

IPS e.max[®]

SPECIAL EDITION

IPS e.max[®] Press AND IPS e.max[®] Ceram



Stefen Koubi

Gérald Ubassy



ivoclar
vivadent[®]
passion vision innovation

The involvement of nature...

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... opens the door to new possibilities.

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Dr Stefen Koubi
L'institut de la facette
E-mail: koubi-dent@wanadoo.fr
www.linstitutdelafacette.com

Gérald Ubassy
Centre de Formation International
E-mail: contact@ubassy.com
www.ubassy.com

Introduction and guiding principle

The goal of modern dentistry is to preserve as much of the natural tooth structure as possible. Innovative materials such as the IPS e.max® lithium disilicate glass-ceramic enable the fabrication of adhesively bonded, minimally invasive glass-ceramic restorations and therefore offer a long-lasting solution to restore the functional, esthetic and biomechanical characteristics of teeth.



Preparation in 1998



Preparation today (minimally invasive)

Discolouration of the underlying tooth structure is seen in many cases. The severity of the staining can differ from tooth to tooth. The conventional approach to hide discolourations is to cover them completely with an opaque framework structure and then cover the framework with a veneering material. However, this approach necessitates the removal of significantly more tooth structure than is desirable with a modern minimally invasive treatment concept.



Tooth preparations showing varying degrees of staining



Highly opaque IPS e.max® Press HO framework structure, veneered with IPS e.max® Ceram

“ Our guiding principle is to regard the stained tooth structure as a friend rather than a foe and to tackle the challenges playfully. We welcome it as a partner that supports the natural appearance of the overall result. The following clinical case shows what we mean by this idea. ”

Clinical case

Preoperative situation



Noticeably stained anterior teeth in the upper and lower jaw. The patient's request: cover the anterior teeth with veneers

Analysis

Before the preparation procedure is begun, it is essential to study the preoperative situation in detail to be able to plan a successful esthetic reconstruction. This task also involves a photographic documentation including pictures taken when the jaw is at rest and in a dynamic position as well as when the patient is smiling.

This information, together with a precision impression, are forwarded to the laboratory.



Pre-operative assessment



The information and impression received from the dentist are analyzed and used for the detailed planning of the restoration. The main concern of the patient is to have the discolourations covered up. Only minor adjustments are made to the morphology:

- Tooth 12: Recontouring of the mesial ridge to shape it outwards
- Teeth 11 and 12: Closure of the narrow diastema



Silicone keys, which are made from the diagnostic wax-ups, are used as a reference in the planning and preparation procedure. The morphological deviations are clearly visible.

Selecting an appropriate IPS e.max® Press ingot

Before the teeth are prepared, an IPS e.max Press ingot in an appropriate shade should be selected. Here, the challenge is to identify the ideal level of translucency that is capable of masking the severely stained tooth structure even in a thin layer thickness and at the same time enables a natural interplay of colours.

The conventional approach to clinical cases like this is to use an opaque framework and then veneer it with a veneering material. However, this method requires more space (= more extensive preparation) to achieve a natural esthetic effect.

In the present case, an IPS e.max Press ingot in low translucency (LT) was selected. Although it may seem rather unusual to choose a translucent ingot, its light-optical properties make it the ideal choice. The idea is to include the discolourations in the overall esthetic outcome of the restoration rather than cover them up completely. The task of the veneer is only to change the shade of the underlying dentin.

The objective is to achieve an ideal balance between "coverage" and a lively interplay of colours.



Preparation



Horizontal reference grooves are placed to define the preparation depth in the enamel. It is absolutely essential to maintain the vestibular enamel as far as possible to contain the underlying discolouration.



The preparation is repeatedly checked with the silicone key of the diagnostic wax-up to prevent sources of error from occurring and to ensure that the required spatial conditions are achieved. In this case, the preparations are in the order of 0.5 mm.



Minimally invasive preparation in the lower jaw



Minimally invasive preparation in the upper jaw

Die shade selection

Once the teeth are prepared, the shade of the preparations is determined with the help of the IPS® Natural Die shade guide. It is important for the technician to know the shade of the preparation because this information assists in selecting the correct shade and brightness value for the all-ceramic restoration.



In the laboratory with **Gérald Ubassy**

Preparing the framework structure

” Two books that are totally different but absolutely complementary: “Tricks and Hints”, my third book, describes my entire work philosophy and my techniques to create beautiful dental prosthetics consistently, day after day.

My latest book, “Watch and Do It Yourself”, is like a recipe book where I present 10 different layering techniques, step by step with stratification schemes and shade guides of the IPS e.max ceramic materials from Ivoclar Vivadent. ”



For more information: www.ubassy.com



Wash and stain firing



Framework structures fitted on the saw-cut model



Designing the incisal area



Deep Dentin B1 is applied in a thin coating to the cervical and central third to stabilize the brightness value.



Using a silicone key as a reference, the proximal marginal ridges are built up with Opal Effect 1 to demarcate the incisal edge.



