The press temperature of the IPS Empress Esthetic ingots of 1075 °C/ 1967 °F is too high for the separator to be effective.

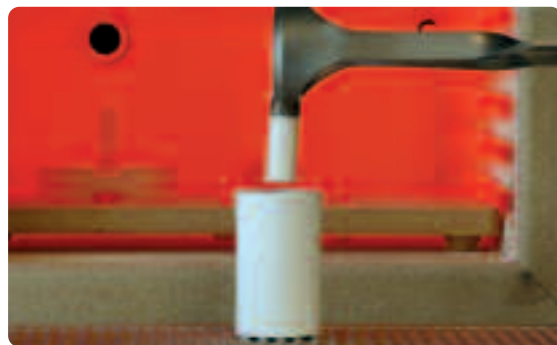
Once the preheating cycle has been completed, remove the investment ring from the preheating furnace and proceed as follows:

- Place the **hot** IPS Empress Esthetic ingot – in the required shade of the tooth (see material combination table) – into the **hot** investment ring.
- Place the **hot** AlOx plunger into the **hot** investment ring.
- Place the completed investment ring central the **hot** press furnace.
- Press START to start the selected program.

	100 g investment ring	200 g investment ring
Number of ingots	max. 1 ingot	max. 2 ingots
IPS Empress Esthetic Ingots	hot ingot	hot ingot
IPS Empress Alox-Kolben	hot plunger	hot plunger



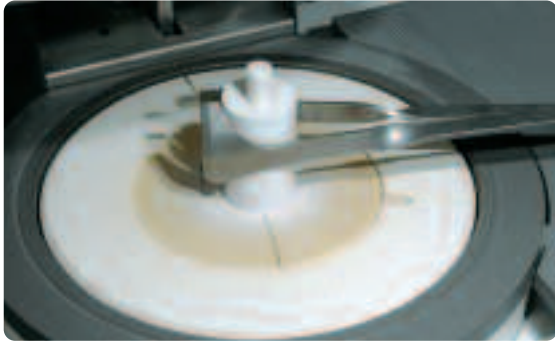
Place the **hot** IPS Empress Esthetic ingot in the investment ring.



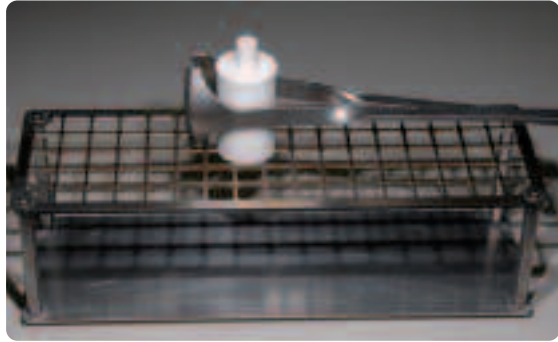
Place the **hot** AlOx plunger into the investment ring.

Press parameters for the IPS Empress Esthetic Ingots

	B	t _↑	T	H	V ₁	V ₂	Pressure
EP 500 Small and large investment ring	700°C 1292°F	60°C 108°F	1075°C 1967°F	20'	500°C 932°F	1075°C 1967°F	5 bar
	B	t _↑	T	H	V ₁	V ₂	A
EP 600/EP 600 Combi Small and large investment ring	700°C 1292°F	60°C 108°F	1075°C 1967°F	20'	500°C 932°F	1075°C 1967°F	250 μm



Position the investment ring in the press furnace



Place the investment ring on the cooling grid

Remove the investment ring from the furnace immediately after the program is completed and close the furnace. Place the investment ring on the cooling grid and allow it to cool to room temperature. The grid ensures quick and even cooling of the investment ring and prevents undesired heat accumulation.

Divesting

After cooling to room temperature (after approximately 60 minutes), the investment ring may show cracks. These cracks developed (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 press result.

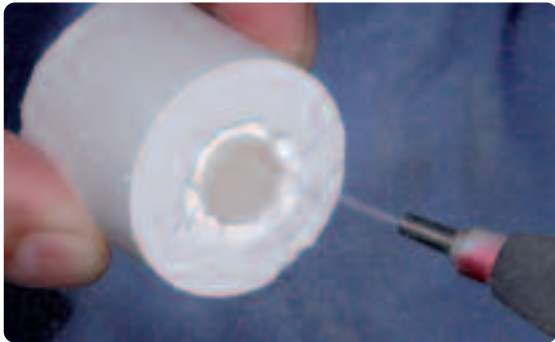
- Mark the length of the AlOx plunger on the cooled investment ring.
- Separate the investment ring using a separating disk. This predetermined breaking point enables reliable separation of the AlOx plunger and the ceramic material.
- Break the investment ring at the predetermined breaking point using a plaster knife.
- Rough divestment is carried out with glass polishing beads at 4 bar (60 psi) pressure.
- For fine divestment, only 2 bar (30 psi) pressure is applied.
- Do **not** use Al₂O₃ for rough or fine divestment
- When divesting the object, blast from the direction indicated in the schematic below and observe the appropriate distance in order not to damage the object margins.
- The investment material contains quartz powder. Therefore avoid any inhalation of dust.
- Use Al₂O₃ to clean the AlOx plunger from any ceramic residue.



Mark the length of the AlOx plunger



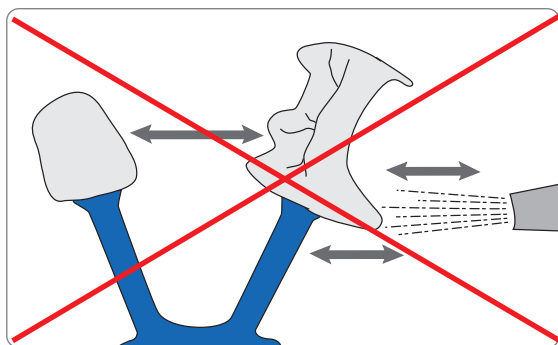
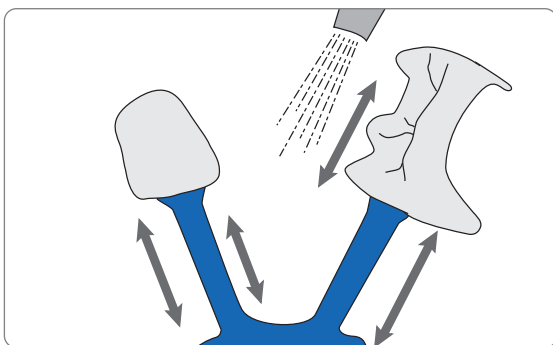
Separate the investment ring using a separating disk and break it at the predetermined breaking point.



