

## INSTRUCTIONS FOR USE

### metal-ceramic alloy EVO SOFT N

**EVO SOFT N** is a Ni-based metal-ceramic alloy. **EVO SOFT N** is free of beryllium and fulfils the EN ISO 22674 for dental alloys type 3. Through the low Vickers hardness of 200 HV10 result the alloy easy to mill and polish.

Composition :	Properties:
Ni % : 62,4	Density g / cm <sup>3</sup> : 8,2
Cr % : 25,0	Vickers hardness HV 10 : 200
Mo % : 11,0	Expansion coefficient 25 - 500 °C 10-6-K-1 : 13,9
Si % : 1,6	Expansion coefficient 20 - 600 °C 10-6-K-1 : 14,1
	Melting interval °C : 1280-1350
	Casting temp. °C : ca. 1420
	(Rp 0.2) MPa : 375

**Modulus of elasticity** GPa : ca. 200

**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  $\varnothing$  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  $\varnothing$  3.5-4.0 mm, for massive pontics to  $\varnothing$  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 SOFT N** 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 move. Allow the cylinder slow air cool down to the ambient temperature and deflask.

##### Firing of the ceramic:

Use common available ceramics for base metal alloys like Vita (Omega, VM13), Ivoclar, DeTrey oder Ducera having a coefficient to match that of the alloy, being suitable for firing temperatures between 900°C and 980 °C. 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 aluminum oxide with a grain size of min **100** or preferably **250 µm**.
2. **Ultrasonically clean** the frame for **5 to 10** minutes in distilled water or degrease with steam or with ethyl acetate.
3. **The oxide firing** is optional, to be done at about **960 °C in vacuum** for abt. **5-10 minutes**.
- 4 **Always remove the oxide layer after oxide firing by sand blasting** **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 firing **cooling as usual**.

#### **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 cobalt-base-metal-solder and high temperature flux. For welding with laser use suitable base-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. If it is suspected that it is incompatible with individual elements of this alloy, it should not be used since the product contains nickel.

**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.