

Enamel plus  
Aesthetic System



inverse hardness  
technique

ENAMEL  *plus* HRi  
*Tender*

LABORATORY TECHNIQUE

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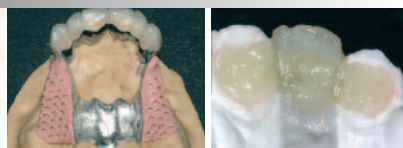
**INVERSE HARDNESS TECHNIQUE**

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*The demand for aesthetic results in Dentistry has been constantly increasing in recent years and led the dental manufacturers to a growing commitment in scientific investigation and composite evolution, allowing the clinician to obtain ideal long lasting, aesthetic results.*



*The spreading of Dr. Lorenzo Vanini's composite techniques brought a development in the use of these materials involving more and more the dental laboratory with the indirect technique. Sharing clinical and technical experiences, composite has been further optimized, becoming an ideal material for dental restorations not only for its aesthetic properties but also for its mechanical and physical characteristics. Nowadays, the technological progress (CAD/CAM) and the deeper knowledge of the materials allowed us to determine even more reliable solutions that can be achieved also with composite.*

*In this manual the protocols for working with composite are updated according to the application fields, suggesting also the ideal steps to optimize time and cost and how to apply the new generation composite materials with high refraction index, the result of research and development of optical behaviour of aesthetic materials.*

*The experiences described in this manual are the results of my work in the laboratory with my team and of the daily relationship with the clinicians.*

Daniele G. Rondoni

*the appearance of natural tooth,  
the technique and the aesthetics of ceramic*

PRODUCTS

••• PRIMER & OPAQUES

- Tender Bonding metal primer
- Ena Cem Z zirconia primer
- Tender paste opaque: Clear - Light - Dark
- Pink (for partials)



••• "TENDER" & FLUID BODIES

- Tender Dentine: T2 - T3 - T3,5 - T4 - T5
- Tender Modifier: white (MW), yellow (MY), orange (MO)
- Fluid bodies: Dentine Flow (from UD0 to UD6), Transparent and Stains (white, yellow, orange, red, khaki, blue, brown, dark brown, black)



••• MICROHYBRID BODIES

- Fluorescent dentine (also available as Flow): UD0, UD0,5, UD1 (A1), UD2 (A2), UD3 (A3), UD3,5 (A3,5), UD4 (A4), UD5, UD6 (available on request: B1, B2, B3, B4, C1, C2, C3, C4, D3)
- Intensive Enamel (in order of intensity) IW, IWS, IM
- Opalescent Enamel: OA, OBN
- Function Enamel: (for posterior area) EF1, EF2, EF3



••• "HRi" BODIES NANOFILLED (for anterior area)

- Universal Enamel with the same refractive index as natural enamel: UE1 (amber), UE2 (medium value), UE3 (high value)



••• TENDER PINK BODIES MICROHYBRID

- Orange (also available as Flow), Light, Dark, Transparent

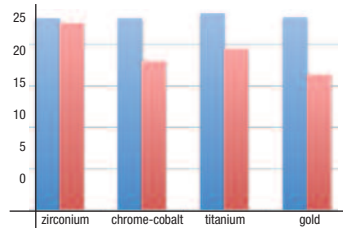


••• TEMP TEMPORARY RESIN

- Pink for gum
- Dentine: UD0, UD1 (A1), UD2 (A2), UD3 (A3), UD3,5 (A3,5), UD4 (A4), UD5 DOL, DOD, MO, MY (available on request B1, B2, B3, B4, C2, D3)
- Temp Universal Enamel: UE1, UE2, UE3
- Enamel: Blue, Clear, Grey, White
- 4 Liquids: cold curing, hot curing for stent, hot curing for flask, light curing
- 1 Temp opaque (to be used with light curing liquid)



ADHESION:  
INVERSE HARDNESS TECHNIQUE



"Tender Bond" used in combination with the paste **opaque** guarantees an excellent bonding with every type of structure. **Ena Cem Z** primer ideal for zirconia. (N/mm2 measurement internal datas)

TENDER: HIGH ELASTICITY DENTINE BODY  
HRi: HIGH RESISTANCE ENAMEL BODY

••• PHYSICAL CHARACTERISTICS

|                         | HRi        | Tender   |
|-------------------------|------------|----------|
| - Flexural strength     | 170 MPa    | 95 MPa   |
| - Vickers hardness      | 700 MPa    | 350 MPa  |
| - Modulus of elasticity | 14.500 MPa | 6900 MPa |
| - Compressive strength  | 450 MPa    | 360 MPa  |
| - Transparency          | 30%        | 4%       |

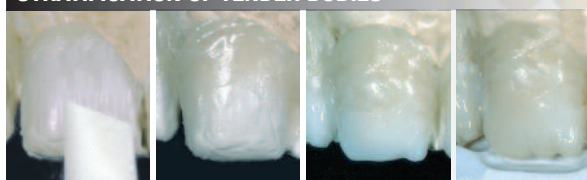
\* at 63°C / 145,4°F for 13 min. (at 75°C / 167°F + 20% hardness)

The combination of Tender bodies with the HRi dentine bodies gives the stratification on metal better properties of resistance to compression and bending. Enamel Plus HRi also provides proper resistance to abrasion, giving the material excellent polishability and reducing the aggressive power of bacterial plaque.

••• "TENDER" BODIES COMPOSITION

RESIN MATRIX: Urethane dimethacrylate, Butandiol dimethacrylate  
 CONTENT OF FILLER:  
 Inorganic Filler: 74% by weight (66% by volume):  
 Glass filler: mean particle size 0,7 µm  
 Pyrogenic silicic acid: mean particle size 0,04 µm  
 Organic filler: 12,5% by weight copolymers

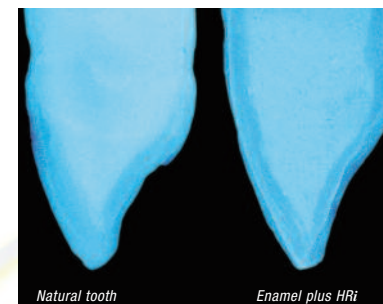
STRATIFICATION OF TENDER BODIES



Tender cervical body, Modifier Orange & Yellow Tender body

Tender Modifier White and Tender dentine opaque body

FLUORESCENT DENTINE  
AND OPALESCENT ENAMEL



**Universal Dentine UD** has a high opacity and fluorescence calibrated to the natural tooth.

**Intensive White** is used for further characterization of the enamel.

**Opalescent Enamel:** natural blue OBN is a highly translucent body which reproduces internal natural opalescence when inserted between mamelons. OA Amber reproduces incisal characterizations.

••• DENTINE, INTENSIVE, OPALESCENT, FUNCTION COMPOSITION  
MICROHYBRID

RESIN MATRIX: Diurethandimethacrylate; Iso-propyliden-bis[2(3)-hydroxy-3(2)-(4-phenoxy) propyl]-bis(methacrylat) (Bis GMA); 1,4 Butandiol dimethacrylate.

CONTENT OF FILLER:

75% weight (53% volume)

Glass filler: mean particle size 0.7 µm

Highly dispersed silicone dioxide: mean particle size 0.04 µm

••• TEMP COMPOSITION

The liquids contain Methyl-methacrylate which is irritating and highly flammable. Do not inhale the vapours. It can irritate eyes and skin.