Translucent dentin (Dentin B1 + 50% Transpa neutral) is applied between the proximal marginal ridges up to slightly below the incisal edge.



Light Reflector cream is applied to the upper incisal third, followed by the placement of Light Absorber taupe immediately below it.

e.max Ceram Selection

Light Reflector cream and Light Absorber taupe – components of the IPS e.max® Ceram Selection range

IPS e.max Ceram Selection is a range of 12 specially designed Enamel and Effect materials. The two shades used here are part of this range. The Selection range has been developed in collaboration with August Bruguera (Spain), Oliver Brix (Germany) and myself.

IPS e.max Ceram Selection shades by Gérald Ubassy:



Designing the enamel shell



The enamel shell is built up entirely with Opal Effect 4 to impart sufficient brightness to the veneers.



Opal Effect 4 is applied here in the same way as an incisal material and accounts for approx. 2/3 of the layer thickness.



To achieve a halo effect, Incisal Edge is applied to the slightly reduced incisal edge.

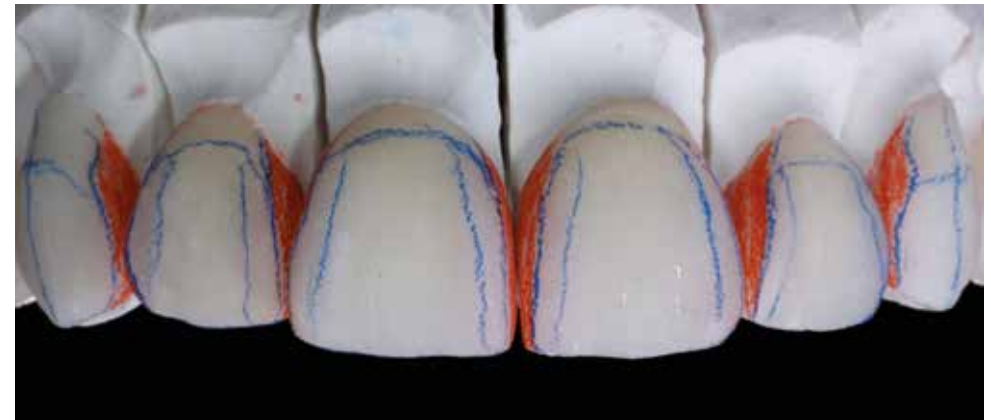


Completed layering procedure



Result after the dentin firing process

Shape and surface texture



The shape and surface texture of the teeth at the preoperative stage are studied.

Exact replication of the shape and surface texture contributes significantly to the natural integration of the restoration in the oral cavity. We recommend using the "two-coloured pencil technique" here.

Finishing



Polishing brings out the natural translucency of the thin veneers, combined with the fine opalescence and dynamic interplay of colour and light. The natural appearance of the surface is the result of the subtle irregularities incorporated into the texture.

In the practice with Stefen Koubi

Cementation

Together with the accuracy of fit, cementation has the most significant effect on the longevity of a restoration. In addition, the luting composite establishes optical continuity between the residual enamel and the veneer *in situ* after cementation.

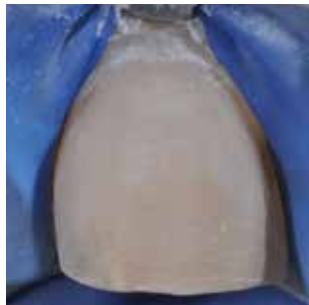
The retention of veneers depends entirely on the physical properties of the luting material. For this reason, adhesive systems that involve a preliminary etching step should be used. We prefer to use light-curing luting composites (e.g. Variolink® Esthetic).

With the help of try-in pastes, the final colour effect of the restoration is visualized and the shade and/or brightness that matches best is selected.

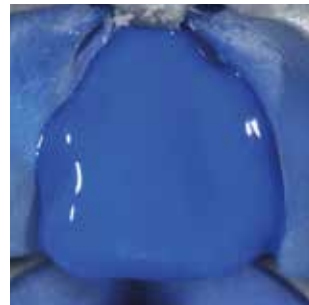




Teeth individually isolated with a rubber dam



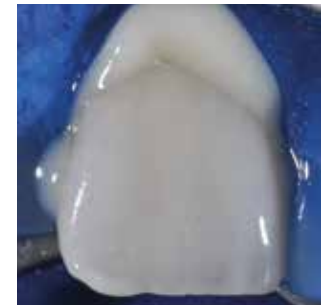
Blasting the preparation surface



Etching with 37% phosphoric acid



Applying the primer and bonding agent



Seating the veneers with luting composite



One veneer after the other is inserted.



Overall result – optimally camouflaged. The esthetic result is impressive!



Discolourations are not necessarily a foe for an experienced dental team that works hand in glove and pursues similar goals in terms of minimal invasiveness, esthetics and team work. Tackling discolourations playfully and making them part of the reconstruction can lead to impressive results and natural esthetic effects.



Shape and surface texture contribute to the natural integration of the restorations.



We have achieved our goal:
an optimum balance between adequate "coverage" and vibrant interplay of shades.