Rough divestment is carried out with glass polishing beads at 4 bar (60 psi) pressure.



Fine divestment is carried out with glass polishing beads at 2 bar (30 psi) pressure.



When divesting the object, blast from the direction indicated in the schematic at the top. Note: Blast from the incisal and/or occlusal direction, if possible.

Removing the pressed object / finishing

The following procedure is recommended to finish IPS Empress Esthetic restorations:

- Wet the area to be ground and use a fine diamond disk to cut the sprues.
- Prevent overheating of the ceramic material. Low speed and light pressure is recommended.
- Smooth out the attachment points of the sprues.
- Remove the spacer prior to placing the pressed object on the die.
- Place the restoration on the die, check contact points and carefully adjust.
- Make sure that the minimum thicknesses are maintained even after finishing.
- Clean the restoration under running water or with steam before characterization.
- It is not necessary to blast the restoration with Al₂O₃ prior to further processing.



Divested objects



The sprues are cut with a fine diamond disk.



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



Apply surface structures with suitable grinders.

Fabricating the die using IPS Natural Die Material

The light-curing IPS Natural Die Material simulates the shade of the prepared tooth. A control die is fabricated using the selected shade. This control die represents the optimum basis for a true-to-nature shade reproduction of the given oral situation.

- Coat the inner surfaces of the ceramic restorations with IPS Natural Die Material Separator and allow it to react for a short time.
- Apply the IPS Natural Die Material in the corresponding shade to the inner surfaces of the restoration using the IPS Condenser and adapt so that the entire inner surface is coated and filled.
- Completely fill the restoration cavity and insert an IPS Die Holder into the material and adapt excess material around the holder. Make sure that the Die Material is well adapted to the restoration margins and that no gaps are present.
- Polymerize the IPS Natural Die Material die with a commercial polymerization light, e.g. Lumamat 100, for 60 seconds.
- After polymerization, the die can be finished and smoothed, if required.



Coat the inner surfaces of the ceramic restoration with IPS Natural Die Material Separator and allow it to react for a short time.



Completely fill the restoration cavity and insert an IPS Die Holder into the material and adapt excess material around the holder. Then, polymerize with a commercial polymerization light.

Stain and Glaze firing

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
- IPS Empress CAD
- IPS Empress 2 Layering Technique
- IPS Empress 2 / IPS Eris for E2 Layering Technique

After cleaning the restoration, the Stain and Glaze firing is carried out. Basically, there are two options:

Optional

Version A – 2-in-1 Technique

First, the glaze paste is applied, followed by the stains, which are applied on the unfired glaze layer.

Step 1 – Application of the glaze material:

- Extrude IPS Empress Universal Glaze from the syringe and thin the material to the desired consistency using IPS Empress Universal Glaze and Stain Liquid.
- Apply the glazing material on the entire outer surfaces of the restoration.
- The glazing material must not come into contact with the inner aspects of the restoration.
- Too thin glazing material layers result in an unsatisfactory gloss.
- Avoid pooling and too thick glazing material layers.

Step 2 – Application of Shades/Stains:

- Extrude IPS Empress Universal Shade or Stains from the syringe and mix thoroughly.
- Thin the material to the desired consistency using IPS Empress Universal Glaze and Stain Liquid.
- Apply the mixed Shade/Stains material directly into the unfired glazing material layer.
- Intensify the corresponding dentin shade in the cervical and occlusal areas using IPS Empress Universal Shades.
- To imitate the incisal area and translucency in the incisal third, use IPS Empress Universal Shade Incisal.
- Apply individualized effects and characterizations using IPS Empress Universal Stains materials.

After staining and glazing, the Stain and Glaze firing is conducted in a compatible ceramic furnace (e.g. Programat® P500).

The following points should be observed when placing the restoration in the furnace and setting the firing parameters:

- Place the restorations on the metal pins using a small amount of IPS Object Fix and position them on the honey-comb firing tray .
- As an alternative, the restorations can be supported with a firing pillow. Due to their lower position in the firing chamber, the restorations are exposed to less heat. Therefore, in order to achieve the desired gloss, the holding time must be extended to up to 2 minutes.

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

IPS Empress Esthetic with IPS Empress Universal: 2-in-1 Technique	B	S	t [↗]	T	H	V ₁	V ₂
Stain and Glaze firing	403°C 757°F	6' 6'	100°C 180°F	790°C 1454°F	1-2' 1-2'	450°C 842°F	789°C 1453°F

B = Stand-by temperature °C / °F

S = Closing time/minutes

t[↗] = Temperature increase rate °C/min. / °F/min.

T = Firing temperature °C / °F

H = Holding time / min.

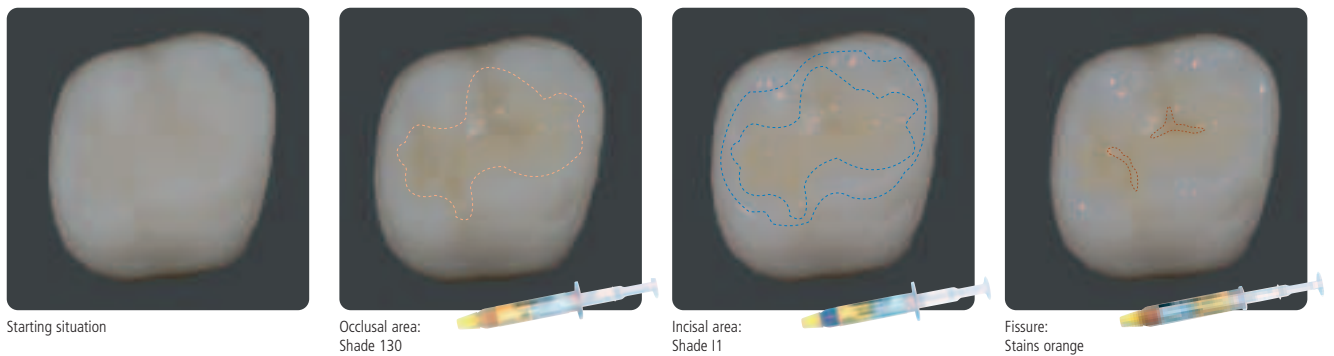
V₁ = Vacuum-on temperature °C / °F

V₂ = Vacuum-off temperature °C / °F

Version B

Step 1 – Application of Shades/Stains:

- First, apply a small amount of IPS Empress Universal Glaze and Stain Liquid to assess the shade. This will provide better wetting of the stains.
- Extrude IPS Empress Universal Shade or Stains from the syringe and mix thoroughly.
- Thin the material to the desired consistency using IPS Empress Universal Glaze and Stain Liquid.
- Apply the mixed Shades/Stain material.
- Intensify the corresponding dentin shade in the cervical and occlusal areas using IPS Empress Universal Shades.
- To imitate the incisal area and translucency in the incisal third, use IPS Empress Universal Shade Incisal.
- Apply individualized effects and characterizations using IPS Empress Universal Stains materials.