••• TEMP PHYSICAL CHARACTERISTICS

|                        |              |
|------------------------|--------------|
| Flexural strength:     | 75 N/mm²     |
| Vickers hardness:      | 140 MPa      |
| Modulus of elasticity: | 2300 N/mm²   |
| Water absorption:      | 21,2 µg./mm³ |
| Monomer residual:      | 0,8%         |

## A. PRODUCTS

### UNIVERSAL ENAMEL FOR ANTERIORS

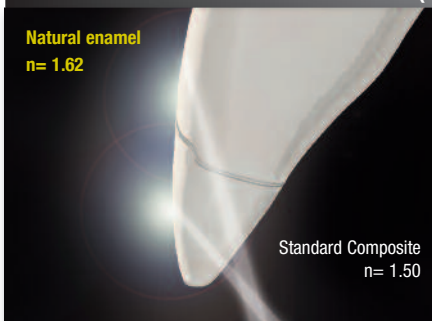
Using thickness similar to natural enamel, we obtain same effects of natural tooth that increase in value while we increase the thickness. With direct light the opalescence blue effect is put in evidence, while with diffused light we can observe the amber effects: in the pictures below we can clearly notice the difference in translucency when the thickness is changing.

UNIVERSAL ENAMEL HRi **UE1** - low value in thin layer with amber effects, increasing thickness value increases

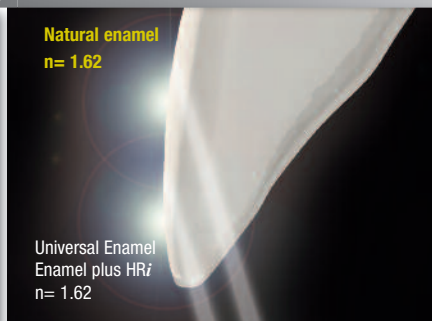
UNIVERSAL ENAMEL HRi **UE2** - medium value increasing thickness it becomes high value

UNIVERSAL ENAMEL HRi **UE3** - high value very white to be used for extremely white or bleached teeth

#### RELATIVE REFRACTIVE INDEX OF LIGHT (N)



"Glass Effect" lowers the value of the restoration with a grey halo on the margin (dark line), due to low refractive index of composite material



Invisible margins, in an HRi restoration (same refractive index as natural tooth), using the same thickness as the natural enamel

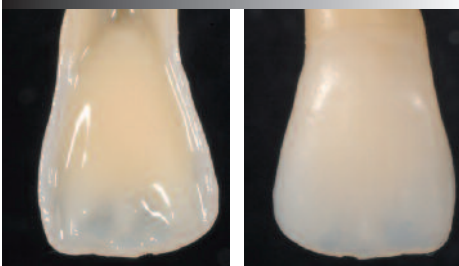
|                       |             |
|-----------------------|-------------|
| Air                   | 1,00        |
| Water                 | 1,33        |
| Porcelain-Enamel      | 1,50        |
| Composite-Enamel      | 1,51        |
| Glass                 | 1,52        |
| <b>Natural Enamel</b> | <b>1,62</b> |
| <b>Enamel HRi UE</b>  | <b>1,62</b> |

The relative refractive index of common materials measured at a temperature of 20°C / 68°F and with a 589 nm wavelength light indicates the deviation and speed reduction of the light that crosses a translucent area

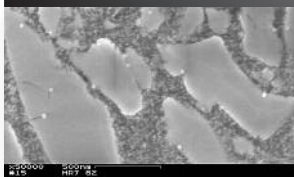
#### HRi VESTIBULAR VENEERS SAME EFFECTS OF NATURAL ENAMEL



#### DENTINE & OPALESCENT ENAMEL



#### NANOTECHNOLOGY REM



##### UNIVERSAL ENAMEL COMPOSITION

RESIN MATRIX: Diurethandimetacrilate; Iso-propyliden-bis[2(3)-hydroxy-3(2)-(4-phenoxy) propyl]-bis(methacrylate) (Bis GMA); 1,4 Butandiol dimethacrylate.

CONTENT OF FILLER: 80% weight. New high refraction index glass filler (68% by weight): mean particle size 1,0 µm. Nano zirconium oxide particles, specially silanized in order to increase refraction index of resin (12% by weight): medium particle size 20nm.

### ENAMEL FUNCTION FOR POSTERIOR

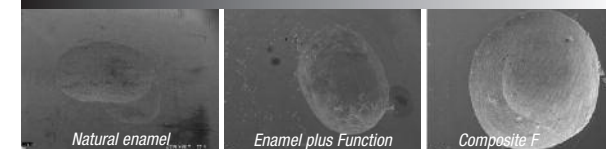
#### The only one with an abrasion similar to natural enamel

Studies made by the University of Chieti show that the abrasion of the Function enamels is 50% lower than the abrasion of the Universal enamels and lower than any other composite on the market.

##### FUNCTION PHYSICAL DATA

|                        |            |
|------------------------|------------|
| Vickers Hardness:      | 760 MPa    |
| Flexural Strength:     | 150 MPa    |
| Modulus of elasticity: | 11.500 MPa |
| Compressive Strength:  | 460 MPa    |

#### WEAR

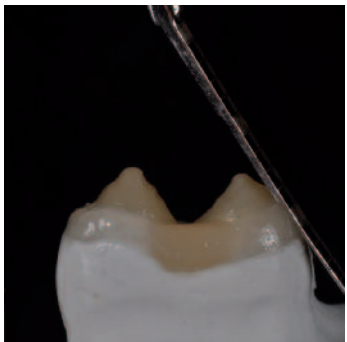
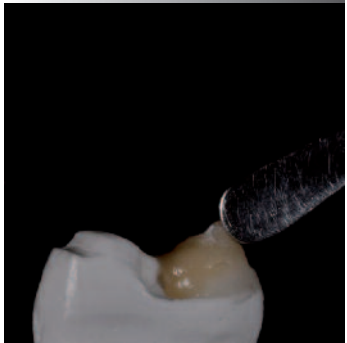


| Wear after 120.000 cycles with chewing machine vs zirconia (University of Chieti - Prof. C. D'Arcangelo) | Depth (mm)   | Volume (mm <sup>3</sup> ) |
|--|--------------|---------------------------|
| Enamel plus HRi UE2 Light Cured with LED   | 0.485        | 1.452                     |
| Composite F* (enamel) Light Cured with LED   | 0.464        | 0.972                     |
| <b>Enamel plus HRi Function EF3</b> Light Cured with LED   | <b>0.335</b> | <b>0.529</b>              |
| Enamel plus HRi UE2 Light Cured with Laborlux3**   | 0.463        | 1.016                     |
| Composite F* (enamel) Light Cured with Laborlux3**   | 0.459        | 1.017                     |
| <b>Enamel plus HRi Function EF3</b> Light Cured with Laborlux3**   | <b>0.276</b> | <b>0.464</b>              |
| Gold type III  | 0.219        | 0.328                     |
| <b>Human enamel</b>  | <b>0.216</b> | <b>0.404</b>              |

\* reference composite chosen after identified as the best among the ones tested during the preliminary phase

\*\* laboratory light curing unit with heat (70°-80°C/158°-176°F)

APPLYING AND MEASURING



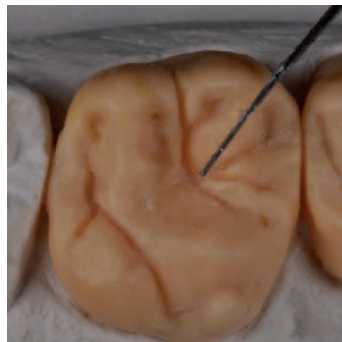
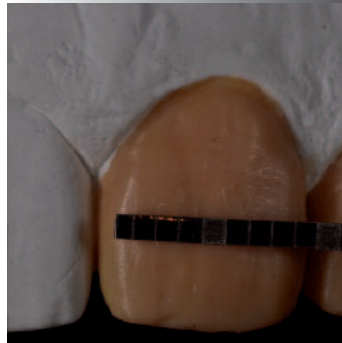
Composite application with TDR3 and TDR4 spatula. Enamel thickness measuring (0,5 mm) with central part of TDR5 probe.

