



DIRECT ANTERIOR & POSTERIOR RESTORATIONS

LASER SINTERED & VITRIFIED COMPOSITE VENEERS &

OCCLUSIONS
NATURAL LAYERING CONCEPT




Prefabricated veneers

- Veneers prefabricated – composite material or composite with special surface treatment (laser sintering)
- Various shape
- Cementation using composite material

Examples: Compoener (Coltene)

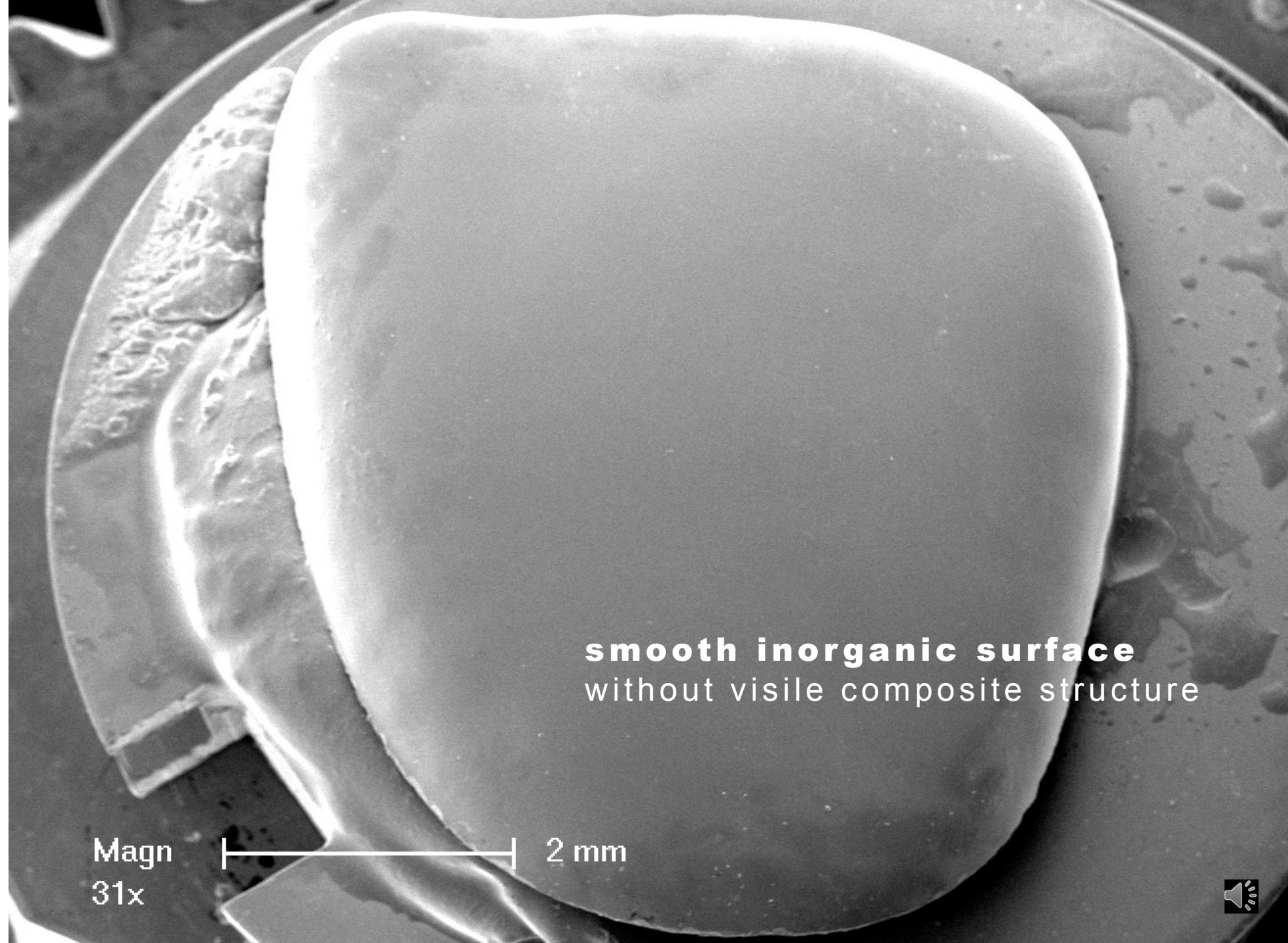
Edelweiss (Ultradent)





LASER VITRIFIED PROCESS





smooth inorganic surface
without visible composite structure

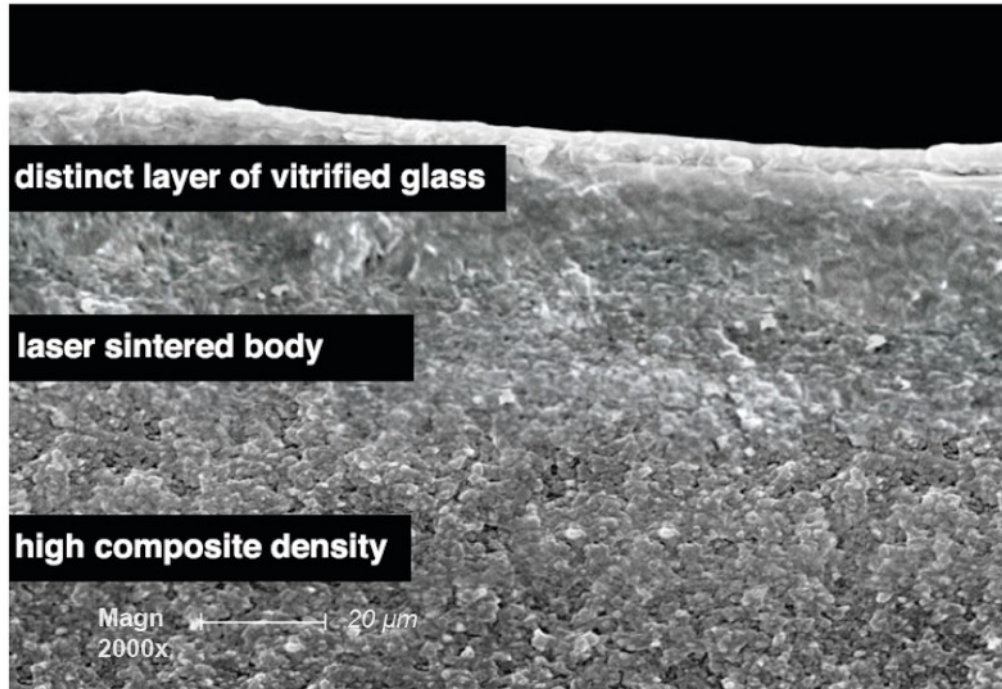
Magn
31x

|-----| 2 mm



Comparison

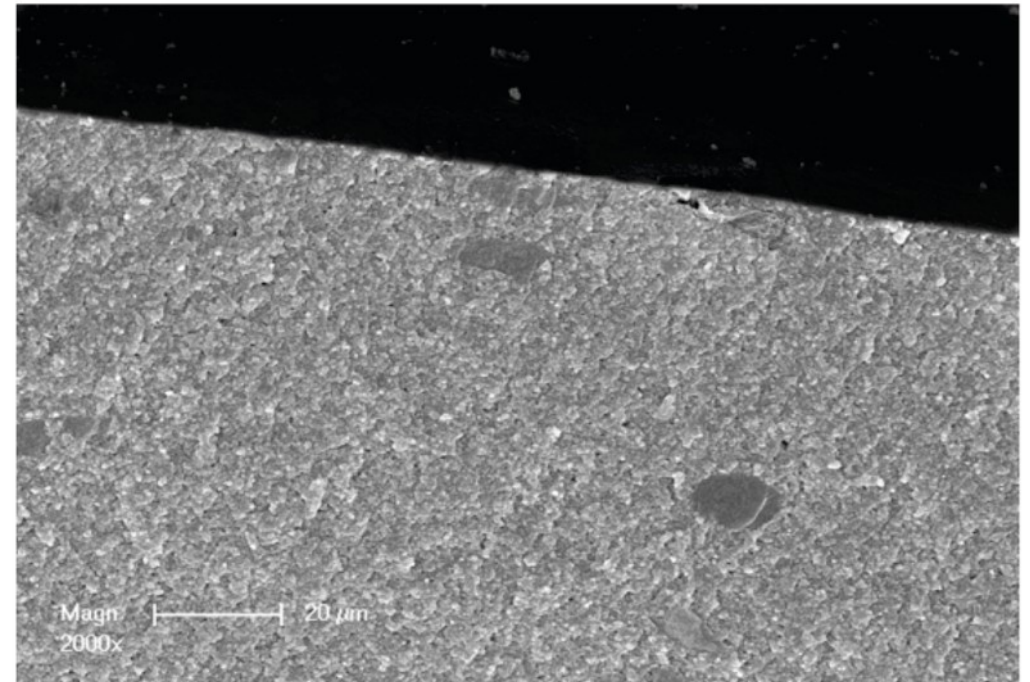
Edelweiss VENEER / alternative conventional prefabricated direct composite Veneer



