

#### Physical Characteristics springhard

Density	8.3	g / cm <sup>3</sup>
Melting Point	1'385	°C
Casting Temperature	1'440	°C
Coefficient of Expansion (20-600 °C)	15	µm/mK
Vickers Hardness	300	HV 10
Tensile Strength	775	N / mm <sup>2</sup>
Elongation	> 8	%
Module	230.000	N/mm <sup>2</sup>

#### Chemical Composition springhard

Cobalt	65 %
Chromium	27 %
Molybdenum	6 %
Silicium	0.4 %
Tungsten	1 %
Mangan	0.5 %
Carbon	0.1 %

#### Physical Characteristics extrahard

Density	8.3	g / cm <sup>3</sup>
Melting Point	1'335	°C
Casting Temperature	1'390	°C
Coefficient of Expansion (20-600 °C)	15	µm/mK
Vickers Hardness	410	HV 10
Tensile Strength	900	N / mm <sup>2</sup>
Elongation	> 6	%
Module	230.000	N/mm <sup>2</sup>

#### Chemical Composition extrahard

Cobalt	63 %
Chromium	28.5 %
Molybdenum	6 %
Silicium	0.4 %
Tungsten	1 %
Mangan	0.6 %
Carbon	0.5 %

#### Intended use

METAPLUS<sup>®</sup> VP are cobalt/chromium alloys, free of nickel and beryllium, for the manufacture of partial dentures. **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<sup>®</sup> VP are cobalt/chromium alloys, free of nickel and beryllium for model casting. Equivalent to DIN EN ISO 22674.

METAPLUS<sup>®</sup> VP is suited for torch melting procedures as well as for high-frequency (induction) casting.

#### Indication

For the production of model cast works for removable restorations.

#### Investment

METAPLUS<sup>®</sup> VP 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<sup>®</sup> (VP) 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<sup>®</sup> VP 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 improprieties. 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 framework can be elaborated with standard carbide cutters or aluminium oxide stones and rubbers, look for smooth transitions.

The reuse of casted metal is not recommended, as important ingredients for the metal/ceramic bonding will evaporate through the melting of the alloy. During repeated re-melting these components decrease.

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### **Soldering**

For METAPLUS<sup>®</sup> VP 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> (VP) components.

### **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> VP 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.