CALIBRATING



Enamel thickness checking with TDR5 probe: 0,3 mm. cervical, 0,5 mm. medium, 0,8 mm. incisal.

CALCULATING



Calculating of horizontal and vertical dimensions of anteriors and checking of crest direction in posteriors with TDR5 probe.

MODELLING



Push the composite with the TDR3 instrument, stretch the composite with the brush M, characterize with the tip of the TDR3 and TDR4 instruments, suitable for modelling too.

INSTRUMENTS



## C. DIRECTIONS FOR USE

### PREPARATION OF METAL FRAMEWORK

The crown or bridge framework should be waxed-out using standard techniques and provided with retainers. Ensure that the frame-work/facing junctures are shaped in the form of a deep chamfer and preferably add retentions: apply "Temp Chips" adhesive and apply immediately "Temp Chips" retentions, Micro in occlusal areas, and Standard in vestibular areas; let it dry for 1-2 minutes. Once the framework has been trimmed and finished, sandblast the surfaces to receive the facings using 50 micron aluminium oxide, and clean them with steam or pure acetone.



### TENDER BOND METAL PRIMER

A thin layer of Tender Bond is applied with a brush immediately after cleaning and allowed to dry for approx. 1 min. A second layer can be applied if required. Useful tips: the surfaces of the framework should be cleaned of any grease and polish residue.



### TENDER PASTE OPAQUE

Tender paste opaque is applied in a very thin layer with a stiff, short-haired brush. Incomplete opaque coverage negatively affects the shade. At least two coats are required to ensure complete coverage. The flow of the opaque is improved by mixing it on a mixing pad. The paste should be applied especially thinly to retention areas. Each layer is polymerised separately: LABORLUX3: 3 min, LAMPADAPLUST: 4 min. We suggest to apply the paste Clear as first layer and the paste Light as second layer to guarantee an optimal curing. N.B. Useful tips: the opaque should only be applied in very thin layers. If the opaque layer is applied too thick, it prevents optimum polymerization and weakens the bond. *See page 12.*



### COMPOSITE APPLICATION

Take composite out from the syringes and apply it, using Tender Bodies for total covering of Opaque (*see page 3*) and then Dentines and Enamels. Note: apply very small quantities of material pulling down with a brush in order to avoid any bubbles (Enamel plus "M" brush for anteriors and "F" for posteriors). Use a "waves" application technique in order to allow a better light diffusion effect. The thickness of each layer should be between 1.0 - 1.5 mm.

Oxygen leaves a thin layer of uncured composite: this layer should not be contaminated or wet because it creates a chemical connection between the different layers of composite. We advise to apply an Air Block (Shiny G), when restoration is finished and before the final light curing. This glycerine-based product eliminates the oxygen and allows a complete curing of the surface. For inlay build up first the external walls and then the occlusal areas. It is possible to use composite stains between dentine and enamel.



### CURING

Working time under standard light is approximately 3 minutes. During long-lasting build up cover the composite with an opaque foil or use black cover of the colour palette COSSTAIN01. Note: Each layer should not be thicker than 2 mm and should be cured for 90 seconds (LABORLUX3). Thin layers can be cured with a dentist LED or halogen light curing unit for 20-30 sec. Go on with final curing of 6 minutes in power light curing like LABORLUX3.

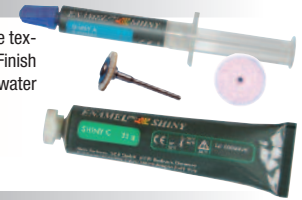
**COMPLETE SHADE CURING:** If the composite shows an increased yellow value due to the uncured catalyst, we advise to cure again for 5 minutes in LABORLUX3 using an Air Block (Shiny G).



### Enamel plus Aesthetic System

### FINISHING AND POLISHING

Use diamond burs and diamond pastes. Do not use any disc buccally in order to avoid destroying the texture surface. We suggest using the complete finishing and polishing system Enamel plus SHINY. Finish with burs and polish with Enamel plus SHINY brushes and diamond pastes. Wash with soap and water and dry with oil-free air spray. Note: use an aspirator during finishing procedure. *See page 15.*



### ADJUSTMENT

Roughen the facings up to 2 mm around the margin of the area to be corrected or repaired, brush Temp Bonding Fluid on the surface and light cure it for about 90 sec. in LABORLUX3. If the cured layer looks whitish, it has been polymerised excessively and must be removed. Repeat the above mentioned procedure, but reduce the curing time. Then Enamel plus material should be applied and cured as indicated before.

*See page 16.*



### PRESSING SYSTEM FOR LIGHT CURING COMPOSITE

The Tender Flask System\* allows the reproduction in light curing resin of crown & bridge and aesthetic sections of partials, implant prosthesis through a very simple technique, reducing considerably the working time (up to 70%) This system requires two silicones (*See also pages 10,17*):

- TEMP-SILIC PUTTY, 90 shore putty hardness silicone, for the base
- TEMP-SILIC CLEAR, 50 shore transparent silicone in self-mixing cartridge, for the mould

The wax-up is perfectly reproduced with all details, respecting shape and function, thanks to the transparent silicone mould.

*\*Flask patented by Davide Scalavino (European Patent. No. 1 108 399)*

*Tender Tray-Flask Magnetic system patented by Alberto Bianchetto (European Patent. No. 1 736 114)*



### INLAYS, ONLAYS AND VENEERS

Follow same indications suggested for dentine and enamel bodies (*see pages 8-9*). Sometimes it is useful to introduce more opaque Tender bodies internally.



### ENAMEL PLUS TEMP - FLUORESCENT TEMPORARY RESIN

The special opacity of the dentine and the translucency of the enamel accentuate the natural contrast between the two elements. Also, the enamel body facilitates a natural glaze in the final temporary crown, cosmetically similar to the permanent ceramic restoration.

Indirect method in laboratory (*see page 18*): diagnostic wax up or vacuum formed matrix.

Direct method in the mouth: silicone impression or preformed crown.

Mixing ratio: 2:1 (powder:liq). Mixing time: approx. 2 min.

Cold curing: Application: approx 6 min. on the model (in mouth 3,5 min. Over time could damage pulp).

Elastic phase: approx. 1,5 min. Setting: approx. 2 min. **Note: Enamel plus Temp can be left to set in the mouth or on the bench (rest of monomer below 0,8%). We suggest 3 min. at 2-3 bars in warm water.**

Hot curing: Working time: 4 min.

Application: approx 9 min. on the model.

Curing time: 20 min. at 95°C / 203°F with 2-3 bars.

Flask: Working time: 20 min.

Curing time: 30 min. at 100°C / 212°F under pressure in flask.

Light curing: Working time: 3-5 min.

Curing time: in very thin layer 3 min. in halogen light curing unit (or 4 times 40 sec.)

technical features

- biocompatible, non toxic, non allergic, resistant
- high precision of fit, easy to repair - creamy consistency, no bubbles, with a rubbery-elastic consistency
- cadmium-free, no tertiary amines and no discolouration



"Temp" discs  
for CAD/CAM

**LABORATORY INDICATIONS**

Inlays, Onlays, jacket crowns. Crown and bridges where an easy adjustment is required. Adhesive bridges, implant appliances, veneers, long term temporaries, telescopic crowns, perio-overdenture, characterization of acrylic teeth.