After staining and glazing, the Stain and Glaze firing is conducted in a compatible ceramic furnace (e.g. Programat P500).

The following points should be observed when placing the restoration in the furnace and setting the firing parameters:

- Place the restorations on the metal pins using a small amount of IPS Object Fix and position them on the honey-comb firing tray .
- As an alternative, the restorations can be supported with a firing pillow. Due to their lower position in the firing chamber, the restorations are exposed to less heat. Therefore, in order to achieve the desired gloss, the holding time must be extended to up to 2 minutes.
- More intensive shades are achieved by repeated staining, rather than by applying thicker layers.

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

IPS Empress Esthetic with IPS Empress Universal	B	S	t ^r	T	H	V ₁	V ₂
Stain and Characterization firing	403°C 757°F	6' 6'	100°C 180°F	790°C 1454°F	1–2' 1–2'	450°C 842°F	789°C 1453°F

B = Stand-by temperature °C / °F

S = Closing time/minutes

t^r = Temperature increase rate °C/min. / °F/min.

T = Firing temperature °C / °F

H = Holding time / min.

V₁ = Vacuum-on temperature °C / °F

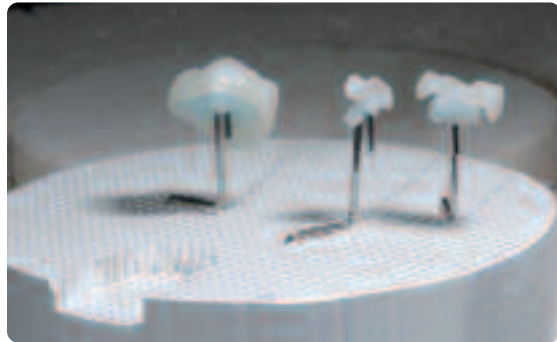
V₂ = Vacuum-off temperature °C / °F

Step 2 – Application of the glazing material:

- Extrude IPS Empress Universal Glaze from the syringe and thin the material to the desired consistency using IPS Empress Universal Glaze and Stain Liquid.
- Apply the glazing material on the entire outer surfaces of the restoration.
- The glazing material must not come into contact with the inner aspects of the restoration.
- Too thin glazing material layers result in an unsatisfactory gloss.
- Avoid pooling and too thick glazing material layers.



Evenly apply IPS Empress Universal Glaze on the entire outer surfaces of the restoration.



Place the restorations on the honey-comb firing tray using IPS Object Fix and metal pins and fire.



Completed IPS Empress Esthetic restorations, stained and glazed.

After applying the glazing material, the glaze firing is conducted in a compatible ceramic furnace (e.g. Programat P500).

The following points should be observed when placing the restoration in the furnace and setting the firing parameters:

- Place the restorations on the metal pins using a small amount of IPS Object Fix and position them on the honey-comb firing tray .
- As an alternative, the restorations can be supported with a firing pillow. Due to their lower position in the firing chamber, the restorations are exposed to less heat. Therefore, in order to achieve the desired gloss, the holding time must be extended to up to 2 minutes.

Firing parameters for Glaze firing (note the temperature control)

IPS Empress Esthetic with IPS Empress Universal:	B	S	t↗	T	H	V1	V2
Glaze firing	403°C 757°F	6' 6'	100°C 180°F	790°C 1454°F	1–2' 1–2'	450°C 842°F	789°C 1453°F

B = Stand-by temperature °C / °F

S = Closing time/minutes

t↗ = Temperature increase rate °C/min. / °F/min.

T = Firing temperature °C / °F

H = Holding time / min.

V1 = Vacuum-on temperature °C / °F

V2 = Vacuum-off temperature °C / °F

Optional

Subsequent adjustments

After completion, additional adjustment (e.g. contact points) may become necessary. For that purpose, IPS Empress Add-On 770 °C/1418 °F is available.



Processing:

- Before the adjustment, the restoration must be free from dirt and grease. For that purpose, blast the areas to be adjusted with Al₂O₃ (Type 100) at max. 0.5 bar pressure and thoroughly clean the restoration using the steam jet.
- Mix IPS Empress Add-On 770 °C / 1418 °F with IPS Empress Esthetic Veneer 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.
- Apply the mixed add-on material on the cleaned, desired areas using a brush and slightly blot them with an absorbent cloth.
- Position the adjusted restoration on the firing tray and fire in the ceramic furnace.
- After firing, manually polish the supplemented areas to a high gloss.



Adjust the proximal contact points

Firing parameters for the Corrective firing

IPS Empress Esthetic with IPS Empress Add-On 770°C/1418°F	B	S	t [↗]	T	H	V ₁	V ₂
Corrective firing	403°C 757°F	4' 4'	60°C 108°F	770°C 1418°F	2' 2'	450°C 842°F	769°C 1417°F

B = Stand-by temperature °C / °F

S = Closing time/minutes

t[↗] = Temperature increase rate °C/min. / °F/min.

T = Firing temperature °C / °F

H = Holding time / min.