SEM picture:

Samples A / edelweiss Veneer:

Section: Shows very high composite density and a distinct layer of sintered/vitrified glass. The composite structure is homogenous without pre-polymerized fillers, which has beside to the laser vitrification a very positive effect on the flexural modulus (19GPa).

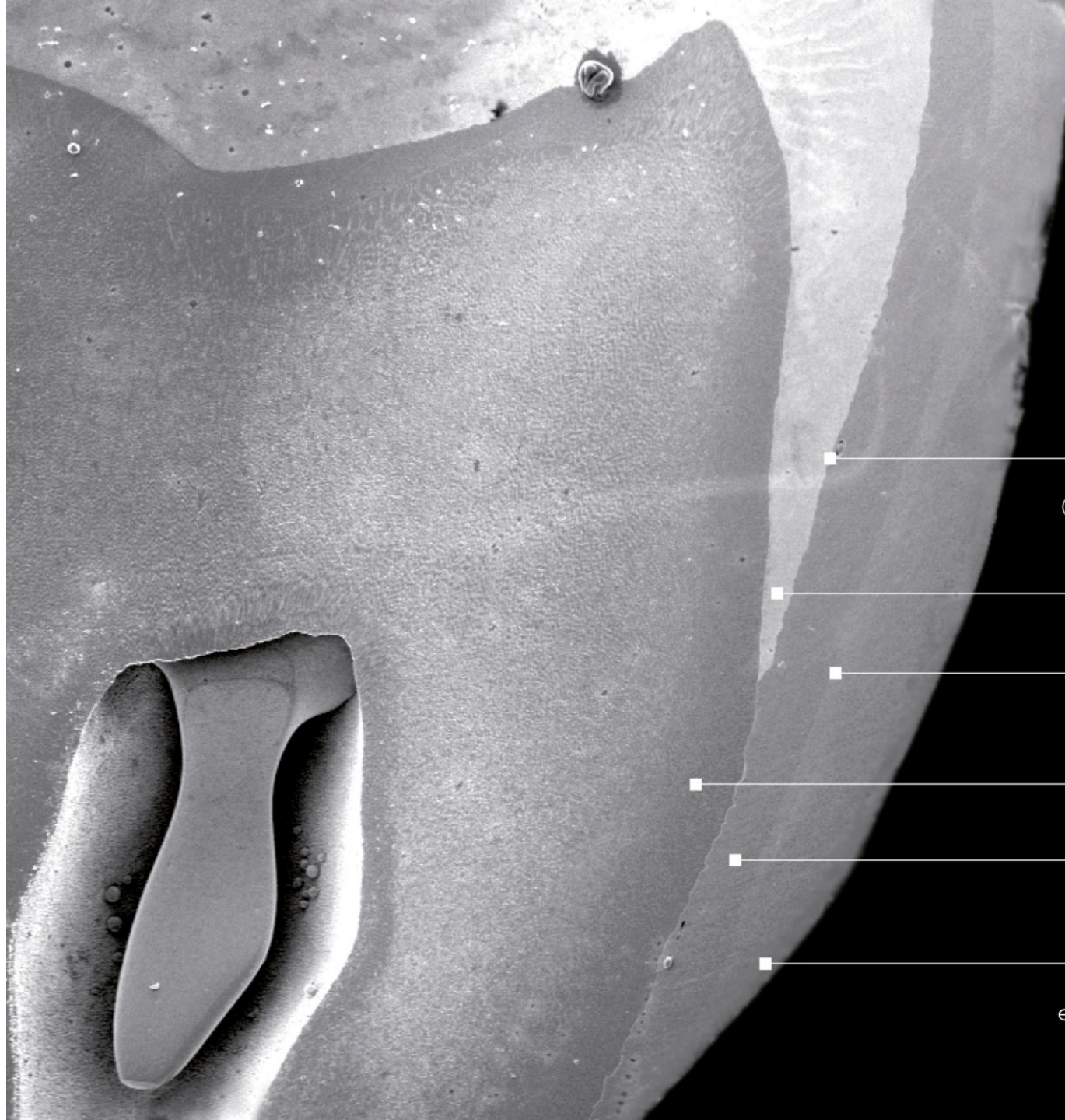
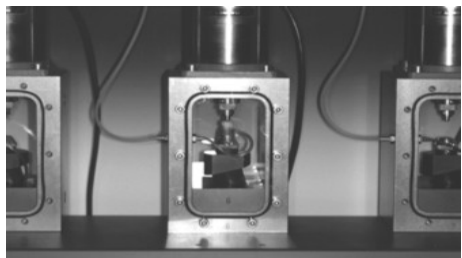


SEM picture:

Samples B / alternative prefab. Comp. veneer:

Section: Shows much lower composite density than samples A and no distinct layer of sintered/vitrified glass. Interesting to see the very large pre-polymerized fillers (also at high magnification), which effect the flexural modulus in a negative way (9GPa).





Dentin/Enamel
Bond
(Peak Univ., Optibond)