**CONTRA-INDICATIONS**

Uncured resin could cause skin allergy. User should wear gloves. In case of known allergy to some of the components do not use it.

**TROUBLE SHOOTING GUIDE**

- **OPAQUE CURING.** All remains of grease and polish must be cleaned off the surface of the framework. The opaques must be mixed thoroughly. It is better to apply two thin coats of opaque. Each coat must be cured separately.
- **COMPOSITE.** Wax-up the framework properly. Avoid pre-contacts. Apply the individual materials in the correct thickness and cure for the correct periods. Add retention beads. Do not apply too much primer. Once the primer has dried in air for 2 minutes, apply the opaque without further delay.
- **BUBBLES.** Rotate the plunger to extrude the paste out of the syringe and scrape it off - do not use an instrument to remove the paste from the syringe. Apply sufficient material for the facing and spread it. Do not mix composite material, rather apply coats on top of each other.
- **DISCOLOURATION AND PLAQUE.** Check the luminous power of the light curing units. Polish the surface thoroughly to seal it. Ensure that the restorations are positioned correctly in the light curing units. Apply the composite material in the correct thickness and adhere to the polymerization times.
- **INFORMATION ON HRi UNIVERSAL ENAMEL.** Do not wet Universal Enamel with any resin or bonding because it will cause the composite to become too opaque.

**CURING INFORMATION**

Each layer should not be thicker than 2 mm. It is necessary to use a light curing unit with spectrum of 310-500 nm. The required physical results can be reached only if using a multi-wall reflecting unit. For this reason we suggest a periodical check of the light intensity following the manufacturer's instructions.

**USE AND STORAGE**

Do not store above 25°C / 77°F (Temp and Shiny 30°C / 86°F). Do not use the product after the expiration date (see label on syringe). Use the material at room temperature. Medical device, for dental use only: keep away from children. Turn back the spindle after taking out the material, to avoid sticking of the material. After use, close container with cap and keep it closed. Avoid direct exposure to sunlight. If the material is not completely cured, it may discolour, mechanical properties deteriorate and pulpal inflammation can occur. This product was developed specifically for the range of indications described. It must be used as described in the instructions. The manufacturer is not liable for damages due to incorrect handling or application.

**COLOUR CHART**

| COLOUR       | OPAQUE      | TENDER         |                  |          | HRi |  |
|--------------|-------------|----------------|------------------|----------|-----|--|
|              |             | OPAQUE DENTINE | DENTINE          | ENAMEL** |     |  |
| Bleaching    | clear+light | T2 (+TW)       | UD0 (+UD0,5+UD1) | UE3      |     |  |
| UD1 (A1)     | clear+light | T2 (+TW)       | UD1 (+UD2+UD3)   | UE3      |     |  |
| UD2 (A2)     | clear+light | T2 (+T3)       | UD2 (+UD3+UD4)   | UE2      |     |  |
| UD3 (A3)     | clear+light | T3 (+T5)       | UD3 (+UD4+UD5)   | UE2      |     |  |
| UD3,5 (A3,5) | clear+dark* | T3,5 (+T5)     | UD3,5 (+UD4+UD6) | UE1      |     |  |
| UD4 (A4)     | clear+dark* | T4 (+T5)       | UD4 (+UD5+UD6)   | UE1      |     |  |

**ALSO AVAILABLE ON REQUEST**

|    |             |    |    |     |
|----|-------------|----|----|-----|
| B1 | clear+light | T2 | B1 | UE3 |
| B2 | clear+light | T2 | B2 | UE3 |
| B3 | clear+light | T3 | B3 | UE2 |
| B4 | clear+dark* | T3 | B4 | UE1 |
| C2 | clear+light | T2 | C2 | UE1 |
| C3 | clear+light | T3 | C3 | UE1 |
| D3 | clear+light | T3 | D3 | UE1 |

\* Light can be used as universal opaque

\*\* Function Enamel can be used as alternative enamel on posterior

| Light curing unit           | Paste opaque                    | Tender intermediate curing | HRi in Tender Flask | HRi, Stain Flow Glass Connector intermed. curing* | HRi final curing + colour fixation |
|-----------------------------|---------------------------------|----------------------------|---------------------|---|------------------------------------|
| Laborlux3 (Micerium)        | 3 min.                          | 90 sec.                    | 5 min. 30 sec.      | 90 sec.   | 9+7 min. (6+5 min.***)             |
| DC-XS (Kulzer)              | 90 sec.                         | 30 sec.                    | 4 min. 30 sec.      | 30 sec.   | 720 sec. + 720 sec.                |
| UNI-XS (Kulzer)             | 90 sec.                         | 190 sec.                   | 5 min. 30 sec.      | 90 sec.   | 540 sec. + 540 sec.                |
| Spectramat (Ivoclar)        | 2 min.                          | 1 min.                     | 6 min.              | 1 min.  | 10 min. + 10 min.                  |
| Spectra Led (Schütz Dental) | 30 sec.                         | 30 sec.                    | 8 min.              | 30 sec.   | 3 min.                             |
| Triad II** (Dentsply)       | 5 min.                          | 1 min.                     | 6 min.              | 1 min.  | 7 min. + 7 min                     |
| Lablight LV-II (GC)         | 1 min.                          | 1 min.                     | 5 min.              | 1 min.  | 9 min. + 9 min.                    |
| Solidlite EX (Shofu)        | 1 min.                          | 90 sec.                    | 5 min. 30 sec.      | 90 sec.   | 9 min. + 9 min.                    |
| Licu Lite (Dentsply)        | 3 min.                          | 1 min.                     | 6 min.              | 1 min.  | 4 min. + 4 min.                    |
| MPA 2000 (Dentsply)         | 1 x HD                          | 90 sec.                    | 5 min. 30 sec.      | 90 sec.   | 1 x HD                             |
| Targis Power (Ivoclar)      | 2 min.                          | 60 sec.                    | 6 min.              | 60 sec.   | 6 min. + 5 min.                    |
| LampadaPlusT (Micerium)     | 4 min. A2-A3<br>25 min. A3,5-A4 | 10 min.                    | 11 min.             | 10 min.   | 30 min.                            |

\* Dentist halogen or LED light curing unit for inlays: 20-30 sec. each layer

\*\*Turning table" in the upper position (maximum)!  
\*\*\* New model with two additional fluorescent bulbs



# ANATOMIC STRATIFICATION 1A. LAMINATE VENEERS

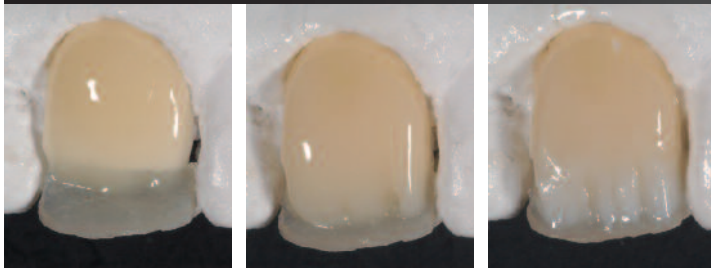
## PREPARATION



Supragingival preparation and anatomic reduction of the dental tooth by 0.7 – 1 mm is required. Trim the closing margins on the plaster model and highlight them using a 0,5 mm wax pencil, seal the die with Temp Seal and apply (1 mm from the margin) the dentine colour spacer. Then apply Temp Seal and Temp Sep on the area beside the die.



## INCISAL STRATIFICATION



Once the shape for reconstruction has been set in wax, prepare a silicone stent to construct the lingual incisal margin using HRi Universal Enamel. Apply UD3 dentine in the cervical area; go on with stratification using dentine UD2, and reproduce the mamelons with UD0.