V₁ = Vacuum-on temperature °C / °F

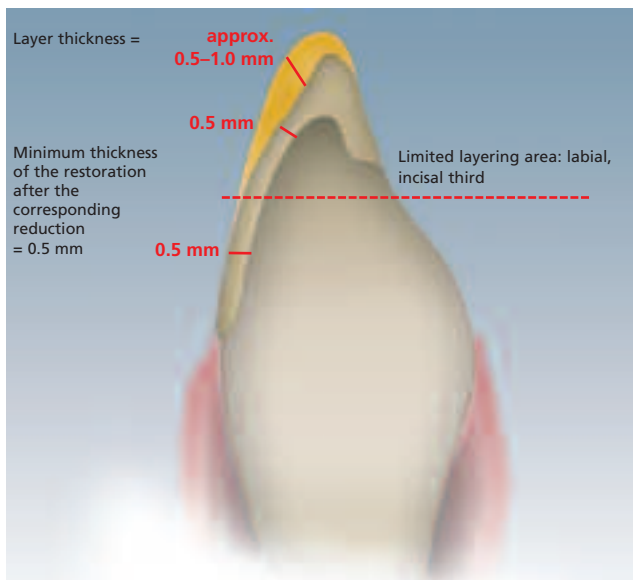
V₂ = Vacuum-off temperature °C / °F

IPS Empress Esthetic Veneers / Anterior Crowns – Cut-back and layered

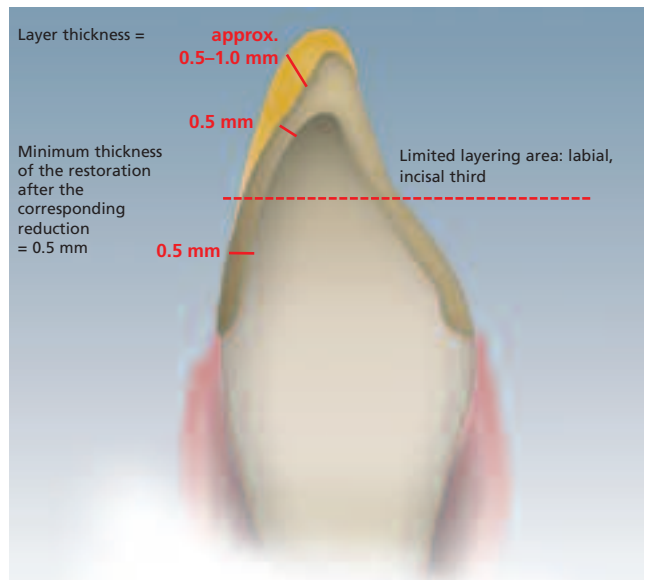
Wall and layering thicknesses

In order to individualize restorations in the incisal area so that they correspond with their natural model, the IPS Empress Esthetic restoration is additionally veneered using opalescent IPS Empress Esthetic Veneer ceramic materials. The cut-back technique is very efficient if the fully anatomical anterior crown or the veneer are first designed according to the definite final shape. After that, the incisal third is reduced and subsequently provided with an individualized aesthetic veneer. The following wall and layering thicknesses have to be observed:

Veneer



Anterior crown



Fully anatomical, pressed veneer and anterior crown, which are reduced in the incisal area.

Preparing the model and the dies

Fabricate a working model with removable die segments as usual. The application of a sealer is recommended to harden the surface and to protect the stone die. However, the sealer layer must not result in any changes of the dimensions of the stone die.

Subsequently, the spacer is applied as described below. Please be aware of the fact, that the expansion of the investment material is coordinated with this procedure.

- For anterior crowns, the spacer is applied in two layers up to max. 1 mm from the preparation margin (spacer application 9–11 μm per layer).
- Two sealer layers are also applied up to max. 1 mm from the preparation margin for veneers.



Sealer and spacer applied on the prepared model.

Wax-up

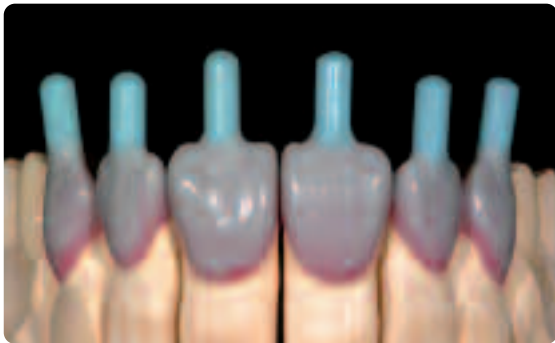
A fully anatomical wax-up should be fabricated for veneer restorations. You can use any organic waxes that burn out without leaving residue. Also, ensure a wall thickness of at least 0.5 mm. For better distinction, a basic wax in a different colour can be used.



For better distinction, a basic wax in a different colour is recommended.



Fully anatomical wax-up.



Veneers with sprues in place.



Sprued veneers on the 200-g investment ring system.

For the processing steps on investment, preheating, pressing and divesting/separation, as well as die fabrication with IPS Natural Die Material, please refer to pages 25–31.



Veneers on the working model after finishing.

Once the restoration has been pressed using the IPS Empress Esthetic ingot selected according to the individual patient situation, they are placed on the corresponding working model.

Cut-back technique

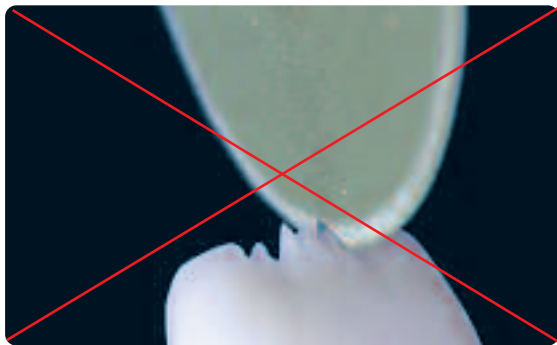
Fabricate a silicone key to prepare the restorations for individualization with IPS Empress Esthetic Veneer. Subsequently, the cut-back is carried out. The fully anatomically pressed veneers are reduced in the incisal third. For that purpose, use ceramic-bonded grinding instruments or diamonds.

The following points must be observed:

- Too much pressure and excess heat development during grinding must be prevented.
- Refrain from designing too extreme mamelons with undercuts.
- Check the cut-back by means of the silicone key.
- The minimum wall thickness of the pressed IPS Empress Esthetic restorations of 0.5 mm must be observed.



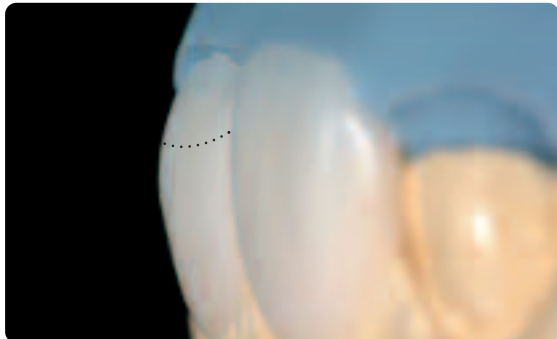
Fabricate a silicone key before conducting the cut-back.



Refrain from designing too extreme mamelons with undercuts.



Check the cut-back by means of the silicone key, observe the minimum wall thickness of 0.5 mm.



Limit the cut-back to the incisal third.

Preparing for veneering

Blast the outer surfaces of the ceramic restoration carefully with Al_2O_3 (Type 100) at max. 0.5 bar pressure and clean thoroughly with the steam jet. Before veneering, the restorations must be free of dirt and grease.