Enamel

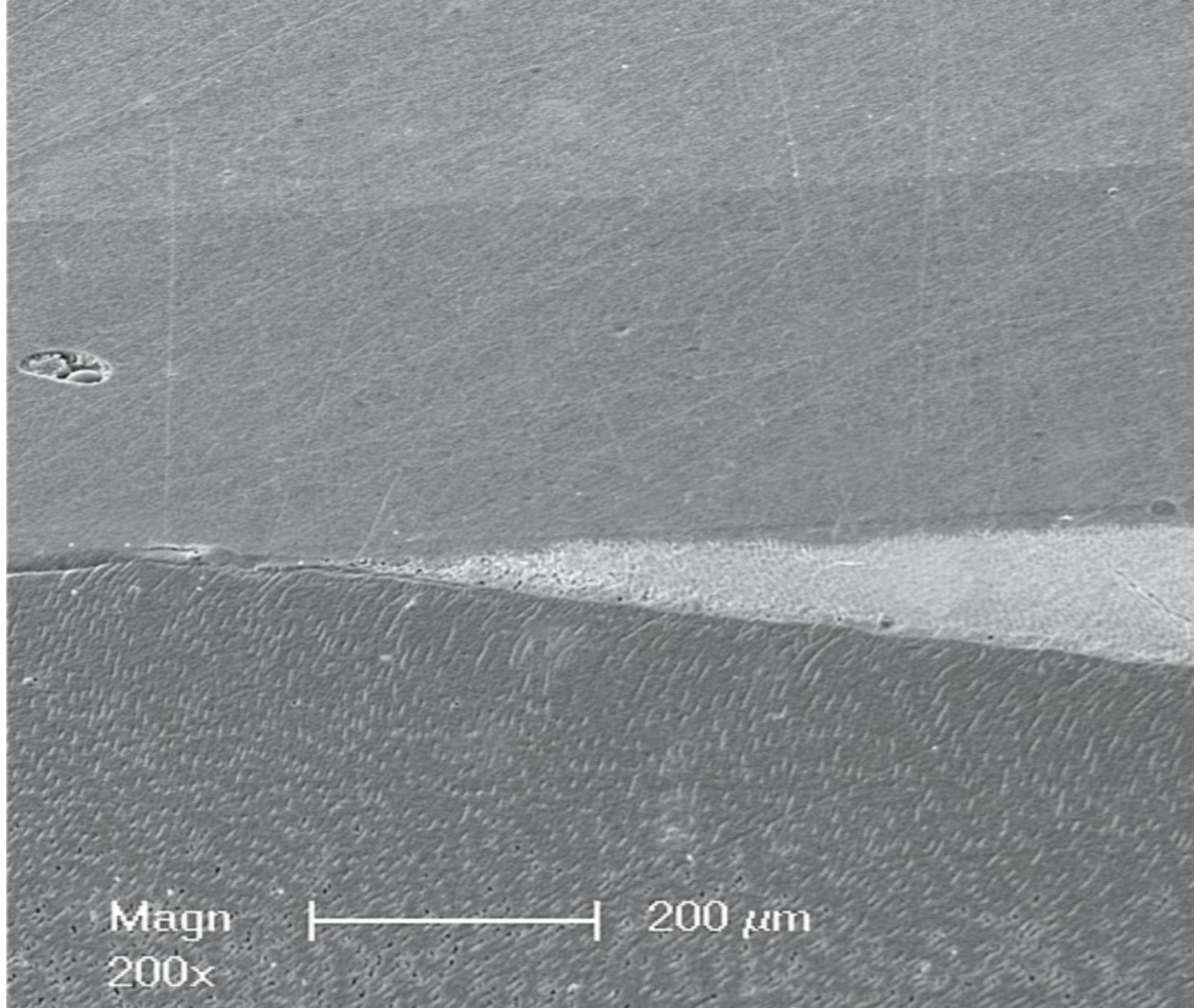
VENEER BOND

Dentin

Restorative
Composite

Prefabricated
Composite
edelweiss VENEER





Magn
200x

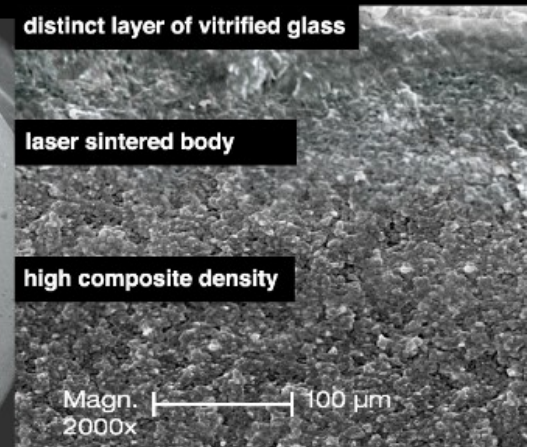
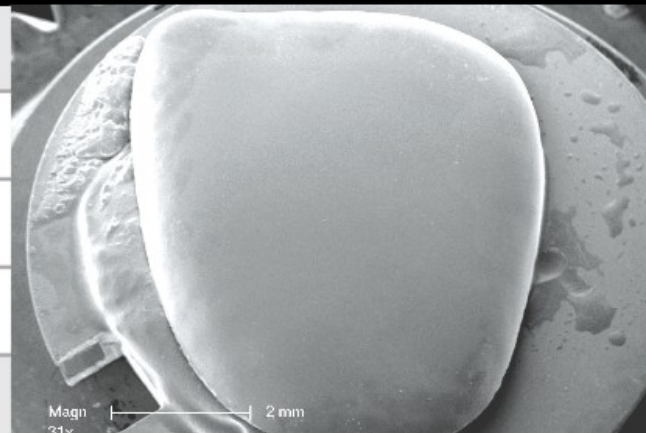


200 μm



edelweiss VENEER

| | |
|--------------------------|---------|
| Flexural Strength | 200 MPa |
| Compressive Strength | 550 MPa |
| Flexural Modulus | 19 GPa |
| Surface Hardness | 95 HV |
| Polymerization Shrinkage | — |

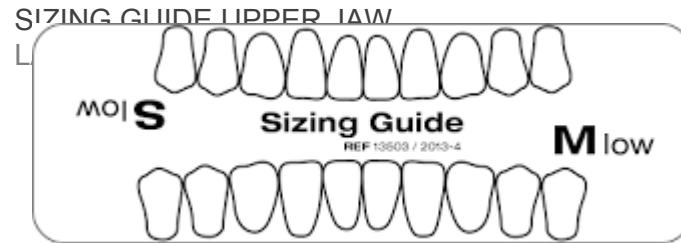
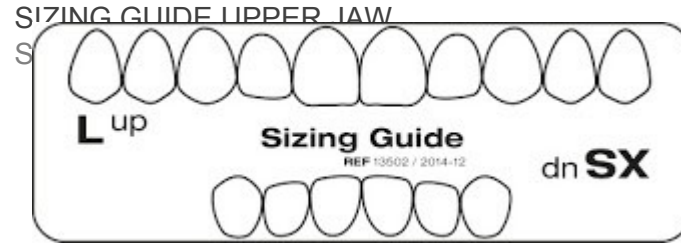


Based on a study of all shapes and size variations of natural tooth anatomy, prefabricated and contourable universal VENEER shapes for the upper and lower arch were developed in the following range of sizes (20 lower S/M 10 each – 30 upper S/M/L 10 each – 6 upper XS)



The choice of the tooth shape is performed with the available Sizing Guide (edelweiss VENEER Sizing Guide). The Sizing Guide is positioned over the teeth to be restored, in which the visible profile allows for proper selection of the best fitting edelweiss VENEER. Adjustments can be illustrated directly on the template.





SIZING GUIDE LOWER JAW
SMALL / MEDIUM



EDELWEISS SHADE SELECTION

EDELWEISS SHADE GUIDE



EDELWEISS SHADE SYSTEM

edelweiss VENEERS consist of the shade Enamel – Vita Enamel A0.

The respective dentin and enamel shades used to cement the VENEER will determine the final shade tone of the restoration.

Example:

e

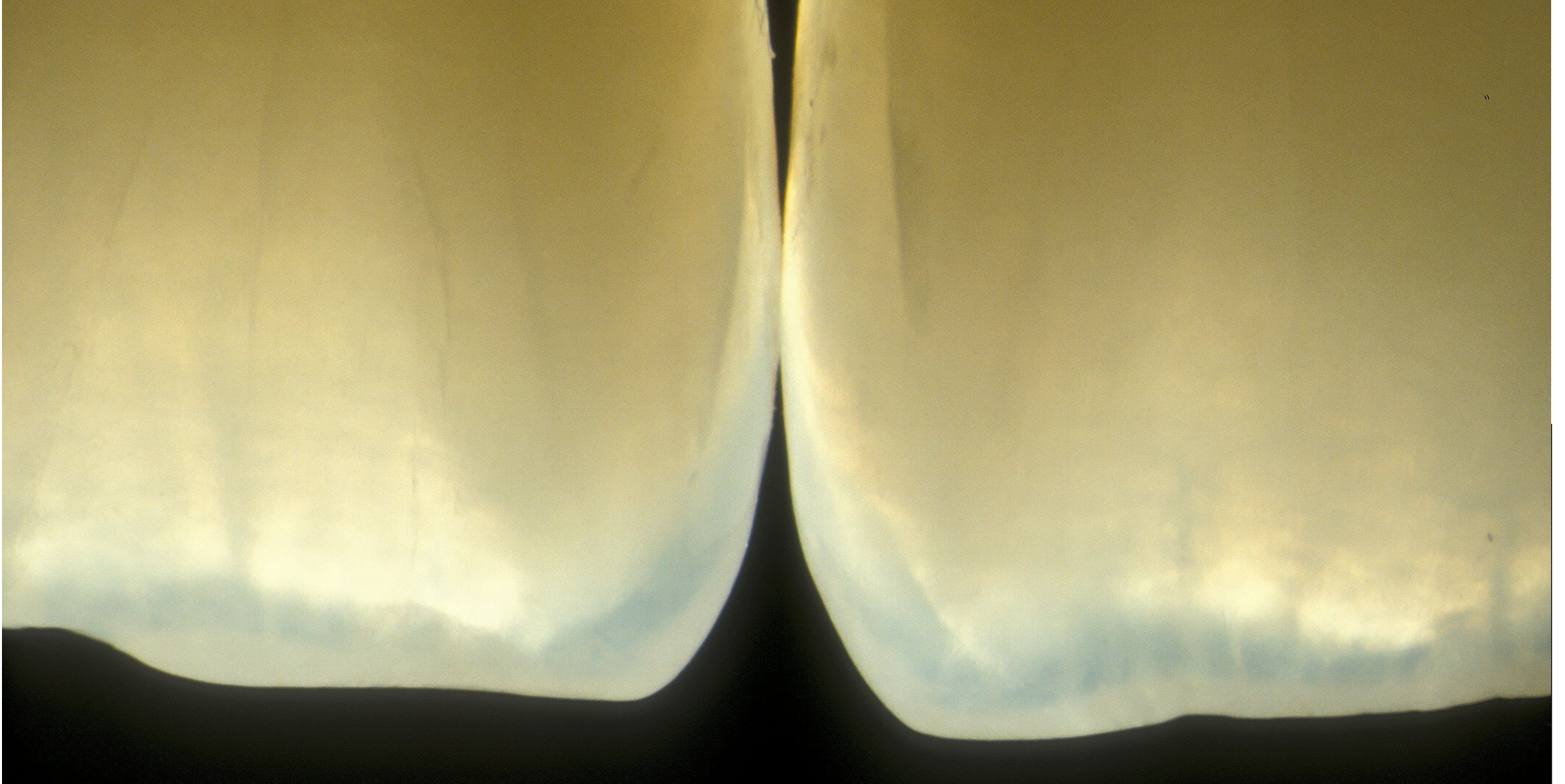


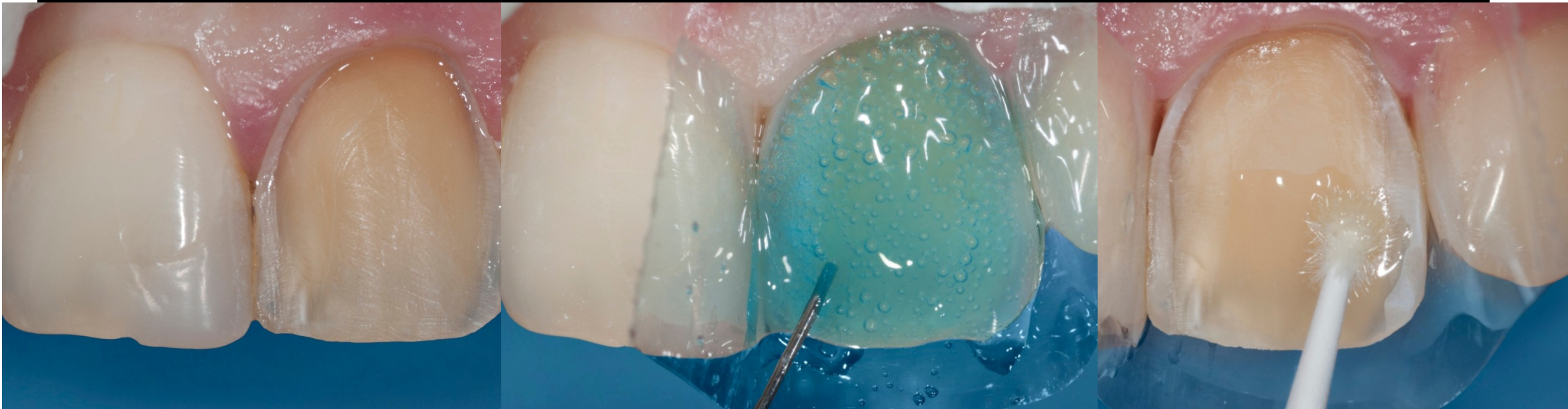
Veneers are cemented using the composite material of various colours