Light cure in Laborlux3 for 1 min. & 30 sec.

## VESTIBULAR STRATIFICATION

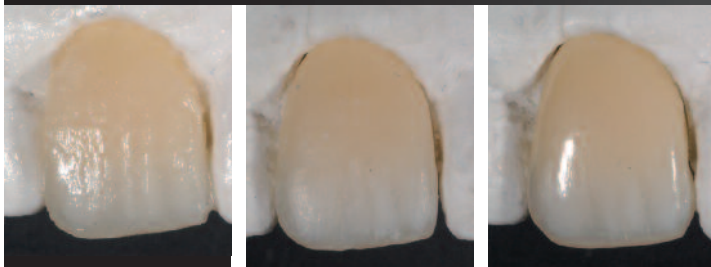


Rubber tips Kit TPENS

Characterize the mamelons with IWS intensive. It's possible to reinforce the opalescent effect applying OBN inserts in the incisal area. Check the peripheral volumes for HRi Universal Enamel (0,5 mm), chosen on the basis of the value of the tooth.



## FINAL CURING, FINISHING AND POLISHING



Apply UE2 HRi Universal Enamel. Finish the veneer using mounted stones and polish using the Shiny system. Remove the laminated veneers from the model and check the restoration on a complete model. Before cementation, sandblast the inside of the veneer applying a low pressure.

Final curing in Laborlux3 for 9 min.

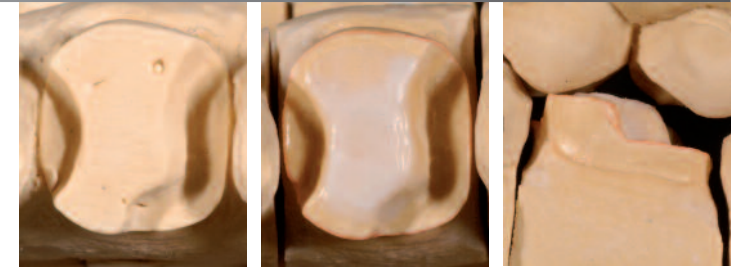
See page 15



Supragingival preparation is required over a width of at least 2 mm in the occlusal area and the closing limits must not correspond to the occlusal contacts. Prepare the model and remove both undercuts and interference in wax.

See page 8

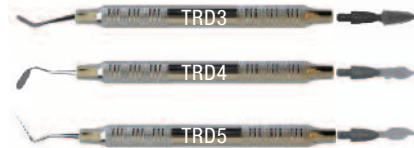
PREPARATION



Build-up the restoration walls using Function Enamel; in the deeper area use Tender TMO (Orange) or T4.

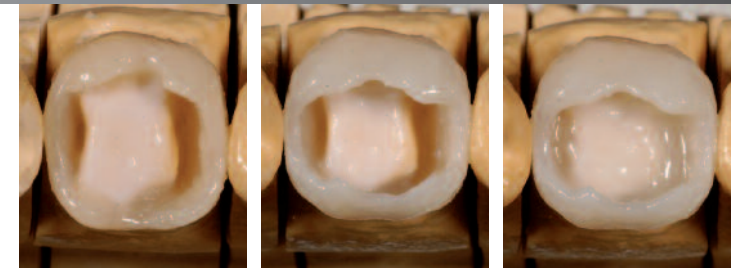


Light cure in Laborlux3 for 1 min. & 30 sec.



Composite Instrument Kit TDRK1

PERIPHERAL STRATIFICATION



Finish the build up of the internal nucleus with HRi Dentine of the chosen shade. Complete the morphology with IWS and Function Enamel. Brown 2 Stain (dark brown), available in flow composite or acrylic, can be introduced in the sulcus.



Light cure in Laborlux3 for 1 min. & 30 sec.



INTERNAL STRATIFICATION



Finish and polish using Enamel plus Shiny system: only perfectly polymerised and polished composite surfaces are resistant to staining and to the accumulation of plaque. Remove the inlay and, after checking it on the complete model, sandblast the inside before sending it for cementing.

FINAL CURING, FINISHING AND POLISHING



See page 15

## INVERSE HARDNESS TECHNIQUE 2A. PRESSING TECHNIQUE WITH FLASK

### STRUCTURE BUILD UP



It is possible to use the flasking technique to create the aesthetic composite on an implant prosthesis, saving more than 50% of working time, as in this case of removable implant prosthesis. Temp Red resin pattern is applied to fix the abutment replicas and with Enamel plus Temp resin the framework is manufactured and transformed in milled titanium with CAD-CAM system.

### FINAL WAX-UP ON TITANIUM STRUCTURE



On titanium frame work the final aesthetic wax-up is created.



### FLASKING



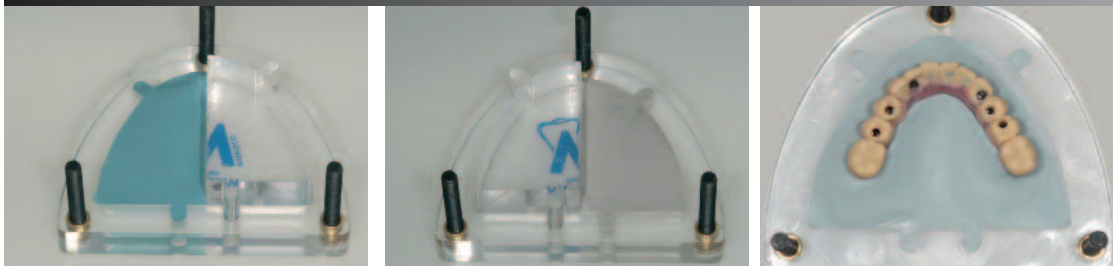
Abutment replicas are screwed onto the frame work to stabilize the frame in the flask. Mix Temp Silic paste A and B and add the retarding (see picture below).

It is possible to place in the flask base an insert to reduce the amount of silicone needed.

*As an alternative Tender Flask Magnetic can be used, which allows the insertion of the model into the flask*



### FLASKING



Apply the silicone in the Tender Flask base and around the teeth, before placing them on the base. When the silicone is hard, remove the model and eliminate the silicone excess and interferences. Isolate with silicone spray and replace the model in the silicone base.



Working time 1-2 min. Setting 2-3 min Mixing ratio 5:5 + 5 retarding drop

Apply Temp Silic Clear silicone on the wax elements and in the flask cover and close the flask. Let the silicone harden 15-20 minutes on the bench, or 10 minutes under pressure at 2 atm (dry and cold setting). After setting, open the Tender Flask, check the mould and remove the material in excess.

Working time 5 min.



1<sup>ST</sup> TRANSPARENT SILICONE MOULD FOR ENAMEL

Remove the transparent silicone from the cover flask. Reduce the wax elements to create the enamel space and use the silicone stent to control the dimensions.



INCISAL CUTS

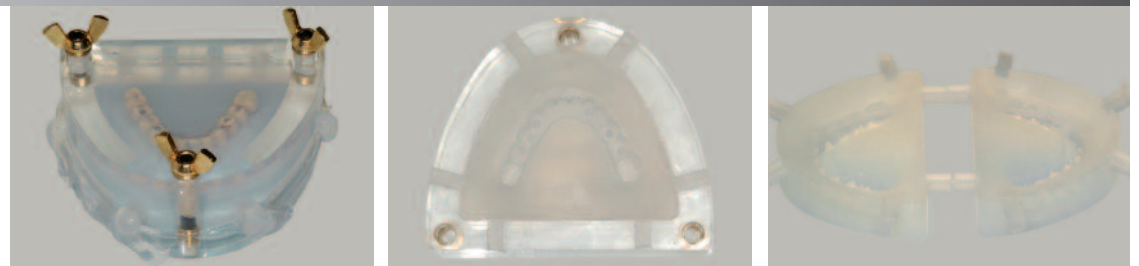
Apply Temp Silic Clear silicone on the wax elements and in the flask cover and close the flask.

