

# ENAMEL *plus* HRi®

## BIO FUNCTION

### (EN) ENGLISH

**Enamel Plus HRi Bio Function** is a light curing radiopaque composite for direct and indirect aesthetic restorations. It follows the standard ISO 4049. Bio Function is part of the Enamel plus HRi aesthetic restorative system and can be used in combination with the associated composite shades, e.g. intensive opalescent or universal enamels, when high aesthetic is required in complex aesthetic restorations.

**Bio Function composite** is subjected to low abrasion and high resistance to compression comparable to the natural enamel. Ideal for use in anterior and posterior, for both direct or indirect technique, and especially suited for prosthetic rehabilitation.

**Bio Function** is available in 3 enamel shades:

BF1 low value - BF2 medium value - BF3 high value.

Note: for posterior apply with a minimum thickness of 0,5 mm, in order to allow occlusal corrections without exposing the dentine.

**Bio Function** is available in 9 Dentine shades:

BD0 – BD0,5 (useful to restore very light or bleached teeth)

BD1 (A1\*)– BD2 (A2\*) – BD3 (A3\*) – BD3,5 (A3,5\*) – BD4 (A4\*)

BD5 – BD6 (ideal for posterior and for cervical areas in anterior)

\* colours of Vita® shade guide. Vita® is a registered trademark of Vita Zahnfabrik H. Rauter mbH & Co. KG, Bad Säckingen – D

**Composition of "Bio Function" Dentine and Enamel:** MONOMER MATRIX: Urethane dimethacrylate; Tricyclodecane dimethanol dimethacrylate. TOTAL CONTENT OF THE FILLERS: 74% by weight (60% by volume); particle size of highly dispersed silicone dioxide is 0,005-0,05 µm, glass fillers have a particle size of 0,2-3,0 µm.

#### Clinical indications

DIRECT TECHNIQUE

Class I (all cavities), Class II (small and medium cavities), Class III (all cavities), Class IV (all cavities), Class V (all cavities), Total and partial vestibular covering, Cosmetic corrections Complex restorations

INDIRECT TECHNIQUE

Inlays Class I (all cavities), Inlays Class II (all cavities), Inlays Class IV (all cavities), Onlays, Luting of translucent composite and ceramic restorations (thickness < 2 mm), Final layering of restorations on implants and combined denture prosthesis, Rehabilitations/Adjustments and characterization of acrylic teeth or temporary prosthesis Laminated veneers, Restoration of prosthetic cores

**Contra-indications:** In case of known allergy to some of the components do not use it.

**Hazard statement:** May cause an allergic skin reaction.

**Precautionary statements:** Wear protective gloves/protective clothing/eye protection/face protection. If skin irritation or rash occurs: Get medical advice/attention.

**Side effects:** In deep cavities we suggest the use of a liner in order to avoid pulpal irritation.

**Materials to be avoided:** Materials containing phenolics (like eugenol) could inhibit composite curing. Avoid the use of these materials as liners.

#### **DIRECT TECHNIQUE**

Fillings and direct aesthetic restorations of class I-II-III-IV-V.

##### Preparation

Clean with fluoride-free prophylaxis paste.

Place a rubber dam.

Preparation should be made without undercuts; for anterior teeth, use a conservative preparation with bevel, which allows a good enamel etching, while for posterior restorations (where bevel is not needed) slightly tapered diamonds are recommended to round out internal edges. Minimum thickness of composite layers should be >1.5 mm to avoid breakage. We suggest Ena Shiny preparation kit of Dr. L. Vanini (CS1LV for anterior and CS2LV for posteriors), in which the Shiny 33 rubber, for polishing preparation, is included. In case of interproximal restorations, use Ena Matrix sectional matrix system.

##### Etching and bonding

Regular etching and bonding techniques are applicable. We recommend Ena Etch / Ena Bond. Alternatively to the Etch & Rinse technique, it is possible to use a self-etch bonding like Ena Bond SE. Please consult and follow the instructions given in etching / bonding manuals.