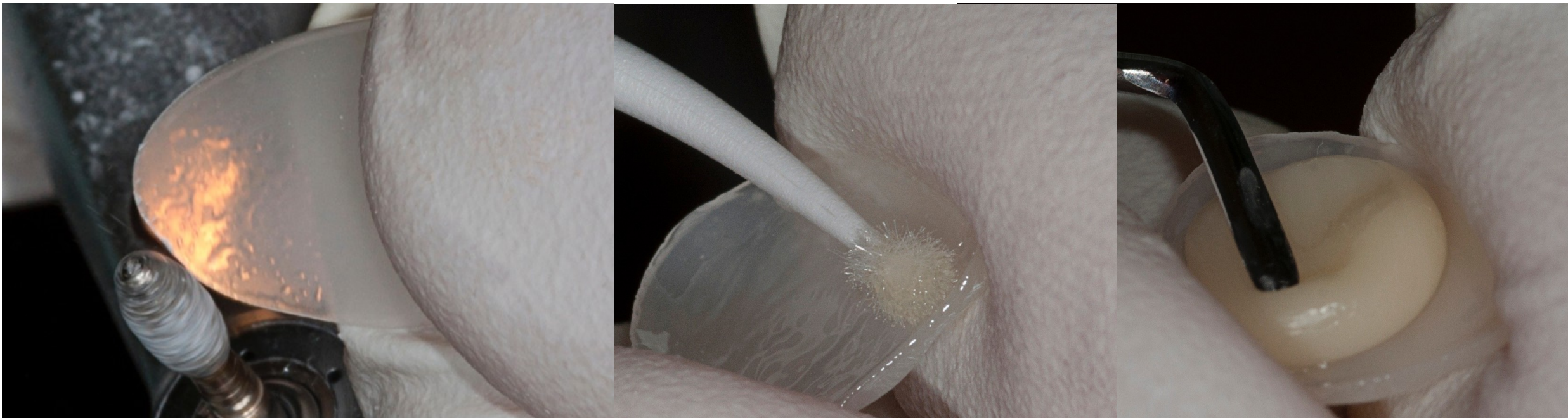


Principle of imitation of natural colour of the tooth

























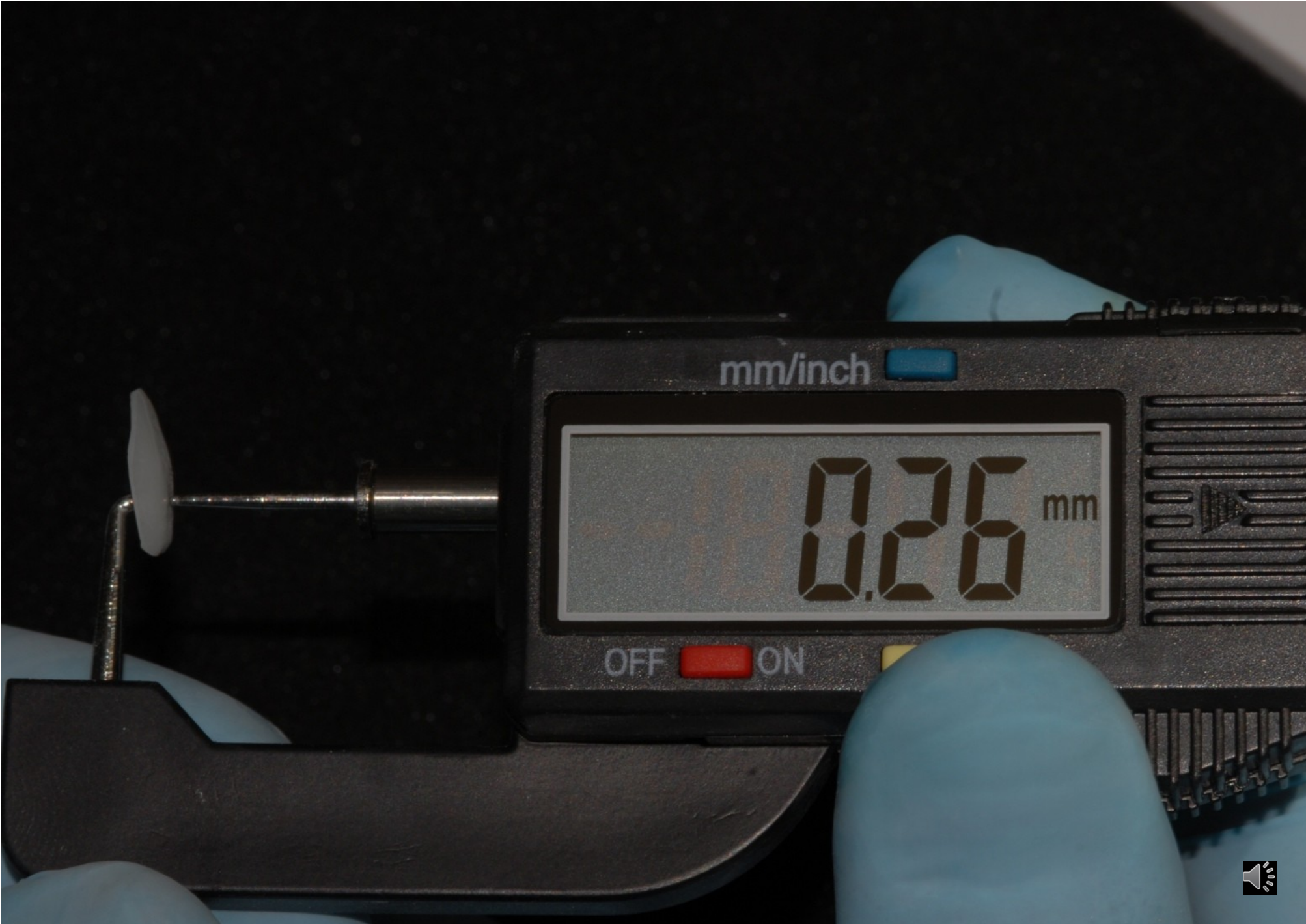
The prefabricated veneer
can be contoured

No the surface layer !