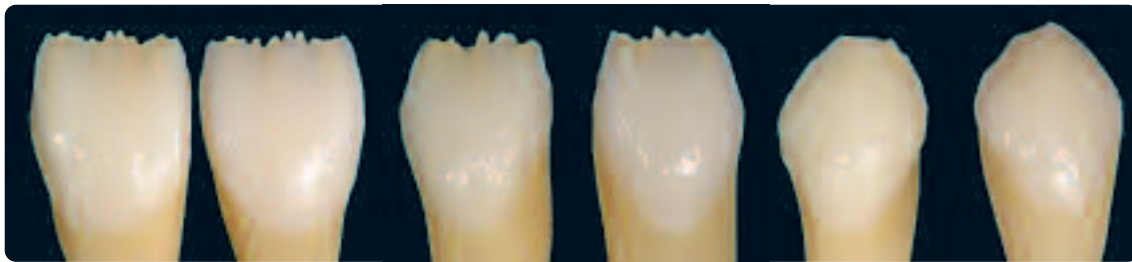
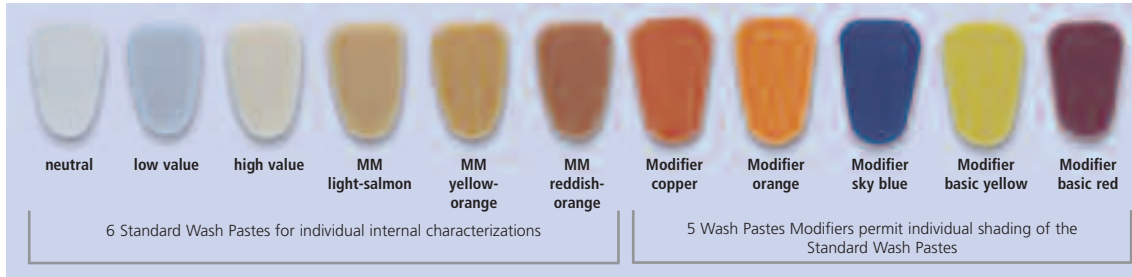
Blast the restoration with Al_2O_3 (Type 100) at 0.5 bar pressure.



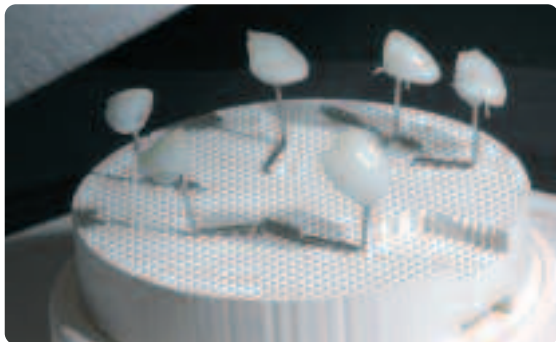
Clean the restoration with steam prior to wash firing.

Wash firing

Conduct the wash firing using the IPS Empress Esthetic Veneer Wash Pastes. Apply the wash pastes thinly and cover the entire restoration. The IPS Empress Esthetic Veneer Wash Paste neutral is always applied first on the restoration and enables a homogenous bond to the IPS Empress Esthetic material. Subsequently, the reduced restorations are individually characterized, if required, using the Standard Wash Pastes and Wash Paste Modifiers. The wash pastes must be fired separately. If required, the pastes can be slightly diluted using IPS Empress Universal Glaze and Stain Liquid.



Examples of the wash pastes applied on the restorations.



Place the objects on the honey-comb firing tray by using IPS Object Fix and fire.

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

IPS Empress Esthetic Veneer Wash Pastes	B	S	t [↗]	T	H	V ₁	V ₂
Wash firing	403°C 757°F	4' 4'	60°C 108°F	840°C 1544°F	2' 2'	450°C 842°F	839°C 1543°F

B = Stand-by temperature °C / °F

S = Closing time/minutes

t[↗] = Temperature increase rate °C/min. / °F/min.

T = Firing temperature °C / °F

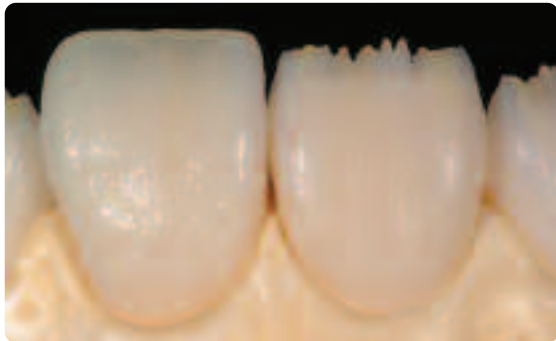
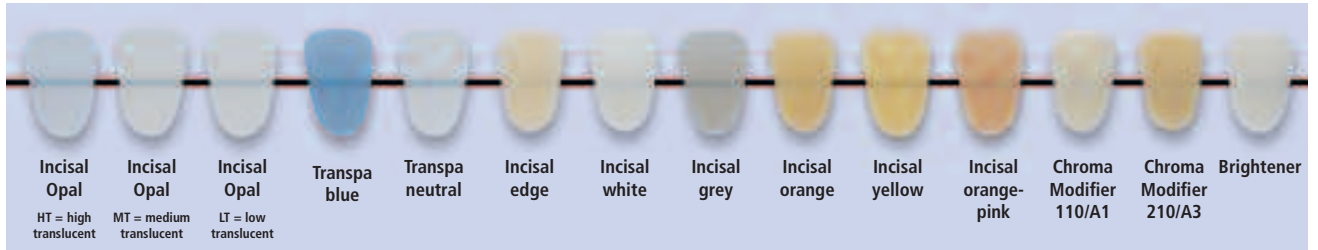
H = Holding time / min.

V₁ = Vacuum-on temperature °C / °F

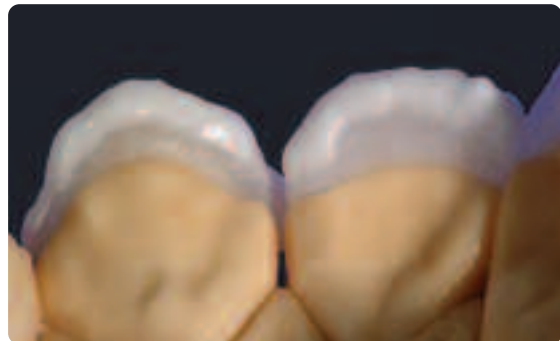
V₂ = Vacuum-off temperature °C / °F

Incisal firing

The IPS Empress Esthetic Veneer layering materials are used to complete the anatomical shape and to achieve the individual aesthetics of the restorations. The materials are mixed with the IPS Empress Esthetic Build-Up Liquid. If required, a second incisal firing is conducted with the same firing program.



Veneer 11 after wash firing.



Apply the IPS Empress Esthetic Veneer Incisal materials.



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



After incisal firing.