##### Composite application

Take Enamel Plus HRi composite out of the syringe or "tip" with a suitable tool like the instruments TLV1 (for anteriors) and TLV2 (for posteriors) using the spatula side; apply very small quantities of material by pulling it down with a TLV2 instrument or a brush (Micerium "F" brush and Micerium Silicone Brushes) in order to avoid any bubbles. For posteriors close any first undercuts by using Enamel plus HRi Flow composite, or use a Enamel plus HRi Bio Function dentine colour for large restorations. Then apply Enamel Plus HRi Bio Function enamel. For anteriors use a Enamel plus HRi Bio Function enamel as first coat to reproduce palatal or lingual enamel; then proceed with the application of dentine colour, and finally apply Enamel Plus HRi Bio Function enamel on vestibular area. For very complex aesthetic restorations enamel body can be realized with intensive, opalescence and Universal enamels following the stratification technique of Dr. Lorenzo Vanini

Cure layers of 1-1,5 mm (no more than 2 mm for risks due to shrinkage) for 20 seconds (see detailed curing information below), from all sides of the build up; keep the light-curing tip as close as possible to the restoration. Oxygen leaves a thin layer of uncured composite: this layer should not be contaminated or wetted because it creates a chemical connection between the different layers of composite. We advise to apply an Air Block (Shiny G), when the restoration is finished and before the final light curing takes place. This glycerine based product eliminates the oxygen inhibition layer. Curing: Working time under standard light is approximately 3 minutes. During a long procedure, cover the composite with an opaque foil or use a colour palette with orange or black cover (COSSTAIN01). Note: avoid direct light of the overhead light and turn it off if possible. Cure each layer for 20 seconds (see detailed curing information below).

##### Finishing and polishing

Finish and polish using diamond and carbide burs, diamond rubbers, pre-impregnated brushes and felts; diamond and aluminium oxide pastes can be used in order to improve the polishing phase. 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.

#### **INDIRECT TECHNIQUE**

Enamel Plus HRi Bio Function can be used indirectly for the above mentioned indication. The dental technicians use Enamel Plus HRi with the same stratification technique used with modern ceramic systems.

##### Impression and Temporary

Take an impression and use Enamel Plus Temp for temporary inlay and cement it with eugenol-free cement. For inlays, it is possible to use Ena Soft elastic composite. Its elastic properties allow for the complete and easy removal of the temporary inlay which leaves the preparation clean. Please consult the appropriate product manuals.

#### Model preparation

Pour a model with extra-hard plaster. After the plaster sets, remove the impression and apply an oil-free separator (e.g. Temp Sep) to the model. Follow the same stratification technique as in the direct method.

#### Inlays, Onlays

Supragingival preparation is required with 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 with wax any undercuts and any other interference to cementation. For inlays, first build up the external walls and then the occlusal areas. It is possible to use Enamel Plus Stains between Dentine and Enamel. Each layer should not be thicker than 2 mm and should be cured for 40 sec.

Recommended final curing time is 11 minutes using a high power light curing unit such as LaborluxL or if using an 86W light box like LampadaplusT final curing time is 30 minutes. Finish with burs and polish with Enamel Plus Shiny brushes, aluminium oxide and diamond pastes. Wash with soap and water and dry with oil-free air spray.

#### Luting

Remove the temporary appliance and clean the preparation. Carefully try-in the restoration and proceed with any adjustments. Post-cure in an oven like LampadaplusT for 9 min. Apply the rubber dam. Clean the surface of the preparation with alcohol and sandblast. Etch the cavity and apply two coats of Ena Bond but do not cure. Sandblast the internal part of the composite restoration, then clean it with alcohol; apply the bond resin but do not cure. Warm a small amount of Enamel Plus HRi Bio Function (according to the depth of the cavity, after heating up to 55 °C into Ena Heat syringe heater) and apply it to the inside of the restoration. When the restoration is in place, apply a small amount of pressure either mechanically or manually. Remove the composite excess at margins and cure for at least 80 seconds from each side of the tooth. Check the occlusion, finish and polish with Enamel Plus Shiny system, using burs, strips and diamond pastes. **Note:** In case of inlay thickness over 2 mm use a dual luting composite such as Ena Cem<sup>HF</sup> (see instructions for details).

