

**INSTRUCTIONS FOR USE**  
**metal-ceramic alloy EVO SPECIAL C**

**EVO SPECIAL C** is a dental Metal-Ceramic Alloy Based on Cobalt. **EVO SPECIAL C** is free of nickel, beryllium, indium and gallium and fulfils the of the standards EN ISO 22674 Type 4, for dental alloys. Through the low Vickers hardness of 285 HV10 result the alloy easy to drill, mill and polish and is therefore particularly well suited for primary situations.

<b>Composition :</b>	<b>Properties:</b>
<b>Co % : 62,5</b>	<b>Density g / cm<sup>3</sup> : 8,3</b>
<b>Cr % : 24,6</b>	<b>Vickers hardness HV 10 : 285</b>
<b>W % : 8,5</b>	<b>Expansion coefficient 25 - 500 °C 10-6·K-1 : 13,9</b>
<b>Mo % : 2,9</b>	<b>Melting interval °C : 1304-1369</b>
<b>Si % : 1,3</b>	<b>Casting temperature °C : ca. 1470</b>
<b>Elements &lt; 1% Nb</b>	<b>(Rp 0.2) MPa : 490</b>

**Modulus of elasticity GPa : ca. 210**

**Tensile elongation (A5) % : 10**

**Recommendations for Use**

**Waxing-up:**

Wax-up with crown- and bridge- wax as usual. Prevent thickness of material lower than 0.35 mm. Lead wax sprues indirectly. For wax sprues use round wax wires with Ø 2.0-2.5 mm for single crowns and 2.5-3.0 mm for bridges. For frames with more than 4 teeth use a distribution funnel with Ø 3.5-4.0 mm, for massive pontics to 5mm use.

**Melting and Casting:**

Suitable are phosphate bonded investments for crown and bridge work. Preheat the investment to about 850 to 900 °C. Hold temperature for about 30 minutes. Refer to manufacturer's instructions for use for the casting machines. For **EVO SPECIAL C** use an individual ceramic crucible to prevent contamination with other alloys. Clean crucible after each use to avoid residues of slag.

When melting by induction heating start casting as soon as the ingots have collapsed giving an uniform melt. For melting by flame heat the ingots and give a rotary motion by use of the flame. Start casting as soon as the bath begins to vibrate. Allow the cylinder slow air cool down to the ambient temperature and deflask.

**Firing of the ceramic:**

Use common available ceramics for cobalt-base metal alloys like Vita (Omega, VM13), Ivoclar, DeTrey oder Ducera. Please observe the associated work instruction. After separating the channels and prepare:

1. **Sand blast** the surface by use of a **pencil-blaster**. Blast all of the surface on which the porcelain is to be applied with aluminium oxide with a grain size of min **100** or preferably **250 µm**.

2. **Ultrasonically clean** the frame in distilled water or degrease with steam or with ethyl acetate.

3. **The oxide firing** is optional, to be done at about **960 °C** at vacuum for abt. **10 minutes**.

4 **Always remove the oxide layer after oxide firing by sand blasting with 120 or 250 µm of aluminium oxide and degrease again! Note:** Surface cleanliness is the best protection against bubbles in ceramics.

5. **The opaque** is then applied on the surface by a first thin wash firing and a second evenly covering opaque layer.

**Before firing** always let dry for **5-10 minutes** at abt. **600 °C!**

6. Firing has to be done according to the ceramic manufacturer's instructions.

7. After every firing step (dentine bake, build-up and glazing) **cooling phase until ca. 750 °C**.

#### **Finishing:**

After firing of the ceramic, polish the frame with suitable grinding and polishing instruments for cobalt-base metal alloys up to high gloss.

#### **Soldering and Welding:**

Soldering before firing of the frame can be carried out with suitable CoCr-solder and high temperature flux. For welding with laser use suitable CoCr-metal welding wires.

#### **Final Safety Notes**

Metal dusts in principle are harmful. Use a dust extractor. Consider allergic hypersensitivities for technical personal and Patient to contents of the alloy. In case of suspected incompatibility with individual elements of this alloy, this should not be used.

**Warranty** These application recommendations are based on own experiments and experiences and can therefore only be regarded as guidelines. The user is responsible for the correct processing of the alloy itself.