Firing parameters for the 1st and 2nd Incisal firing (note the temperature control)

IPS Empress Esthetic Veneer Incisal	B	S	t [↗]	T	H	V ₁	V ₂
1 st and 2 nd Incisal firing	403°C 757°F	4' 4'	60°C 108°F	830°C 1526°F	2' 2'	450°C 842°F	829°C 1525°F

B = Stand-by temperature °C / °F

S = Closing time/minutes

t[↗] = Temperature increase rate °C/min. / °F/min.

T = Firing temperature °C / °F

H = Holding time / min.

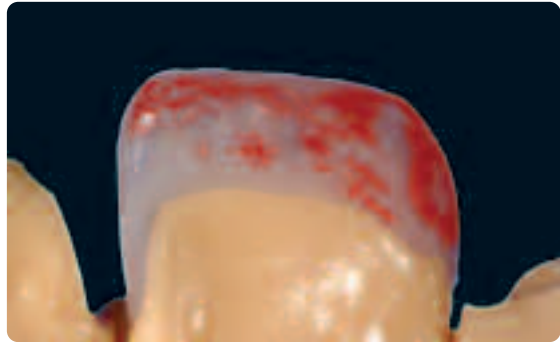
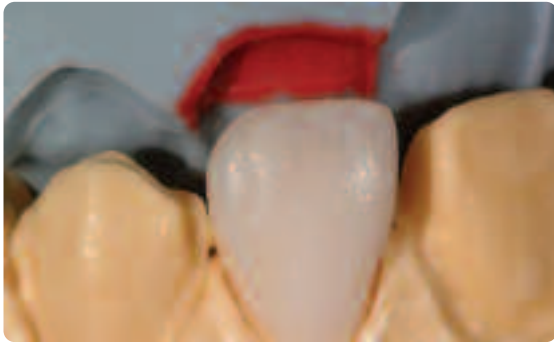
V₁ = Vacuum-on temperature °C / °F

V₂ = Vacuum-off temperature °C / °F

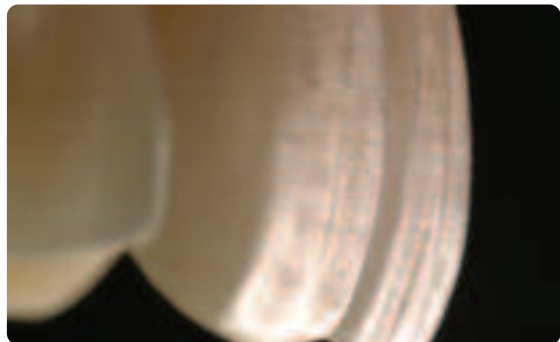
Finishing and preparing for Stain and Characterization firing

Before the stain and characterization firing, the restoration has to be finished as follows::

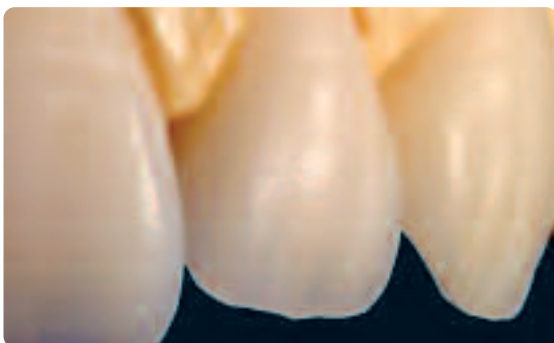
- Finish the restoration using diamonds and give it a true-to-nature shape and surface structure, such as growth lines and convex/concave areas.
- Areas that should exhibit a higher gloss after glaze firing can be smoothed out and prepolished using silicone disks.
- If gold and/or silver dust was used to visualize the surface texture, the restoration has to be thoroughly cleaned with steam. Make sure to remove all gold or silver dust in order to avoid any discolouration.



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



Finish the restoration with diamonds and give it a true-to-nature shape and surface structure.



Finished restorations ready for stain and characterization firing.

Stain and Characterization firing

Once the restoration has been cleaned with steam, the Stain and Characterization firing is conducted. First, apply a thin coat of IPS Empress Universal Glaze and Stain Liquid to the surface of the restoration to evaluate the shade of the restoration more clearly. Subsequently, apply the stains.

The following working procedure should be observed:

- Extrude IPS Empress Universal Shade/Stains from the syringe and mix thoroughly.
- Thin the material to the desired consistency using IPS Empress Universal Glaze and Stain Liquid.
- Apply the Shade and Stains.
- Intensify the dentin shade in the cervical and central crown third using the respective Shade material.
- More intensive shades are achieved by repeated staining and firing, rather than by applying thicker layers.
- Apply individualized effects and characterizations using IPS Empress Universal Stains materials.
- After staining, the stain and characterization firing is conducted in a compatible ceramic furnace (e.g. Programat P500).



Apply IPS Empress Universal Shade and Stains

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

IPS Empress Universal Shade/Stains	B	S	t↗	T	H	V ₁	V ₂
Stain and Characterization firing	403°C 757°F	6' 6'	100°C 180°F	790°C 1454°F	1-2' 1-2'	450°C 842°F	789°C 1453°F

B = Stand-by temperature °C / °F

S = Closing time/minutes

t↗ = Temperature increase rate °C/min. / °F/min.

T = Firing temperature °C / °F

H = Holding time / min.

V₁ = Vacuum-on temperature °C / °F

V₂ = Vacuum-off temperature °C / °F

Glaze firing

- Extrude IPS Empress Universal Glaze from the syringe and thin the material to the desired consistency using IPS Empress Universal Glaze and Stain Liquid.
- Apply the glazing material on the entire outer surfaces of the restoration.
- The glazing material must not come into contact with the inner aspects of the restoration.
- Too thin glazing material layers result in an unsatisfactory gloss.
- Avoid pooling and too thick glazing material layers.
- Place the restorations on the metal pins using a small amount of IPS Object Fix and position them on the honey-comb firing tray .
- As an alternative, the restorations can be supported with a firing pillow. Due to their lower position in the firing chamber, the restorations are exposed to less heat. Therefore, in order to achieve the desired gloss, the holding time must be extended to up to 2 minutes.
- After staining, the glaze firing is conducted in a compatible ceramic furnace (e.g. Programat P500).



Apply IPS Empress Universal Glaze

Firing parameters for Glaze firing (note the temperature control)

IPS Empress Universal Glaze	B	S	t [↗]	T	H	V ₁	V ₂
Glaze firing	403°C 757°F	6' 6'	100°C 180°F	790°C 1454°F	1–2' 1–2'	450°C 842°F	789°C 1453°F

B = Stand-by temperature °C / °F

S = Closing time/minutes

t[↗] = Temperature increase rate °C/min. / °F/min.

