

EMF-Bonder

Instruction for use

esthetic ceram ag



CE 0483

EMF-Bonder Content



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EMF-Bonder

The esthetic ceram **EMF-Bonder** is a leucite glass ceramic and contains opacifiers and reactive pigments. **EMF-Bonder** is only intended for dental applications and for use by trained professionals.

Indication

- **EMF-Bonder** creates an intermediate layer between Chromium-Cobalt based alloys and the veneering porcelain for the reconstruction of natural looking teeth in the form of metal ceramic crowns or bridges on Chromium-Cobalt alloys with a thermal expansion of $14 - 15 \times 10^{-6} \times K^{-1}$ (25 – 500° C).

Contraindication

- Combinations with ceramic materials outside of esthetic ceram's described range of product systems and/or material from another manufacturer.
- Use of non-approved framework materials.
- Sharp edges and corners on the framework or non-anatomically reduced frame shapes.
- Dental ceramic and complete ceramic restorations made of glass ceramics are not recommended for patients with bruxism or parafunction.

EMF-Bonder Framework Fabrication



prepared CoCr-metal framework

The fabrication of metal framework (casting, processing, cleaning/oxidation) must be performed according to the manufacturer's instructions. The framework must have a reduced anatomical shape and should provide enough space for an even coating of layering ceramic < 2 mm. Sharp edges and corners need to be rounded off.

Important note: Cleaning of framework before any porcelain application. Base metal alloys (Cobalt-Chromium and Nickel-Chromium) create water-soluble chromium oxides during every heat treatment process. The oxide must be removed before porcelain application. Clean the framework and the layering with steam or water and brush thoroughly before another porcelain application.

EMF-Bonder Application



CoCr-metal framework before bonder bake



CoCr-metal framework after bonder bake

The esthetic ceram **EMF-Bonder** can be used with non-precious metal alloys and reduces the problems of strong oxide formation (green discolouration and flaking of the ceramic). The **EMF-Bonder** serves as an intermediate layer between cobalt-chromium-based ones Dental alloys and dental ceramics for the reconstruction of metal-ceramic crowns and bridges on cobalt-chrome alloys with a thermal expansion of $14 - 15 \times 10^{-6} \times K^{-1}$ (25 - 500 °C).

The **EMF-Bonder** is offered **in paste form or as powder** in cans. The paste has a ready-to-use consistency and can be applied as a covering layer that does not run off.

The powder must be mixed with esthetic ceram **opaque liquid** to a paste-like consistency.

Please note with all pastes: Water acts as an extreme diluent for the pastes, so please dry the brush for the pastes with water after washing out, and then moisten with **opaque liquid** before applying.

Apply the **EMF-Bonder** with a brush or a glass instrument to the well-cleaned, dry framework in a thin, even layer.

Bonder Bake

After the bonder has been applied, the restoration is dried under the open oven at a starting temperature of 450 °C for 1-2 minutes. The furnace is then closed with a closing time of 6 minutes and at 80 K/min and vacuum (vacuum on at 450 °C) heated to 980 °C. Holding time: 6 minutes (without vacuum).

After the bonder firing, the **EMF-Bonder** shows a yellowish colour and an eggshell luster. Then the opaque is applied as usual.

EMF-Bonder Firing Chart



Note: The below given firing temperatures were determined in a Zubler Vario 300 dental furnace and are approximate values. For other furnace types, corrections to the firing temperatures may be necessary.

Firing parameters	Start temperature [°C]	Closing time [min]	Vacuum start [°C]	Heating rate [K/min]	(Vacuum end) 1 st Bake [°C]	(Vacuum end) 2 nd Bake [°C]	(Without vacuum) Holding time [min]
EMF-Bonder	450	6	450	80	980	---	6

EMF-Bonder Technical Data



Classic 920 comply to all applicable standards for dental porcelains (DIN EN ISO 6872). All limits are undercut and thresholds are outperformed.

Materials classification			
Material:	Silicate glass ceramics		
Chemical composition:	Mayor glass ceramic constituents: SiO ₂ , Al ₂ O ₃ , K ₂ O, Na ₂ O, CaO, B ₂ O ₃ opacifiers (TiO ₂ , SnO ₂) reactive pigment		
Physical-chemical properties acc. to DIN EN ISO 6872:2019			
Type:	1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/>	Class:	1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> a <input type="checkbox"/> b <input checked="" type="checkbox"/> c <input type="checkbox"/>

Physical-chemical properties acc. to DIN EN ISO 6872	
Property	Specification
Coefficient of thermal expansion (25 - 500 °C) [$\cdot 10^{-6} \cdot K^{-1} \pm 0.5$]	2 x: 11.0 4 x: 11.0
Transformation temperature Tg [°C ± 20]	2 x: 550 4 x: 550
Solubility [µg/cm ²]	< 2000*

*) applicable limit acc. classification 2b/3b/4b DIN EN ISO 6872, because of no direct contact with oral mucosa and full covering with dental porcelain

EMF-Bonder

Regulatory Information



EMF-Bonder meets all requirements of applicable medical device regulations for medical devices and the manufacturing is certified acc. ISO 13485 and annex 2 of MDD 93/42 EWG, annex IX, chap. 1 of regulation (EU) 2017/745 .

Medical device classification acc. annex IX, rule 8 of MDD 93/42:
Medical device classification acc. annex VIII, rule 8 of MDR 2017/745

IIa
IIa

UMDNS Code:

16-187 Dental-ceramics

MDR Code acc. MDCG 2019-14:

MDT 2003, MDN 1103

Classification acc. DIN EN ISO 6872:

type 1, class 1

EMF-Bonder

Warnings

Use only by trained specialists.

Wear protective goggles or suitable face protection when finishing the ceramic restorations. Remove splinters and dust with a suction device or wear a suitable dust mask.



Be careful with the high temperatures when burning. There is a risk of burns! Use oven tongs / tweezers and gloves!

Use only in a clean work environment! Contamination of the aids (waxes) and devices (mixing plate, preheating furnace) through residues from alloy processing, especially CoCr or NiCr alloys, can lead to discoloration of the ceramic.








Noble metal-free alloys based on cobalt-chromium or nickel-chromium form water-soluble oxides with every fire, which must be removed from the ceramic mass before each application. The framework or framework that has already been veneered must be cleaned thoroughly with steam or under running water with a brush before each ceramic application.

There are different firing conditions due to the different ceramic furnaces on the market. This fact must be taken into account and clarified by the customer on his own responsibility!

The specified firing temperatures are only guide values!

Recommended storage conditions: 12-38 °C and normal humidity 40-60%. Store in tightly closed original containers. Protect from direct sunlight. Do not put mixed powders back into the can. Use clean, dry instruments for removal.

Label Symbols

-  Manufacturer
-  Date of manufacture YYYY MM
-  Medical Device
-  Batch code /LOT number
-  Reference number
-  Unique Device Identification
-  Caution, consult instruction for use

Manufacturer Information

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