Measurement
of the thickness



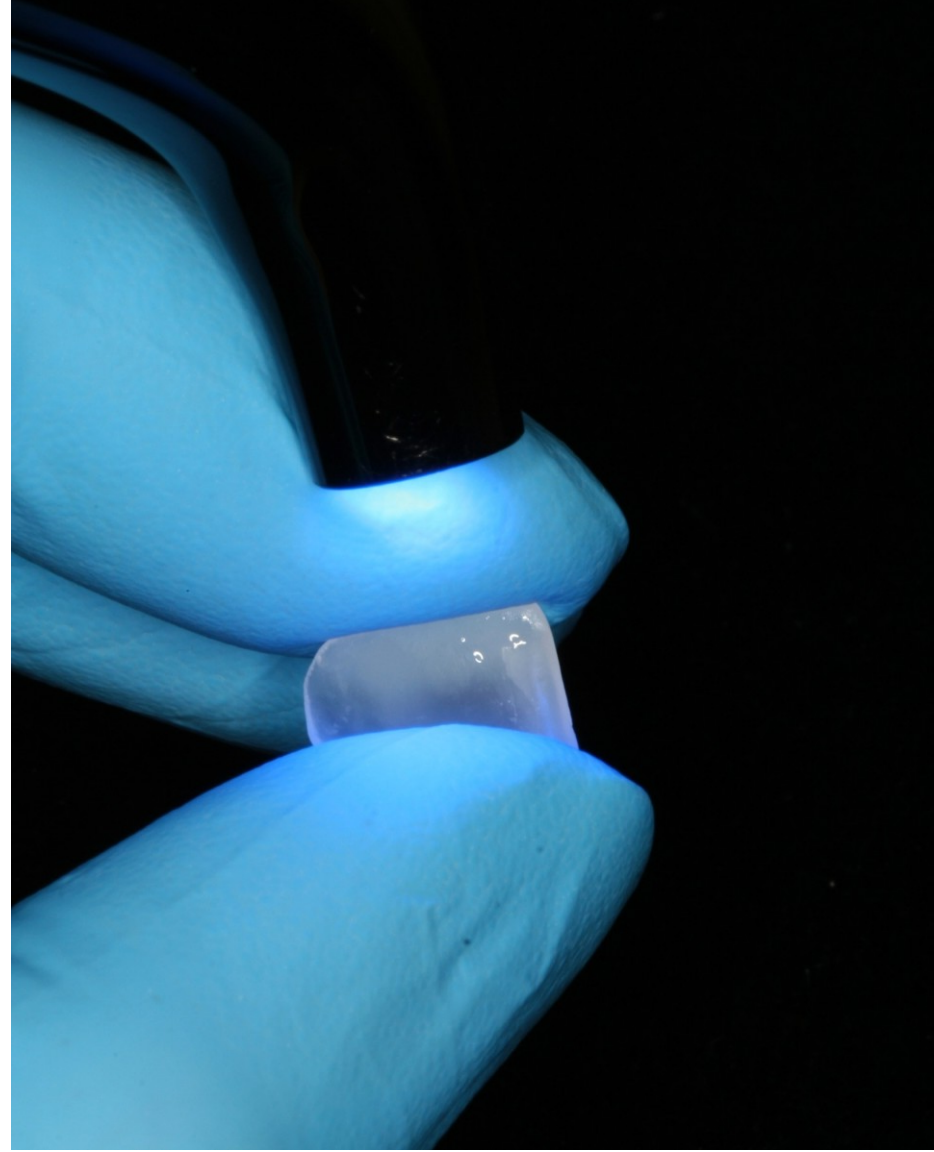


























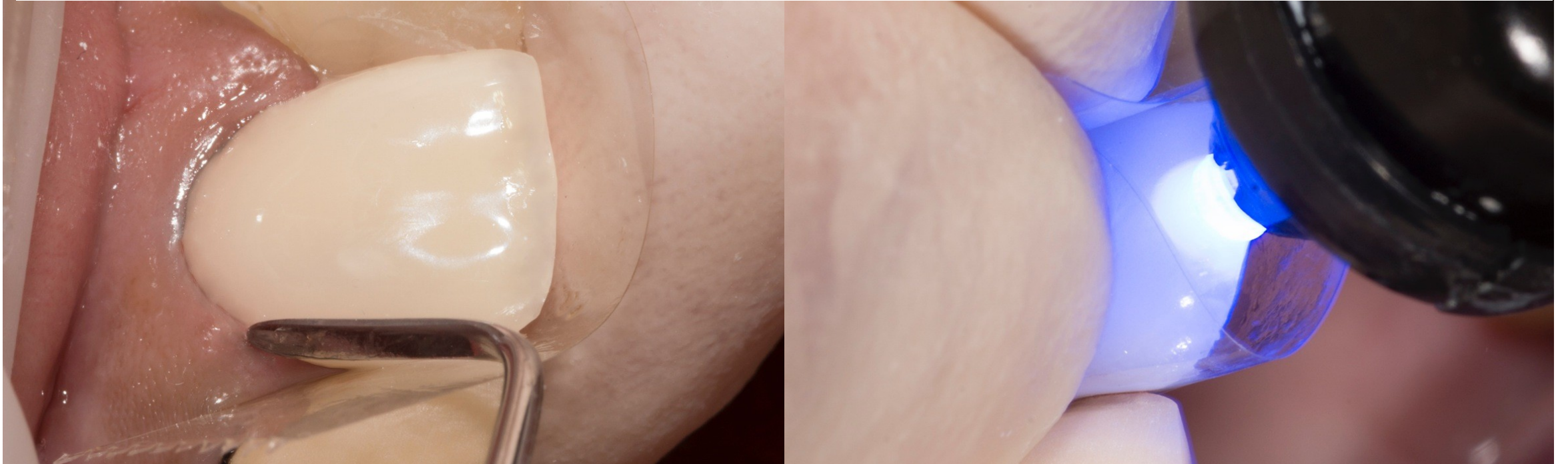












Maylar Strip Technique





Maylar Strip Technique





Maylar Strip Technique













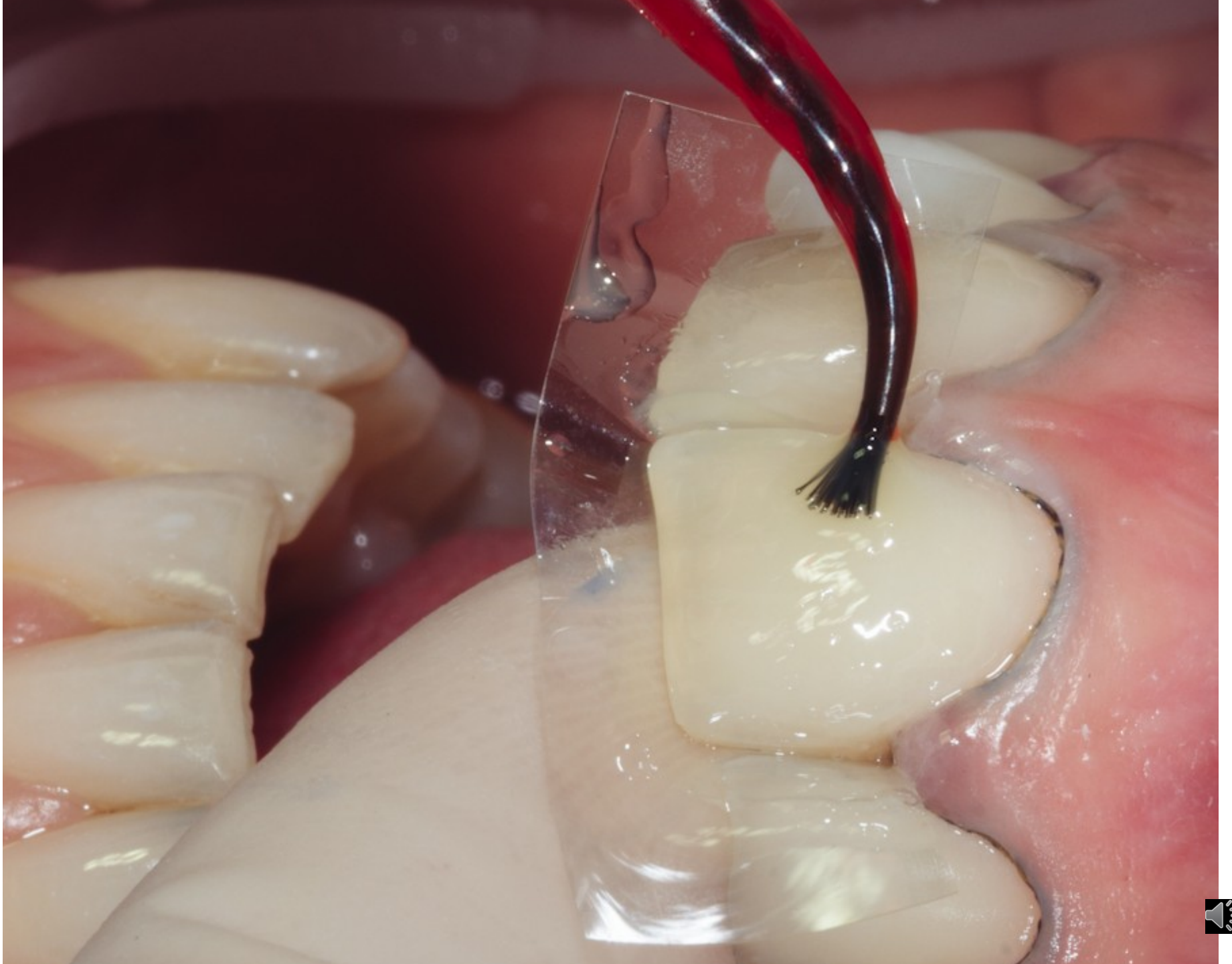


Patient Communication

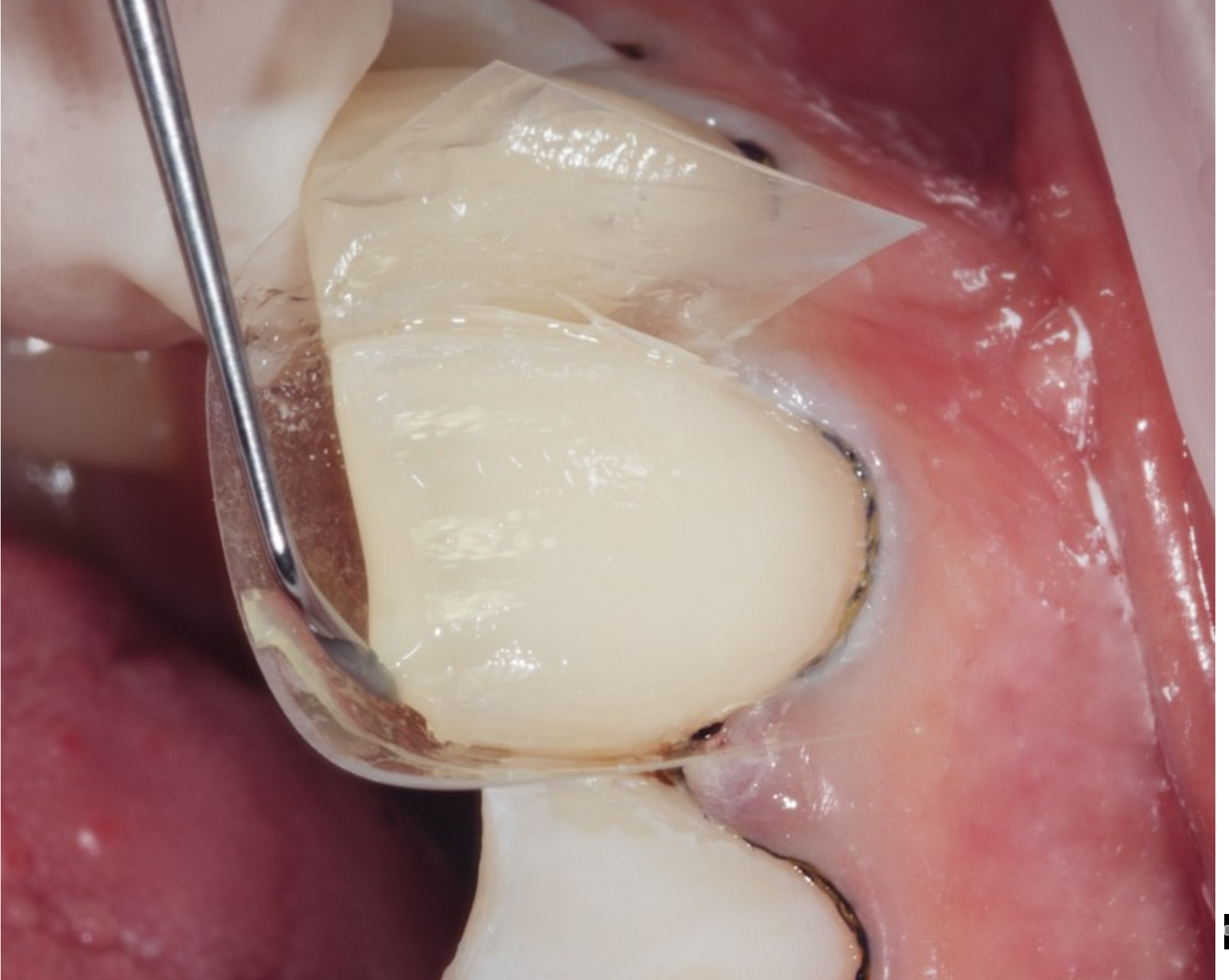








































































Prefabricated Composite Veneers: Historical Perspectives, Indications and Clinical Application

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Integration is ensured. Based on a technology comparable to the one used to produce the enamel shells of this shade guide, the concept of pre-fabricated composite veneers was recently revitalized taking advantage of new technologies.¹⁰ The so-called Direct Veneer® system (Edelweiss-dentistry, Hoerbranz, Austria) was recently launched and is based on high pressure molding and heat curing processes, followed by laser surface vitrification (Figs 1 and 2). This enables the veneers to exhibit a hard and glossy surface, with a texture to fit the majority of dentitions. The system is actually aimed to facilitate the esthetic restoration of decayed or discolored single and multiple anterior teeth.