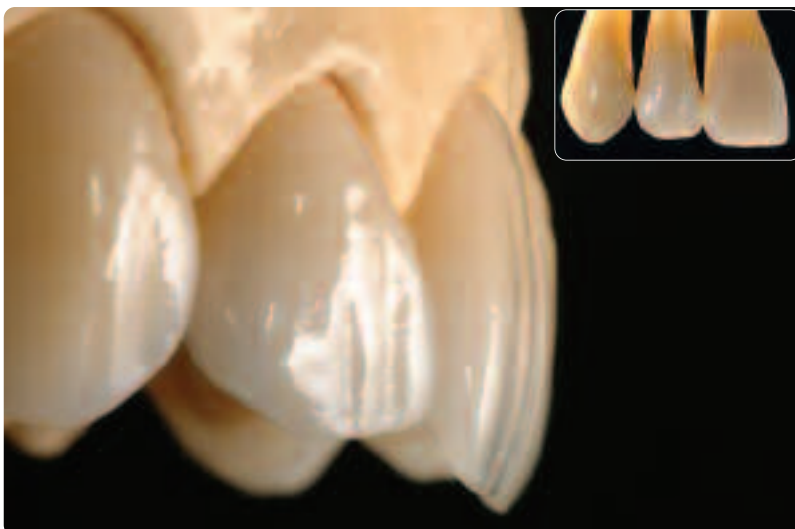
T = Firing temperature °C / °F

H = Holding time / min.

V₁ = Vacuum-on temperature °C / °F

V₂ = Vacuum-off temperature °C / °F

Esthetic par excellence ...



Completed IPS Empress Esthetic Veneers on the model

Optional

Subsequent adjustments

After completion, additional adjustment (e.g. contact points) may become necessary. For that purpose, IPS Empress Add-On 770 °C/1418 °F is available.



Processing:

- Before the adjustment, the restoration must be free from dirt and grease. For that purpose, blast the areas to be adjusted with Al₂O₃ (Type 100) at max. 0.5 bar pressure and thoroughly clean the restoration using the steam jet.
- Mix IPS Empress Add-On 770 °C / 1418 °F with IPS Empress Esthetic Veneer 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.
- Apply the mixed add-on material on the cleaned, desired areas using a brush and slightly blot them with an absorbent cloth.
- Position the adjusted restoration on the firing tray and fire in the ceramic furnace.
- After firing, manually polish the supplemented areas to a high gloss.



Adjust the proximal contact points

Firing parameters for the Corrective firing

IPS Empress Esthetic with IPS Empress Add-On 770°C/1418°F	B	S	t↗	T	H	V ₁	V ₂
Corrective firing	403°C 757°F	4' 4'	60°C 108°F	770°C 1418°F	2' 2'	450°C 842°F	769°C 1417°F

B = Stand-by temperature °C / °F

S = Closing time/minutes

t↗ = Temperature increase rate °C/min. / °F/min.

T = Firing temperature °C / °F

H = Holding time / min.

V₁ = Vacuum-on temperature °C / °F

V₂ = Vacuum-off temperature °C / °F

IPS Empress Esthetic – 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 working procedure should be observed:

- Leucite-reinforced glass-ceramic materials are generally etched with IPS Ceramic Etching Gel and subsequently silanated using Monobond-S.



IPS Empress Esthetic	
Indication	Veneers, inlays, onlays, partial crowns, anterior and posterior crowns
Cementation method	Adhesive cementation
Etching of the restoration	60 seconds, using IPS Ceramic Etching Gel
Conditioning / Silanating of the restoration	Monobond-S
Cementation system	Variolink II or Variolink Veneer Multilink Automix

Conventional cementation and blasting of finished IPS Empress Esthetic restorations is contraindicated!

Press parameters

Notes on pressing IPS Empress Esthetic

- Make sure to preheat AlOx plungers.
- IPS Empress Esthetic ingots have to be preheated.
- Place the ingots and AlOx plungers in the investment ring and position it quickly (in less than 1 min.) in the furnace.
- Do not use an IPS e.max AlOx Plunger Separator. The press temperature of the IPS Empress Esthetic ingots of 1075 °C/ 1967 °F is too high for the separator to be effective.
- The press parameters specified in these Instructions for Use apply to the Ivoclar Vivadent furnaces EP 500, EP 600 and EP 600 Combi (tolerance range ± 10 °C).

	B	t _↗	T	H	V ₁	V ₂	Pressure
EP 500 Small and large investment ring	700°C 1292°F	60°C 108°F	1075°C 1967°F	20'	500°C 932°F	1075°C 1967°F	5 bar
	B	t _↗	T	H	V ₁	V ₂	A
EP 600/EP 600 Combi Small and large investment ring	700°C 1292°F	60°C 108°F	1075°C 1967°F	20'	500°C 932°F	1075°C 1967°F	250 µm

Firing parameters

Notes on firing IPS Empress Esthetic

- Always use the honey-comb firing tray to fire the restoration.
- Place the restorations on the metal pins using a small amount of IPS Object Fix and position them on the honey-comb firing tray .
- As an alternative, the restorations can be supported with a firing pillow. Due to their lower position in the firing chamber, the restorations are exposed to less heat. Therefore, in order to achieve the desired gloss, the holding time must be extended to up to 2 minutes.
- The firing temperatures must be observed at all times. 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 will result in an underfired ceramic, which is very brittle and thus susceptible to delamination.
- The parameters specified in these Instructions for Use are coordinated with the Ivoclar Vivadent ceramic furnaces (tolerance range ± 10 °C).

- These firing parameters represent standard values applicable to the ceramic furnaces from Ivoclar Vivadent. The temperatures indicated also apply to furnaces of older generations, e.g. P20, P90, P95, P80, P100, P200. If one of these furnaces is used, however, the temperatures may deviate by ± 10 °C/18 °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 with IPS Empress Universal – stained

IPS Empress Esthetic with IPS Empress Universal 2-in-1 Technique	B	S	t[↑]	T	H	V₁	V₂
Stain and Glaze firing	403°C 757°F	6' 6'	100°C 180°F	790°C 1454°F	1-2' 1-2'	450°C 842°F	789°C 1453°F
Corrective firing IPS Empress Add-On 770°C/1418°F	403°C 757°F	4' 4'	60°C 108°F	770°C 1418°F	2' 2'	450°C 842°F	769°C 1417°F

