

SPECTRA

DENTAL CERAMICS / PFM

EMF-BONDER

The foundation beneath every layer.



PRODUCT CATALOGUE & APPLICATION GUIDE

POWDER 5 / 10 / 20 / 50 / 100 / 250 g | PASTE 5 / 10 / 20 g

SPECTRA CERAM

Two consistencies. Nine formats.

EMF, BONDER POWDER

Powder version for controlled mixing with SPECTRA opaque liquid to a paste-like consistency.



20 g shown

5

GRAMS

10

GRAMS

20

GRAMS

50

GRAMS

100

GRAMS

250

GRAMS

AVAILABLE: 5 g · 10 g · 20 g · 50 g · 100 g · 250 g

EMF, BONDER PASTE

Ready-to-use paste with a stable consistency for direct application as a thin, covering layer.



10 g shown

5

GRAMS

10

GRAMS

20

GRAMS

AVAILABLE: 5 g · 10 g · 20 g

Indication & material compatibility

FOR TRAINED DENTAL PROFESSIONALS

SPECTRA EMF-Bonder contains opacifiers and reactive pigments. It is intended for dental applications as an intermediate layer in metal-ceramic crowns and bridges.

COBALT-CHROMIUM FRAMEWORKS

$$14-15 \times 10^{-6} \text{ K}^{-1}$$

Alloy thermal expansion range at 25–500 °C

Designed to help reduce problems associated with strong oxide formation, including green discolouration and ceramic flaking.

CONTRAINDICATIONS / LIMITS

- Combinations outside the specified ceramic system or with materials from other manufacturers.
- Non-approved framework materials.
- Sharp edges, corners, or framework shapes that are not anatomically reduced.
- Glass-ceramic restorations are not recommended for patients with bruxism or parafunction.

Prepare the framework

Casting, processing, cleaning and oxidation must follow the alloy manufacturer's instructions.

01 Reduce anatomically

Provide sufficient space for a uniform veneering ceramic layer of less than 2 mm.

02 Round all edges

Eliminate sharp edges and corners before applying the ceramic.

03 Clean thoroughly

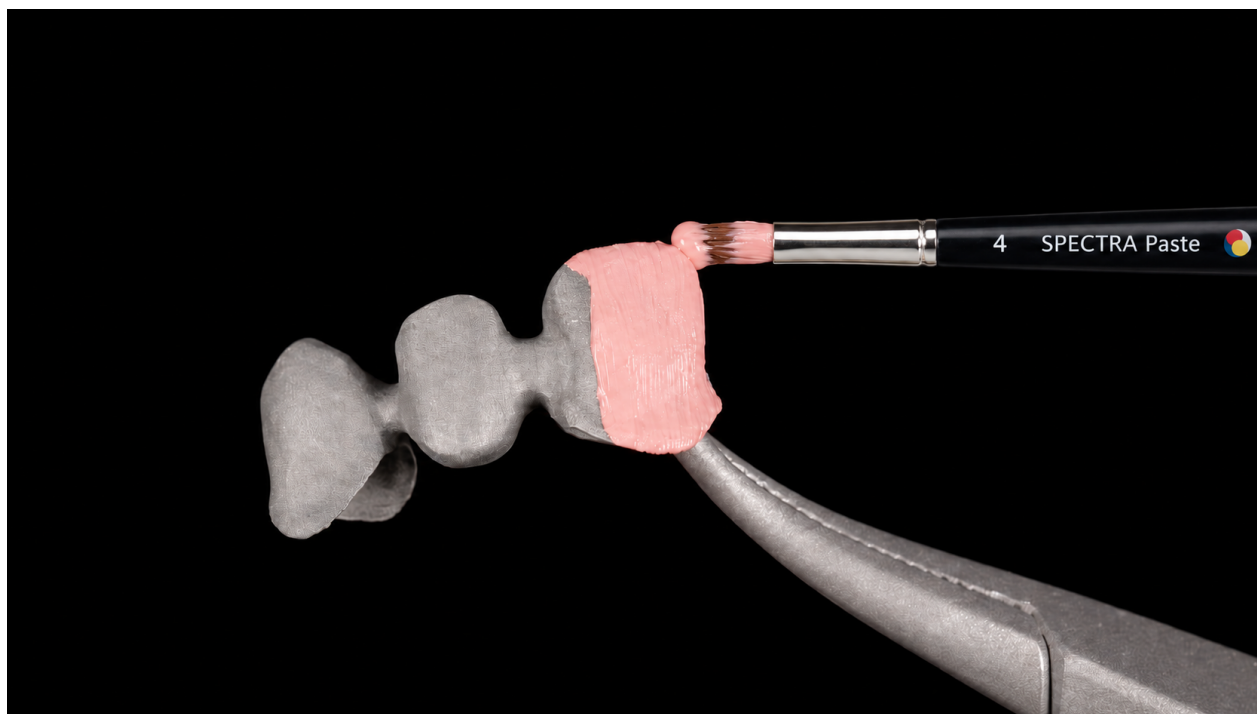
Use steam, or running water and a brush, before each further porcelain application.



Prepared CoCr framework

Remove oxides before porcelain application. CoCr and NiCr base-metal alloys form water-soluble chromium oxides during heat treatment. Clean the framework and any existing ceramic thoroughly.

Apply a thin, even layer



SPECTRA PASTE / SIZE 4

Apply with the Spectra Paste brush to the well-cleaned, dry metal framework. Aim for a continuous, thin and even bonder layer.

01 Mix the powder

Mix EMF-Bonder powder with opaque liquid to a paste-like consistency.