Indications

The aforementioned direct composite veneer system does not aim to systematically replace the well established individualized porcelain veneer technique; but rather offers an alternative to directly (or free hand) built up composite veneers, which is a delicate and time consuming technique (Figs 3-5). Composite prefabricated veneers present an obvious potential in the following indications:

- 1) Single facial restorations:
- large restorations/decays with loss of natural tooth buccal anatomy/color
 - non vital, discolored teeth
 - traumatized, discolored teeth (without endodontic treatment)
 - severe/extended tooth fracture
 - extended tooth dysplasia or hypoplasia.



Fig 3 Preoperative view of a patient showing moderate to severe front tooth wear, despite the significant tissue destruction, a micro-invasive treatment approach was selected using prefabricated composite veneers.



Fig 4 Set of prefabricated composite veneers featuring a vitrified inorganic surface with high gloss.



Fig 5 Post-operative view showing the good esthetic and functional integration of cemented restorations.

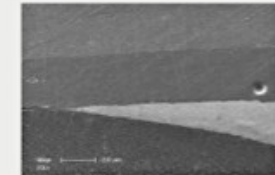
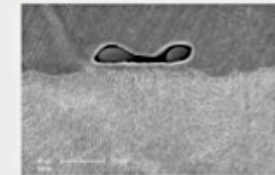
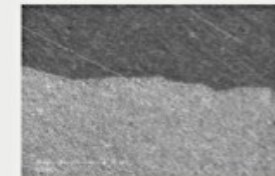


Fig 6 View of the transition area, from enamel to dentin. The composite-composite interface is also visible and shows that this interface is stable and resisted perfectly to occlusal loading.



Figs 7 and 8 The interface with enamel proved to be free of any defect after the loading test, as shown on the image below (7). Only a few bubbles were observed but which did not affect the adaptation (8).

or composite-compos
the dentin level, minor
served but which all tog
an insignificant propor
dentin-luting composi

Case report

A young female patient
suffered with a complain
front teeth. The discolor
and 21 was the result.
treatment she received
that happened several
ferent treatment option
with the patient but an ill
of the discolored teeth
ramic laminate veneer
a "state of the art treat
case. On the one hand,
not consider this option
normic limitations, but o
wished to change the
her incisors as quickly
already planned video
it was decided to go f
long term temporary si
fabricated composite
the dark tooth structur
the anatomy of the ex
aforementioned clinica
lowed to restore these



