

### Physical Characteristics

Density	8.4	g / cm <sup>3</sup>
Melting Point	1'375	°C
Casting Temperature	1'425	°C
Coefficient of Expansion (20-600 °C)	14.5	µm/mK
Vickers Hardness	350	HV 10
Tensile Strength	790	N / mm <sup>2</sup>
Elongation	> 5	%

### Chemical Composition

Cobalt	63	%
Chromium	25.5	%
Molybdenum	1	%
Silicium	1.1	%
Tungsten	8.5	%
Mangan	0.8	%
Carbon	<0.1	%

### Intended use

METAPLUS® UNI is a cobalt/chromium alloy, free of nickel and beryllium, for the production of crowns and bridges.

**Only for professional user!**

### General Review

This instruction for use includes important processing steps and recommendations.

AZ DENTAL GMBH is certified according to EN ISO 13485 and Annex V of Directive 93/42/EEC.

METAPLUS® UNI is a cobalt/chromium alloy, free of nickel and beryllium. An especially suited developer of bonding oxide optimizes the bond between the metal and the porcelain. Equivalent to DIN EN ISO 22674.

METAPLUS® UNI is suited for torch melting procedures as well as for high-frequency (induction) casting.

### Indication

For the production of crowns and bridges for the ceramic veneering.

### Wax-Up

Wall thickness of the copings should not be less than 0.5 mm in order to ascertain a regular burnout of the wax. Use the usual spruing techniques, however, spruing an additional depot has proven helpful with all-cast crowns or elements of a bridge

### Investment

METAPLUS® UNI is compatible with all investment materials that can be preheated up to 1'050 °C, however, we recommend a phosphate based precision investment material for METAPLUS® UNI with a total expansion of approximately 3,8% together with a normal liquid or with a special expansion liquid which leads to a maximal expansion of 4,2%.

Burnout and preheating have to be done in accordance to the directions of the manufacturer of the investment materials, and especially their waiting periods observed. Preheating to 900 °C is a proven procedure. Check the true temperature of your furnace from time to time with an external digital thermometer.

### Casting

Melt METAPLUS® UNI in a ceramic crucible. **Never use a graphite crucible and no flux!**

Torch melting: Use propane/oxygen or acetylene/oxygen. Observe the instructions of the manufacturer of the torch. A neutrally regulated flame prevents the alloy from impurities. As soon as the cubes of the alloy collapse, and the melt moves well under the pressure of the flame, you can start the casting procedure. **Do not fracture** the oxidation skin in order to prevent a loss of components of the alloy.

High frequency/ Torch melting: When the last cube of the alloy has collapsed, and the last „shadow“ has moved over the melt, start with the casting procedure. With the HF-melt, as well as with the torch melt it should be observed that the oxidation skin is **not fractured!**

After the casting the muffle has to be cooled to room temperature and to be out bedded. Do not use water bath. The frameworks can be elaborated with standard carbide cutters, look for smooth transitions.

Reusage of casting cones is not recommended, as with the melt important agents for bonding the porcelain to the metal are evaporated. By melting the metal several times these agents are reduced and an efficient bond between the porcelain and the metal cannot be guaranteed any longer. The framework is fashioned with the help of tungsten-carbide laboratory burs or with aluminium-oxide stones. The minimal strength of the shaped copings can be of 0.2 –0.3 mm.

### Ceramics

Observe the coefficient of expansion of the used ceramic material. When lower than 13,8 the dentine has to be fused with a long-term period for cooling off.

### Fusing the Ceramic

Oxide firing is not mandatory, but can be done as an option for 5 minutes at 980 °C with vacuum. Then blast the framework with aluminium oxide of 250 micron, and clean it as usual, with distilled water, ultrasound or a steam gun. **Never pickle a non precious alloy.** Wash and opaque are fused in accordance to the instructions of the manufacturer of these materials. The fusion of wash and opaque are cooled off short term. All cooling off procedures of fusions concerning the dentine have to be on a long term basis, if the coefficient of expansion is lower than < 13,8.

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### **Soldering**

For METAPLUS<sup>®</sup> UNI regular solders, as obtained in the trade, especially on a Co-Cr-Mo-basis, can be used. Never use a gold or palladium solder for METAPLUS<sup>®</sup> UNI components.

### **Cleaning**

METAPLUS<sup>®</sup> UNI is efficiently cleaned in the ultra-sound bath or with a steam gun.

### **Handling conditions / Safety**

Metal dust is harmful to health. Use when grinding and sandblasting dust extraction and respirator.

### **Contraindications and side effects**

If the instructions are observed during the production processes, incompatibilities with CoCr alloys are extremely rare. In case of a proven allergy against an ingredient of this alloy, it should not be used for safety reasons. In exceptional cases, electrochemically induced, local irritations have been reported. When different alloy groups are used, galvanic effects might occur. Please inform your dentist regarding the contraindications and side effects. Any serious incident that involve the product must be reported to the manufacturer and the competent authority in the accorded country.

### **Storage conditions**

Temperature, humidity or light has no effect on the product properties.

### **Disposal instructions**

Consult the material safety data sheet and the national regulations for disposal. Dispose of METAPLUS<sup>®</sup> UNI residues and dust in an environmentally friendly manner. Grinding dust must not enter groundwater, water bodies or sewers. Address waste exchanges for recycling.

### **Guarantee**

The metal alloy is normally not harmful. Persons with an allergic reaction on one of the alloyed materials may show undesired effects.

All recommendations are based on our experience. Correct usage and processing is within the responsibility of the user. Should, nevertheless, damages be claimed, the value of the goods sold only can be subject of such claims.