02 Prepare the brush

Water strongly dilutes pastes. Dry the brush thoroughly after rinsing, then moisten it with opaque liquid.

03 Control the layer

Spread the material evenly without pooling. The ready-to-use paste can be applied directly as a covering layer.

From pink to the fired layer

BONDER BAKE

01 Pre-dry

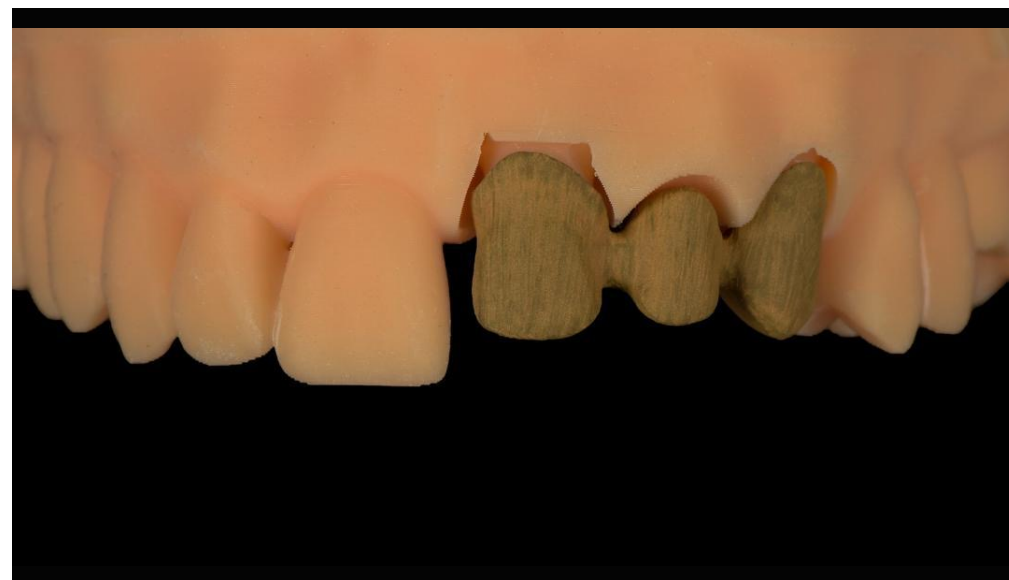
Dry beneath the open furnace at 450 °C for 1–2 minutes.

02 Close & heat

Close over 6 minutes. Heat at 80 K/min under vacuum, starting vacuum at 450 °C.

03 Hold at 980 °C

End vacuum at the final temperature. Hold for 6 minutes without vacuum.



AFTER BONDER FIRING

The fired bonder has a yellowish colour and an eggshell lustre. Apply the opaque layer as usual.

Firing parameters

EMF-BONDER / FIRST BAKE

450 °C

Start temperature

6 min

Closing time

80 K/min

Heating rate

980 °C

Final temperature

Pre-drying beneath the open furnace

1–2 min at 450 °C

Vacuum starts

450 °C

Vacuum ends

980 °C

Holding time at final temperature

6 min, without vacuum

Second-bake programme

Not specified in the source firing chart

Firing temperatures are guide values determined on a Zubler Vario 300 furnace. Other furnace types may require temperature corrections. Verify the programme on the furnace used in your laboratory.

Material & technical reference

MATERIAL CLASSIFICATION

Silicate glass ceramic

Main constituents

SiO_2 , Al_2O_3 , K_2O , Na_2O , CaO and B_2O_3 , with opacifiers TiO_2 and SnO_2 and reactive pigment.

PHYSICAL-CHEMICAL PROPERTIES

Property	2 firings	4 firings
CTE (25–500 °C)	11.0	11.0
Tg (°C ±20)	550	550
Solubility (µg/cm²)	< 2000	< 2000

CTE values in $\times 10^{-6} \text{ K}^{-1}$, tolerance ± 0.5 .

Solubility limit refers to material fully covered by dental porcelain, without direct contact with the oral mucosa.

CLASSIFICATION REFERENCE / SOURCE ISSUE 02.2022

DIN EN ISO 6872:2019: type 1, class 1.

Medical device class IIa: MDD Annex IX, Rule 8; MDR Annex VIII, Rule 8.

UMDNS: 16-187 Dental-ceramics.

MDCG 2019-14 codes: MDT 2003 / MDN 1103.

Refer to the applicable product labelling and declaration for current regulatory documentation.

Safe handling & storage

WORKING PRECAUTIONS

- Use only by trained specialists.
- Wear protective goggles or suitable face protection when finishing restorations. Remove dust and splinters using extraction, or wear a suitable dust mask.
- Keep the workplace, tools and auxiliary materials clean. Residues from alloy processing, especially CoCr or NiCr, can discolour the ceramic.
- Remove water-soluble oxides and clean the framework or veneered framework with steam, or running water and a brush, before each ceramic application.
- Hot furnaces and restorations can cause burns. Use furnace tongs or tweezers and protective gloves.

STORAGE

12–38 °C

Relative humidity 40–60%

Keep tightly closed in the original container and protect from direct sunlight. Do not return mixed powder to the jar. Remove material using clean, dry instruments.

LABEL REFERENCE

REF Reference number / LOT Batch number

MD Medical device / UDI Device identification

Manufacturing date: YYYY MM.

Consult the instructions for use and caution symbols on the product label.

SPECTRA

Precision begins with the first layer.

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EMF-BONDER

Product catalogue and application guide.

Technical basis: supplied instructions, issue 02/2022.

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