Working time 5 min. Setting 15-20 min



2<sup>ND</sup> TRANSPARENT SILICONE MOULD FOR DENTINE

After setting, open the Tender Flask and remove the material in excess. Remove the model. Now we have two moulds available, the first one for pressing dentine and the second one for enamel.



FLASK OPENING

# INVERSE HARDNESS TECHNIQUE 2A. PRESSING TECHNIQUE WITH FLASK

## SANDBLASTING AND TENDER PRIMER APPLICATION



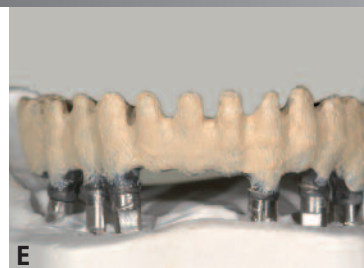
**A.** Remove the wax and mechanically prepare the metal. Sandblast with 50 µm aluminium oxide.

**B.** Apply Tender Bond Metal Primer and let dry for 1 min., checking that the liquid is completely evaporated from the metal surface and apply again if necessary.

*If gold or cobalt-chrome alloys are used, the application of retentions (Temp Chips Retention) is advised to facilitate composite adhesion, after stretching a layer of adhesive (Temp Chips Adhesive).*

*Let it dry for 1 min.*

## OPAQUE APPLICATION



**C.** Apply a very thin layer (“wash”) of Clear opaque with a brush and cure it.

**D.** Apply a second thin layer of Light opaque and cure it.

**E.** Apply further Light opaque layers till the structure is completely covered.



*Light cure each layer in Laborlux3 for 3 min.*

## STRATIFICATION OF TENDER BODIES



**F - G.** Apply cervical, modifier and dentine Tender bodies and, after checking with the silicone stent the left space, cure.

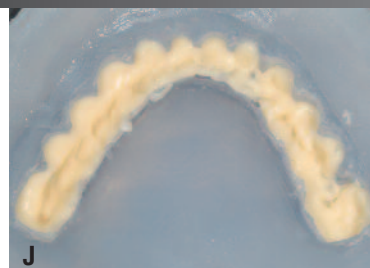
**H.** Using a ball bar, create some grooves on the silicone base to allow the composite to flow.



*Light cure in Laborlux3 for 1 min. & 30 sec.*

*See page 3*

## PRESSING OF HRi DENTINE



Ref. CHC3

**I.** Close the accesses for the screw holes with temporary composite Ena Soft, easy to remove, and cure it for 20 sec.

**J.** Place the dentine HRi body in the composite heater EnaHeat that allow to obtain a flowable consistency of the composite needed for the pressing phase. Apply the dentine in the transparent silicone mould for dentine.



Close the flask and leave it to sit for about 8 min. in a curing chamber at 40°C / 104°F without pressure. Light cure in Laborlux3. Open the flask and remove composite excess.



CURING

Light cure in Laborlux3 for 5 min. & 30 sec.

Finish the incisal cuts and apply on the composite surface the liquid Temp Bonding Fluid (Ref. TEMPF) and cure it. Apply eventual opalescent, intensive and characterization bodies and cure it.



CREATING OPALESCENT, INTENSIVE AND CHARACTERIZATION

Light cure in Laborlux3 for 1 min. & 30 sec.

Apply Enamel plus HRi enamel (Universal for anteriors, Function for posteriors) in the silicone mould for enamel. Close the flask and leave it to sit for about 8 min. in a curing chamber at 40°C / 104°F without pressure. Light cure in Laborlux3. Open the flask and make the final curing 9 min in Laborlux3.



PRESSING OF HRi UNIVERSAL ENAMEL (OR FUNCTION ENAMEL)

Light cure in Laborlux3 for 5 min. & 30 sec.

After the pressing phases, place the restoration on the model. Apply Tender Pink opaque on the exposed metal. Light cure in Laborlux3 for 3 minutes.



PINK OPAQUE APPLICATION

Pink Orange Flow available separately

Tender Pink Kit

INVERSE HARDNESS TECHNIQUE 2B. FLANGES IN COMPOSITE

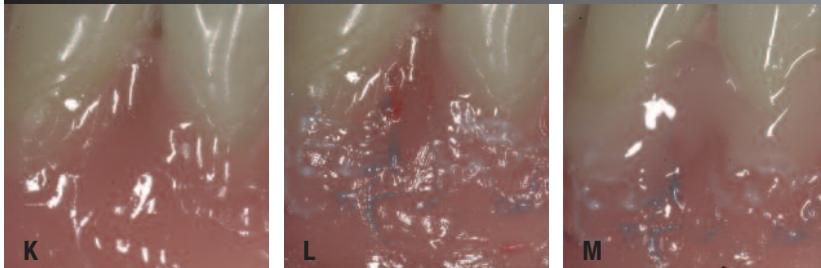
STRATIFICATION OF PINK TENDER BODIES



Apply Tender Pink composite bodies to create the gum. In case of big volumes, apply first Pink Flow body. See the below phases of composite characterization that can be followed also for resin gum.



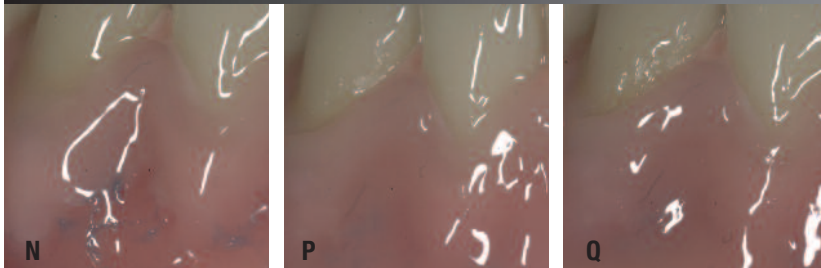
REMOVABLE PROSTHESIS CHARACTERIZATION



- K.** Apply a layer of Tender Bonding Fluid and cure it.
- L.** Apply Ena Tender Stain white (increases the opacity and shade of ischemic papilla or in bone prominence area), red (increases the chromaticity of pink composite, simulating veins) and blue (increases effects in foramen and small veins).
- M.** Apply Tender Pink Transparent body (reproduces the cervical area where the gum covers the tooth and not the bone).

*Light cure each layer in Laborlux3 for 1 min. & 30 sec.*

REMOVABLE PROSTHESIS CHARACTERIZATION



- N.** Apply Tender bodies: Pink Light reproduces the area over the tooth root where the gum is tight and transparent.
- P.** Pink Dark reproduces the less tight and less adherent to the bone gum, highly blood supplied with a red blue shade in the area of the foramen.
- Q.** Pink Orange, used as fist layer or combined with White Stain, reproduces the typical colour of bone prominence of natural flanges.