IPS Empress Esthetic with IPS Empress Universal	B	S	t[↑]	T	H	V₁	V₂
Stain and Characterization firing	403°C 757°F	6' 6'	100°C 180°F	790°C 1454°F	1-2' 1-2'	450°C 842°F	789°C 1453°F
Glaze firing	403°C 757°F	6' 6'	100°C 180°F	790°C 1454°F	1-2' 1-2'	450°C 842°F	789°C 1453°F
Corrective firing IPS Empress Add-On 770°C/1418°F	403°C 757°F	4' 4'	60°C 108°F	770°C 1418°F	2' 2'	450°C 842°F	769°C 1417°F

IPS Empress Esthetic with IPS Empress Esthetic Veneer – veneered

IPS Empress Esthetic with IPS Empress Esthetic Veneer Cut-back and veneered	B	S	t[↑]	T	H	V₁	V₂
Wash firing	403°C 757°F	4' 4'	60°C 108°F	840°C 1544°F	2' 2'	450°C 842°F	839°C 1543°F
1 st Incisal firing	403°C 757°F	4' 4'	60°C 108°F	830°C 1526°F	2' 2'	450°C 842°F	829°C 1525°F
2 nd Incisal firing	403°C 757°F	4' 4'	60°C 108°F	830°C 1526°F	2' 2'	450°C 842°F	829°C 1525°F
Stain and Characterization firing	403°C 757°F	6' 6'	100°C 180°F	790°C 1454°F	1' 1'	450°C 842°F	789°C 1453°F
Glaze firing	403°C 757°F	6' 6'	100°C 180°F	790°C 1454°F	1-2' 1-2'	450°C 842°F	789°C 1453°F
Corrective firing IPS Empress Add-On 770°C/1418°F	403°C 757°F	4' 4'	60°C 108°F	770°C 1418°F	2' 2'	450°C 842°F	769°C 1417°F

B = Stand-by temperature °C / °F

S = Closing time/minutes

t[↑] = Temperature increase rate °C/min. / °F/min.

T = Firing temperature °C / °F

H = Holding time / min.

V₁ = Vacuum-on temperature °C / °F

V₂ = Vacuum-off temperature °C / °F

Combination Tables

The listed combinations are standard combinations. The shades of the IPS Empress Esthetic Translucent-Colour ingots are coordinated with the Chromascop shades. They can be combined with the A–D shades:

- Selection of the IPS Empress Esthetic ingot that is coordinated with the selected tooth shade
- Staining and intensifying of the dentin shade using IPS Empress Universal Shade and Shade Incisal

A–D	A1	A2	A3	A3.5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
IPS Empress Esthetic Ingot	E TC1	E TC1	E TC2	E TC2	E TC2	E TC1	E TC1	E TC3	E TC3	E TC1	E TC4	E TC4	E TC4	E TC1	E TC2	E TC3
IPS Natural Die Material	ND 2	ND 2	ND 3	ND 4	ND 8	ND 2	ND 2	ND 5	ND 5	ND 2	ND 7	ND 7	ND 7	ND 7	ND 2	ND 3
IPS Empress Esthetic Veneer <i>Wash Paste</i>	neutral															
IPS Empress Esthetic Veneer <i>Wash Paste Value</i>	low value, high value															
IPS Empress Esthetic Veneer <i>Wash Paste Mamelon</i>	MM l-s, MM y-o, MM r-o															
IPS Empress Esthetic Veneer <i>Wash Paste Modifier</i>	copper, orange, sky blue, basic yellow, basic red															
IPS Empress Esthetic Veneer <i>Incisal Opal</i>	HT, MT, LT															
IPS Empress Esthetic Veneer <i>Transpa</i>	T neutral, T blue															
IPS Empress Esthetic Veneer <i>Incisal</i>	l white, l grey, l orange, l edge, l yellow, l orange-pink															
IPS Empress Esthetic Veneer <i>Incisal Chroma Modifier</i>	110/A1, 210/A3															
IPS Empress Esthetic Veneer <i>Brightener</i>	Brightener															
IPS Empress Universal <i>Shade</i>	A1	A2/A3/A3.5	A4	B1	B2/B3/B4	C1/C2	C3/C4	D2/D3	D4							
IPS Empress Universal <i>Shade Incisal</i>	I1	I1	I2	I1	I1	I1	I2	I2	I2	I2	I2	I2	I2	I2	I2	I2
IPS Empress Universal <i>Stains</i>	white, mahogany, khaki, orange, grey, vanilla, crackliner, olive, yellow, black, maroon, basic red, basic blue, basic yellow															
IPS Empress Add-On 770°C/1418°F	A-O															

Chromascop	110	120	130	140	210	220	230	240	310	320	330	340	410	420	430	440	510	520	530	540
IPS Empress Esthetic Ingot	E TC1																			
IPS Empress Esthetic Veneer	E TC2																			
IPS Empress Esthetic Veneer Wash Paste	E TC3																			
IPS Empress Esthetic Veneer Wash Paste Value	E TC4																			
IPS Empress Esthetic Veneer Wash Paste Marmelon	E TC5																			
IPS Natural Die Material	ND 2	ND 2	ND 2	ND 2	ND 2	ND 3	ND 3	ND 3	ND 3	ND 3	ND 4	ND 4	ND 4	ND 4	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5
IPS Empress Esthetic Veneer Wash Paste	neutral																			
IPS Empress Esthetic Veneer Wash Paste Value	low value, high value																			
IPS Empress Esthetic Veneer Wash Paste Marmelon	MM l-s, MM y-o, MM r-o																			
IPS Empress Esthetic Veneer Wash Paste Modifier	copper, orange, sky blue, basic yellow, basic red																			
IPS Empress Esthetic Veneer Incisal Opal	HT, MT, LT																			
IPS Empress Esthetic Veneer Transpa	T neutral, T blue																			
IPS Empress Esthetic Veneer Incisal	I white, I grey, I orange, I edge, I yellow, I orange-pink																			
IPS Empress Esthetic Veneer Incisal Chroma Modifier	110/A1, 210/A3																			
IPS Empress Esthetic Veneer Brightener	Brightener																			
IPS Empress Universal Shade	110/120	130	140/210	220/230	240	310	320	330	340	410/420	430/440	510	520	530	540					
IPS Empress Universal Shade Incisal	I1	I1	I1	I1	I1	I1	I1	I1	I1	I2	I2	I2	I2	I2	I2	I2	I2	I2	I2	I2
IPS Empress Universal Stains	white, mahogany, khaki, orange, grey, vanilla, crackliner, olive, yellow, black, maroon, basic red, basic blue, basic yellow																			
IPS Empress Add-On 770°C/1418°F	A-O																			

Empress® Esthetic



Cut-back



Fired restoration characterized with Wash Paste



Completed, fired restoration



Dental lab work by Jürgen Seger ICDE/Schaan

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