#### Final layering of restorations on implants and combined denture prosthesis

Enamel plus HRi Bio Function can be used as final composite layer of Tender HRi System.

#### Preliminary working steps

Apply metal primer, e.g. Tender Bond on the prepared metal framework. Cover the framework by using a paste opaque, e.g. Tender Paste Opaque. Do first composite application by using Tender Bodies for total covering of Opaque. For detailed information please consult the appropriate product manuals.

#### Composite application

Use Enamel plus HRi Bio Function composite on pretreated frameworks. Composites can be processed by using regular layering technique or by using a pressing system for light curing composites, e.g. Tender Flask system.

Layering technique: follow instructions described above under "Direct technique – composite application".

Pressing technique: Press the Enamel plus HRi Bio Function composite chosen for the total tooth covering into the silicone mould, close the flask and light-cure (each layer should not be more than 2 mm thick for risks due to shrinkage). Open the flask, make final light-curing (Final curing in Laborlux3 for 9 min). Note: it's possible to warm up the composite at 55°C in the warmer (ENA HEAT) in order to facilitate the fluidity into the flask.

#### Finishing and Polishing

Finish and polish using diamond and carbide burs, diamond rubbers, pre-impregnated brushes and felts; diamond and aluminium oxide pastes can be used in order to improve the polishing phase. 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.

#### Rehabilitations, Adjustments and characterization of acrylic teeth or temporary prosthesis

Roughen the facings up to 2 mm around the margin of the area to be corrected or repaired and smooth again by sandblasting. Soak the to be treated surface by applying Temp Bonding Fluid using a paintbrush 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 HRi Bio Function material should be applied and cured as indicated before.

### **CURING INFORMATION**

A perfect curing is granted for layers not thicker than 3,56 mm as from ISO 4049. (we suggest no more than 2 mm for risks due to shrinkage) It is necessary to use a light-curing unit with a spectrum of 350 - 500 nm. We suggest a periodical check of the light intensity following the instructions of the manufacturer.

#### Dental office curing units:

We recommend regular LED-curing units having a light intensity of around 1200 mW/cm<sup>2</sup>. The intensity must not be reduced below 650 mW/cm<sup>2</sup> (= minimum intensity). A curing time of 20 sec is applicable while a 2x20 sec is optimal.

#### Dental office curing times:

- |                        |                       |
|------------------------|-----------------------|
| - Blue Phase (Ivoclar) | min. 20 sec per layer |
| - Cledplus (Micerium)  | min. 20 sec per layer |

#### Laboratory curing units:

The required physical results can be reached only if using a multi-wall reflecting unit.

#### Laboratory curing times:

- |                        |  |
|------------------------|--|
| - Laborlux3 (Micerium) | approx. 90 sec. (final curing 16 min.) |
| - Hilite (Kulzer)      | approx. 180 sec (final curing 3 min)   |
| - Spektramat (Ivoclar) | approx. 60 sec. (final curing 20 min.) |

### **USE AND STORAGE**

Do not store below 3°C and above 25°C. Do not use the product after the expiration date (see label on syringe or on "tips" container). Due to hygienic reasons Enamel Plus HRi "Tips" and flow application needles should be used only once. If the product is used more than once, a contamination of the material and/or the transmission of germs cannot be excluded. Use the material at room temperature. Medical device, for dental use only: keep away from children. To avoid material waste, turn back the spindle after removing 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.



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