

Physical Characteristics

Density	8.2	g / cm ³
Melting Range	1'260 - 1'350	°C
Casting Temperature	1'410	°C
Coefficient of Expansion (20-600 °C)	14.1	µm/mK
Vickers Hardness	210	HV 10

Chemical Composition

Nickel	61.2 %
Chromium	25.8 %
Molybdenum	11 %
Silicium	1.5 %
Aluminium	< 0.4 %
Mangan	< 0.1 %

Intended use

METAPLUS[®] VK is a beryllium free nickel/chromium alloy for the production of crowns and bridges.

METAPLUS[®] VK should not be used in patients with a known sensitization to nickel. **This product contains nickel! 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[®] VK is a beryllium free nickel/chromium alloy. An especially suited developer of bonding oxide optimizes the bond between the metal and the porcelain. Equivalent to DIN EN ISO 22674.

METAPLUS[®] VK 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 0.4 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[®] VK is compatible with all investment materials that can be preheated up to 1'030 °C, however.

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[®] VK in a ceramic crucible. **Never use a graphite crucible and no flux!**

Torch melting: Use acetylene/oxygen. Observe the instructions of the manufacturer of the torch.
A neutrally regulated flame prevents the alloy from improproperties.

High frequency/
Torch melting: When the last cube of the alloy has collapsed, about 2 seconds after the shadows have disappeared, start with the casting procedure.

After casting the muffle has to be cooled down to room temperature. Do not chill it in a water bath.

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 should not be less than 0.3 mm.

Ceramics

Observe the coefficient of expansion of the used ceramic material. A long-term period for cooling off is not necessary.

Fusing the Ceramic

Atmospherically oxidation during 10 minutes at 980 °C, then blast the framework with aluminium oxide of 110 micron, and clean it as usual, with distilled water, ultrasound or a steam-gun. Wash and opaque are fused in accordance to the instructions of the manufacturer of these materials.

After fusing the porcelain it is recommended to leave the restorations on their stands as long as they are incandescent.

Soldering

For METAPLUS[®] VK regular solders, as obtained in the trade, can be used.

Cleaning

METAPLUS[®] VK 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 NiCr 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[®] VK 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.