*Light cure each layer in Laborlux3 for 1 min. & 30 sec.*

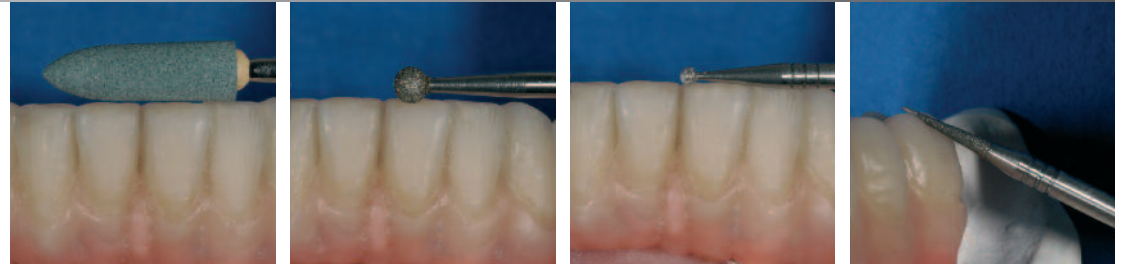
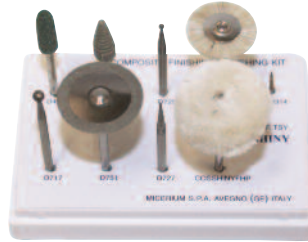
STRATIFICATION OF TENDER PINK BODIES



Composite gum details.

Use a green carborundum bur (D4049) for incisal edge finishing. Use a diamond round big bur (D717), then a diamond round small bur (D725), and after a diamond flame bur (D727).

TSY Finishing Kit



FINISHING

Use for occlusal areas a diamond flame bur (D727) and a titanium nitride bur (D2304). Use for interproximal area a diamond disc (D751) and paper cone for last finishing (COSSHINYCON).



FINISHING

Use 3 micron diamond paste Shiny A, 1 micron Shiny B and aluminium oxide paste Shiny C for polishing with a hair goat brush (Shiny S-HP). Polish with cotton felt wheel (Shiny F-HP).



POLISHING

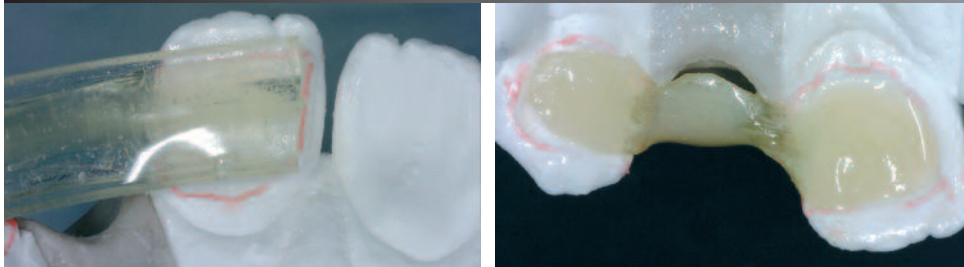
The finished case shows the natural effects of dental elements and gingival tissues.



FINISHED CASE

3A. COMPOSITE ON FIBRE 3B. REPAIR AND AESTHETIC CORRECTION

TEMPORARY REINFORCED WITH FIBRE: FIBRE APPLICATION



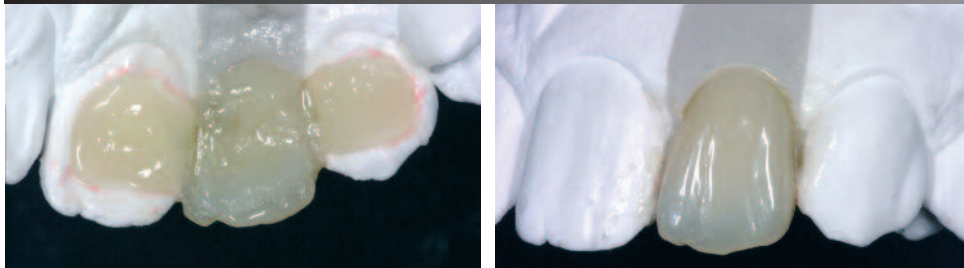
Light cure for 20 sec.



3A

In the case of transitional prosthesis or lengthy temporary treatment, in individual cases it is possible to use Enamel plus directly on composite impregnated glassfibres. After preparing the plaster model, adapt the fibres and fix using Enamel plus Flow.

TEMPORARY REINFORCED WITH FIBRE: COMPOSITE STRATIFICATION



Stratify and complete the morphology using Enamel Plus HRi dentine and enamel. After polishing and removing the element from the model, sandblast the inside parts of the fibre veneers. Before cementing it is advisable to reactivate the fibre surfaces using an adhesive resin.

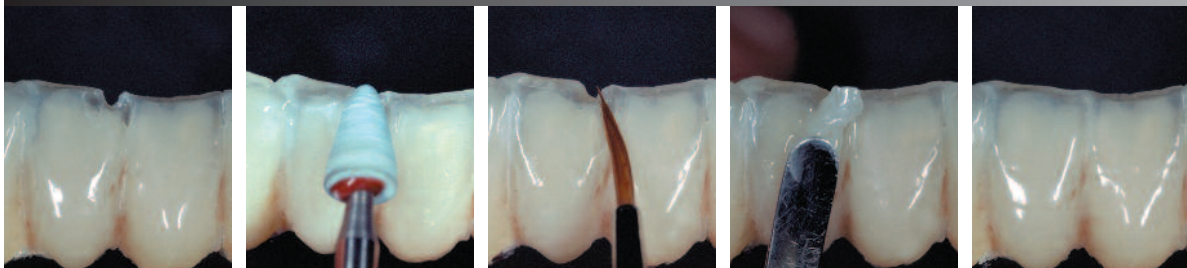
See page 8

TEMPORARY ON IMPLANTS REINFORCED WITH FIBRE



Composite temporary with fibres can be pressed in Tender Flask, creating an ideal temporary also in case of immediate load implant. Use Enamel plus Flow dentine to fix the fibres and Enamel plus Flow Pink to create the main volumes of gingival tissues.

REPAIR / AESTHETIC CORRECTIONS IN COMPOSITE



3B

Roughen up the surface of the composite using a diamond tipped rotary or dome-headed bur, and smooth again by sandblasting. Soak the surface to be repaired by applying Temp Bonding Fluid using a paintbrush. Complete shaping, using Dentine body and HRi Universal Enamel. After finishing and final polishing the work will be completely restored.

See page 8



**3C**

Using composite, an old removable prosthesis can be renewed, or a new one can be customized, thus improving both aesthetics and wear resistance that will become close to the one of natural enamel. Fix the prosthesis in the flask base with TEMP SILIC PUTTY, and then prepare the mould in transparent silicone.

See pages 10-13

PROSTHESIS WITH STANDARD TEETH



CUTTING THE ENAMEL: ADDING STAINS AND OPALESCENTS

The enamel on the involved teeth must be reduced using a carbide bur and a diamond disc. Sandblast and apply Temp Bonding Fluid. Customize the elements using Stain intensive colours and OBN and OA opalescent bodies.

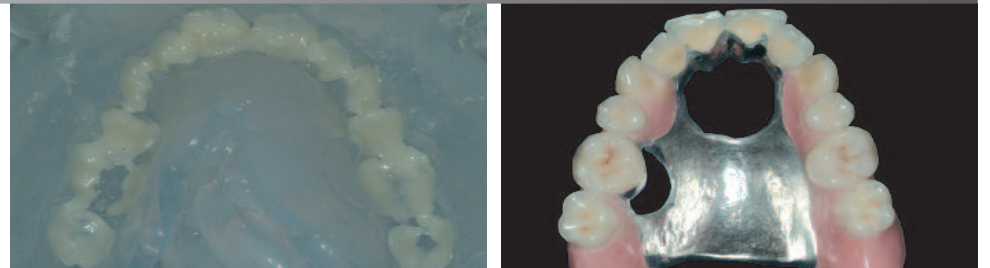
Light cure in Laborlux3 for 1 min. & 30 sec.