BEFORE



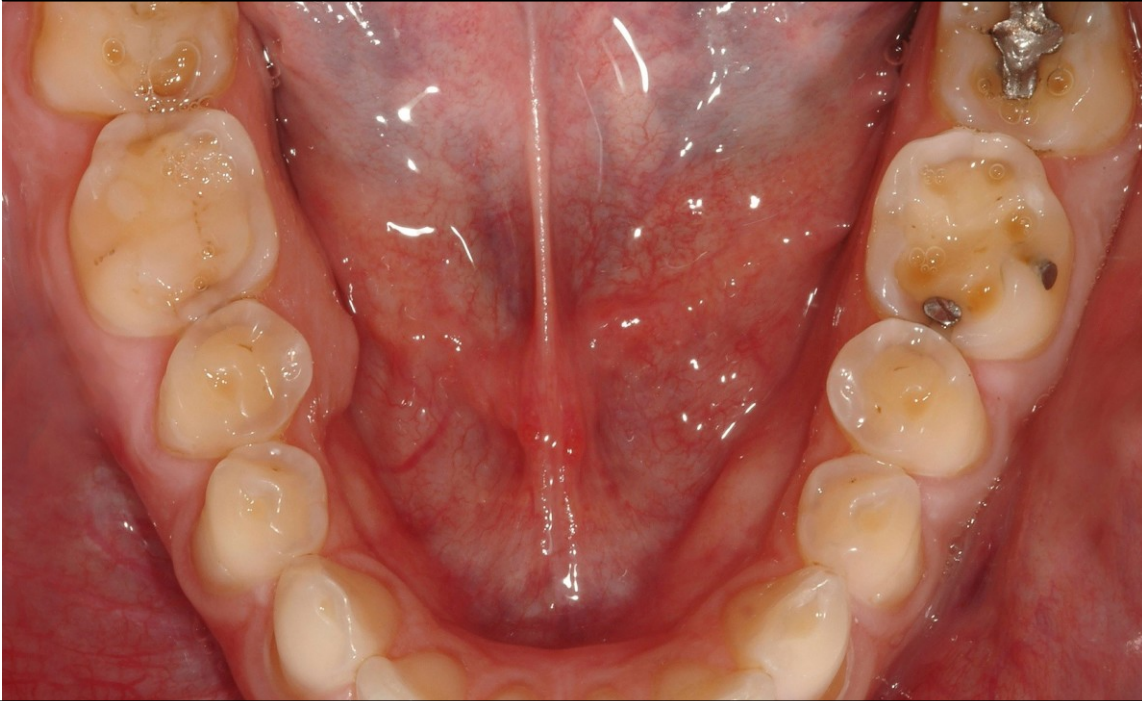
AFTER

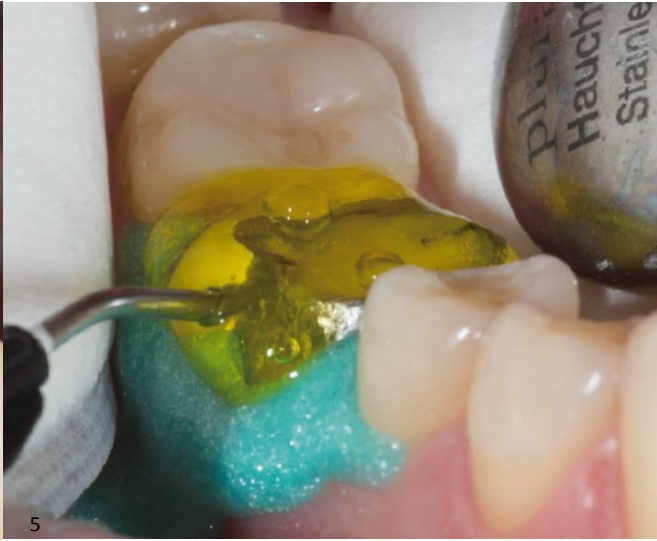


Prefabricated occlusal surfaces











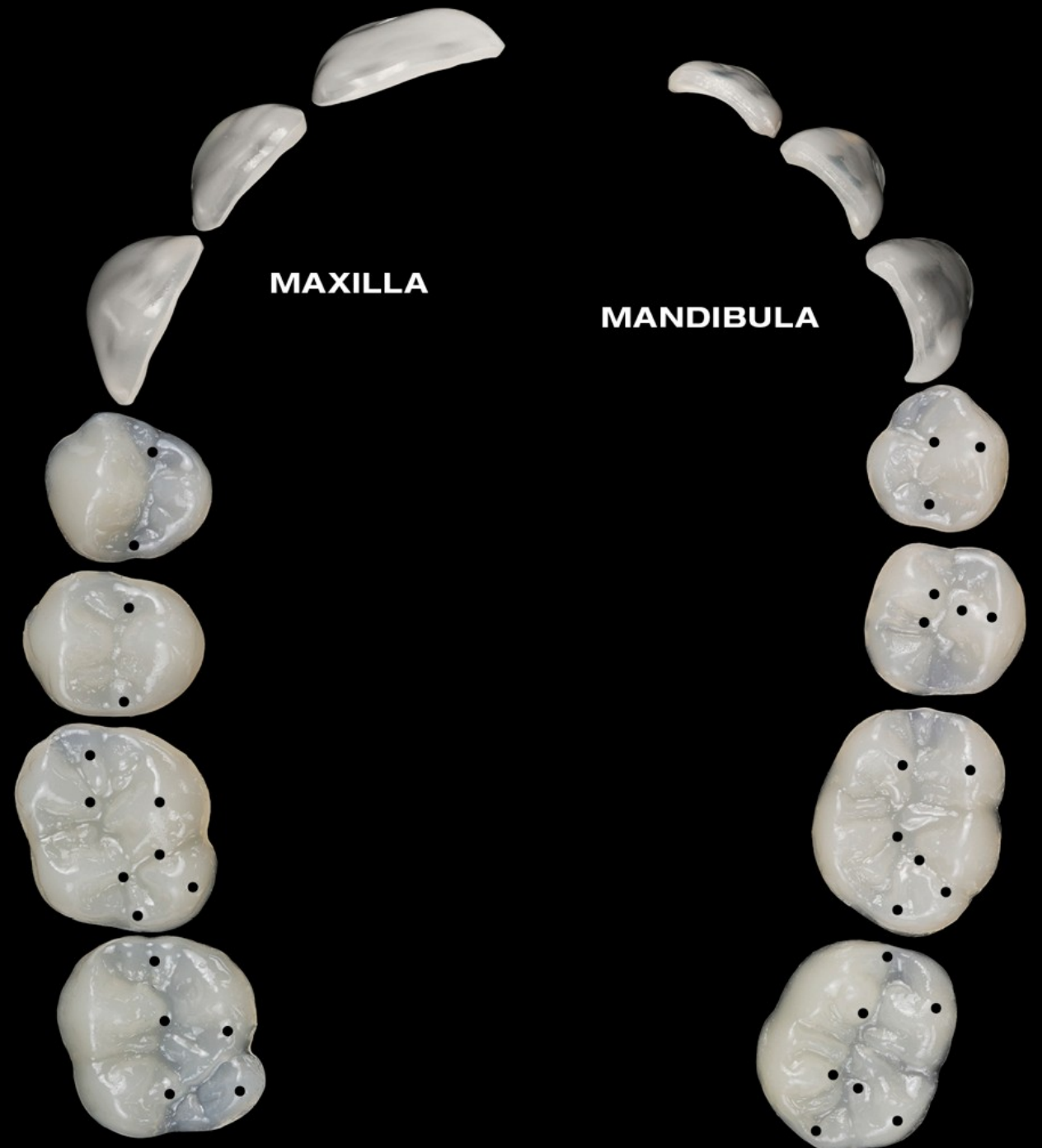








Small
Medium
Large



DIRECT SYSTEM

OCCLUSIONVD



**MARGINAL AREA:
0,1 - 0,2 mm**

**OCCLUSION AREA:
0,3 - 0,6 mm**



DIRECT SYSTEM

OCCLUSIONVD





DIRECT SYSTEM





UPPER

small-medium-large (8 x S-M-L)

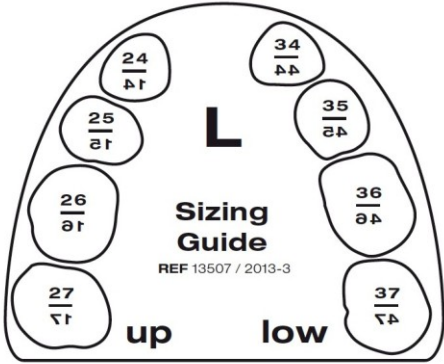
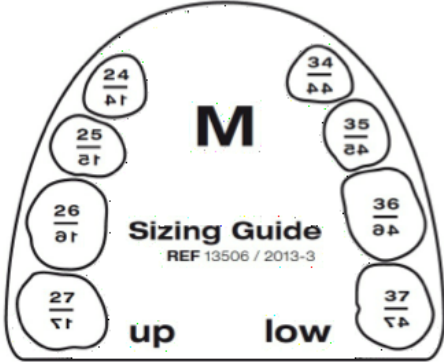
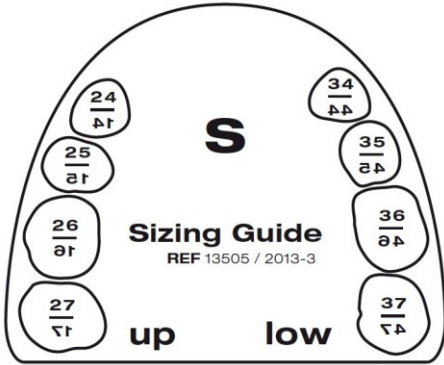


LOWER

small-medium (8 x S-M)



OCCLUSIONVD SIZES



UPPER

small-medium-large (4 x S-M-L)

LOWER

small-medium-large (4 x S-M-L)



Comparison

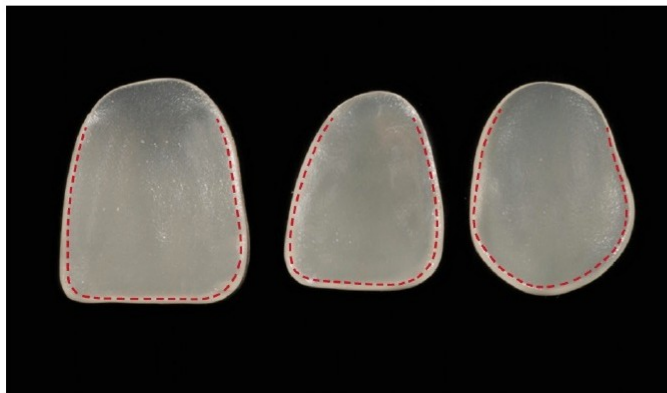
edelweiss DIRECT VENEER / alternative conventional prefabricated direct composite veneer

Componeer
medium size

Front View



Basal View
(marking illustrates level of interdental walls / coverage)



edelweiss VENEER
medium size

Front View



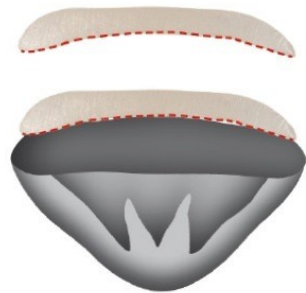
Basal View
(marking illustrates level of interdental walls / coverage)



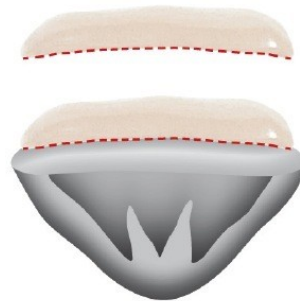
Comparison

edelweiss DIRECT VENEER / alternative conventional prefabricated direct composite veneer

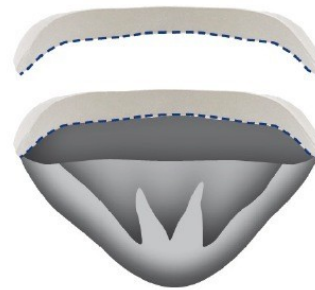
Incisal View cross-cut
(tooth center)



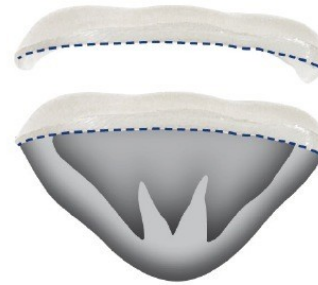
Incisal edge



Incisal View cross-cut
(tooth center)



Incisal edge



Distal View cross-cut



Distal View cross-cut



Comparison

edelweiss DIRECT VENEER / alternative conventional prefabricated direct composite veneer

| DE | EN | DIRECT VENEER | ALTERNATIVE VENEER |
|-----------------------------|-------------------------|----------------------|---------------------------|
| Biegefestigkeit | Flexural Strength | 200 MPa | 127 MPa |
| Druckfestigkeit | Compressive Strength | 550 MPa | 392 MPa |
| Biegemodul | Flexural Modulus | 19 GPa | 9GPa |
| Oberflächenhärte | Surface Hardness | 95 HV | 73 HV |
| Laser-gesinterte Oberfläche | Laser-vitrified Surface | YES | NO |

measurements by edelweiss

measurements by manufacturer



- Componeer (Coltene)

