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Matchmate NP20
Instructions for Use

DESCRIPTION
NPM Nickel-based dental alloy for casting, Type 3.

DIMENSION Ø 8 mm x 15 mm

CHEMICAL COMPOSITION - Typical Values

Ni %	Cr %	Mo %	Si %
61,4	**25,9**	**11**	**1,5**

TYPICAL TECHNICAL DATA - After casting

Yield strength 0,2 %	340 MPa
Elongation	26,5%
Tensile strength	550 MPa
E-module	178 GPa
Density	8,43 g / cm^3
Corrosion resistance	< 200 µg / cm^3
Hardness	185 HV 10/30
WAK (25-500°C) CTE	~ 14,1 x 10^{-6} K^{-1}
Melting range (Solidus/Liquidus)	1300 °C / 1360 °C
Max. firing temperature	~ 980 °C

APPLIED NORM - ED GmbH is certified according to DIN EN ISO 13485:2021 and DIN EN ISO 22674:2016.

INTENDED USE
Matchmate NP20 is a medical device for the casting of crowns and bridges.
Only for professional user (Dental Technician, Dentist).
The intended patient group provides for persons with partially or non-dentate jaws.

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

CONTRA-INDICATION
All indications not listed under Indication.
In case of known allergic reactions to any of the ingredients.

MODELATION
The modelation should be done with wax that fire without leaving residues under consideration of the standard rules of designs for dental technicians. The frame has to be designed in an anatomical reduced form. The wall thickness should be at a minimum of 0.4 mm to secure the flow out of the melt. Consider a sufficient connector (6-9 mm2). Avoid sharp edges and undercuts.

SPRUE DESIGN AND INVESTING
We recommend the design of the sprue with a bar. The horizontal sprue should have Ø 4-5mm, the sprue to the restoration should have Ø 3 mm. Single crowns should be directly connected with a sprue of Ø 4 mm with a length of 15-20mm. Connect the sprue on massive areas e.g. palatinal and avoid the center of the muffle.

MELTING AND CASTING
Matchmate NP20 should be melted in a ceramic crucible. Please do not use graphite crucibles and no flux! Avoid the overheating of the melt. Prevent multiple casts of melt bottoms. The chemical and mechanical properties can only be guaranteed for new material. Melting with open flame (acetylene / oxygen) and inductive melting: Once the cylinders are melted and the cast shadow falls across the molten metal, before the oxide skin begins to split, start the casting. Maximum temperature for casting: 1450°C. The preheating temperature of the muffle is approx. 850- 900°C.

DEVESTING AND CLEANING
Let the muffle cool down to room temperature (approx. 20°C), do not quench with water. Put the cooled muffle into water to avoid dust generation during the devesting. Sandblast the surface with 110 µm of aluminium oxide with 3-4 bar, then clean with a steam cleaner.

SOLDERING / LASER WELDING
Matchmate NP20 can be soldered with all suitable solder. **Matchmate NP20** parts should not be soldered with gold or palladium solder. **Matchmate NP20** is also ideally suitable for laser-welding.

PREPARATION BEFORE CERAMIC VENEERING
The frameworks can be elaborated with standard carbide cutters, look for smooth transitions and avoid overlapping material. Please use the same cutter for one alloy to avoid contamination. The minimum thickness of the prepared coping should not be less than 0.3 mm. It is recommended to sandblast the frames with minimum 110 µm of aluminium oxide with 3-4 bar and clean with steam cleaner. Oxide firing is not mandatory but can be done as an option for 5 minutes at 980°C with vacuum (cleaning firing). The frame needs to be sandblasted with aluminium oxide 110 µm and 3-4 bar to remove the present oxide layer thoroughly. In the end the cleaning by steam cleaner is mandatory. If you use a ceramic bonder please consider the instruction for use of the manufacturer.

HANDLING CONDITIONS / SAFETY
Metal dust is harmful to health. Use when grinding and sandblasting dust extraction and respirator with filter FFP3 – DIN EN 149.

RESIDUAL RISKS 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, the alloy must 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 residual risks and side effects. Any serious incident that involves the product must be reported to the manufacturer and the competent authority in the pertinent country.

DISINFECTION OF THE DENTAL PROSTHESIS BEFORE INSERTION
Workpieces from the dental laboratory must be subjected to immersion or spray disinfection before insertion into the patient's oral cavity and then rinsed under running water.

SINGLE-USE
The chemical and mechanical properties can only be guaranteed for new material.

DISPOSAL INSTRUCTIONS
Please dispose of metal residues and dust in an environmentally friendly manner. Do not allow waste to enter groundwater, water or sewage systems. Contact waste exchanges for recycling. Outer packaging can be disposed of in paper waste.

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

Our information and recommendation are based on the state of the art in science and technology and has to be considered correct to the best of our knowledge and experience on this day. The above version shall replace any previous versions.

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