PRESSING USING FUNCTION ENAMEL (OR UNIVERSAL ENAMEL)

Press the enamel chosen for the total tooth covering into the silicone mould, close the flask and light-cure. Open the flask, make final light-curing, finish and polish with Enamel Plus Shiny. You will improve aesthetics and resistance, considering the mechanical properties of HRi Function Enamel for posteriors or the aesthetic properties of HRi Universal Enamel for anteriors.

Final curing in Laborlux3 for 9 min.



**3D**

Apply Tender Pink Paste Opaque on the metal and light cure it. Create the flanges with Enamel plus Temp Pink. It is possible to enhance the front teeth in composite creating the papilla in Tender pink, after applying Temp Bonding Fluid. If used on a ceramic tooth, create adhesion with Tender Bond & Paste Opaque Clear.

See page 18

Light cure in Laborlux3 for 1 min. & 30 sec.

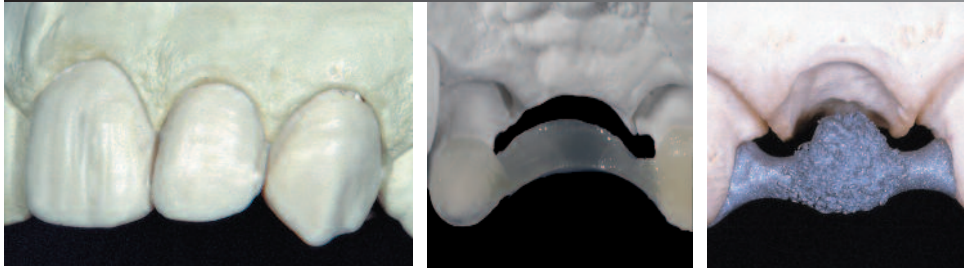


APPLYING PINK OPAQUE AND RESIN ON PARTIAL



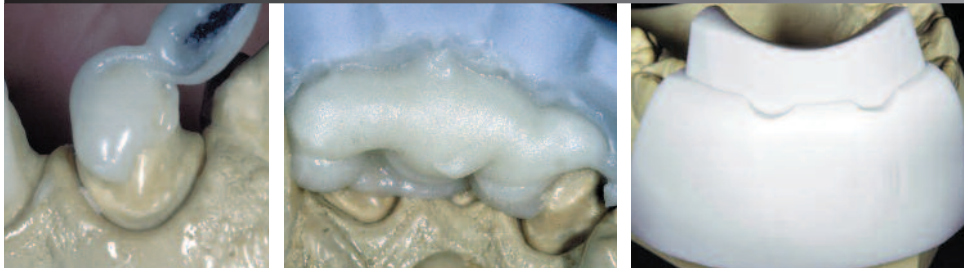
## 4A. ENAMEL PLUS TEMP TEMPORARY RESIN

### DIAGNOSTIC WAX-UP AND TYPE OF TEMPORARY



Since it forms the functional and aesthetic basis for the metal-ceramic fabrication, the temporary prosthesis requires a complete wax analysis in order to determine the shape. The choice of a temporary prosthesis in simple resin, or reinforced by an aesthetic structure in fibre or metal (in combination with Temp opaque and light curing liquid), depends on the treatment period and the size of the intermediate elements.

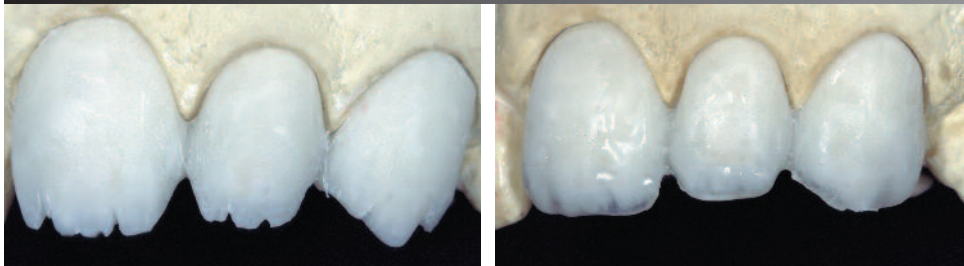
### INCISAL CUTS



Prepare the silicone stents; apply the separator, mix Enamel Plus Temp powder of the required colour with liquid and, during its plastic phase, apply a part to the model and a part into the vestibular stent that has to be placed on the model later. Press the remaining resin with the palatal stent.

*Use Temp Light or Dark Opaque to mask the abutment in temporary on implants.*

### INCISAL CUTS, APPLICATION OF TRANSPARENT ENAMEL AND MODIFIER

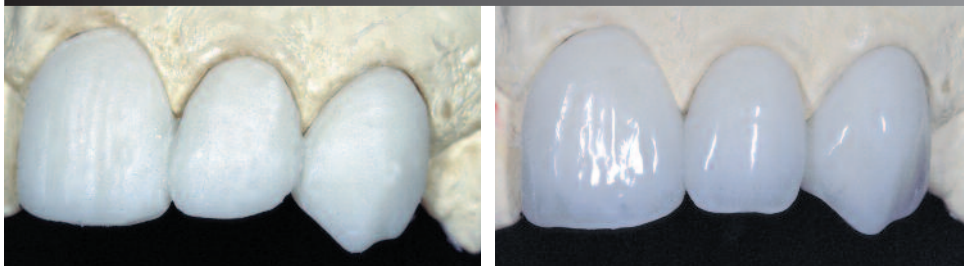


Make cuts in the dentine to create the space for the enamel. After moistening the surface with Temp liquid apply one layer of Transparent or Blue Temp Enamel and Orange or Yellow Modifier, using TEMPLC light curing liquid. It is possible to characterize temporary with Ena Tender Stain.

*Light curing for 3 min.*

*See page 19*

### APPLICATION OF ENAMEL, FINISHING AND POLISHING



Mix enamel with one of the three available liquids: hot or cold curing with stent, or hot curing in flask. Press the enamel. Once polymerization has been completed, use light abrasive points and smooth with pumice paste. Use soft felt wheels for final polishing, along with TEMPPOL liquid or TEMP99 stick.



*Curing in polymerization unit at 4 bars at 40°C/104°F (TempL), at 90°C/194°F (TempLH) or in flask at 100°C/212°F (TempLPress)*

We can use composite instead of resin enamel for long term temporary in order to improve aesthetics and wear resistance.

Press Enamel plus Temp dentine using silicone stents. Go on with incisal cuts.

Activate the composite surface of the resin with Temp Bonding Fluid (Ref. TEMPF).

*Light cure in Laborlux3 for 1 min. & 30 sec.*

PRESSING DENTINE AND INCISAL CUTS



In order to reproduce the tooth natural appearance for a temporary prosthesis (an important step also in definitive metal-ceramic treatment), after making the dentine cuts, use Enamel plus Temp Stain (Khaki, Orange and Brown for chromatic variations, White, Brown 2 and Blue for intensives and characterizations) or Stain Flow in composite.

*Light cure in Laborlux3 for 1 min. & 30 sec.*

PREPARATION OF ENA TENDER STAIN



Apply the Enamel plus Stains directly to the Enamel Temp dentinal body (for instance Orange for canines, to increase the chroma and the cervical areas of the incisors; Blue to increase the incisal opalescent effect).

On the incisal cuts, apply the composite opalescent bodies OBN (blue) and OA (amber) and light cure them.

*Light cure in Laborlux3 for 1 min. & 30 sec.*

APPLICATION OF ENA TENDER STAIN



Apply HRi Universal Enamel composite (or Function Enamel for posteriors).

Finish and polish with Shiny system.

*See page 8*

*Final curing in Laborlux3 for 9 min.*

APPLICATION OF COMPOSITE ENAMEL





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