



KERAMIT NP-S

Co-Cr based dental alloy for sintering - type 4

Lasersintering Co-Cr based dental alloy powder for PFM crowns and bridges

CHEMICAL COMPOSITION

Co	Cr	W	Mo	Si	Nb
63%	24%	8%	3%	1%	1%

NICKEL AND BERILLIUM FREE

TECHNICAL DATA			
Density g/cm ³	8.3	Yield strength MPa	490
Melting range °C	1305 - 1370	Elongation %	10
CTE 25-500°C 25-600°C 10-6K-1	13.9 - 14.0	Modulus of elasticity GPa	210
Metal ceramic bonding MPa	>40	Vickers hardness HV10/30	285

ISO 9693-1; ISO 22674 - Type 4

CORROSION RESISTANCE			
E _{ocp}	E _p	I ₃₀₀	I _p
-128 mV	649 mV	4,34 μA·cm ⁻²	37,33 μA·cm ⁻²

ISO 10271

The high value of the breakdown potential (E_p 649 mV) with the low current density at 300 mV (I₃₀₀ 4.34 μA·cm⁻²) indicate the excellent corrosion resistance of this alloy.

CYTOTOXICITY TESTING

Cytotoxicity of KERAMIT NP-S alloy has been evaluated according to ISO 10993-5 standard, using the L-929 (mouse fibroblasts) cell line. Results have confirmed the perfect cytocompatibility of this alloy. Cells behavior and function were definitely similar to those measured in tests involving pure gold, that is the paradigmatic non-toxic material.

CE0546



The metal powder is dangerous to the health. The Co-Cr based alloys can rarely cause dermatitis by contact or allergies in sensitive subjects. Use suitable aspiration systems and individual protection devices during the working phases. Before applying the prosthetic medical device, verify if other metal implants are already existing in the oral cavity of the patient to prevent from galvanic phenomenon.

Working and veneering indications

PRE-SOLDER

- Excellent to laserweld
- We recommend to use specific solders for Co-Cr, according to manufacturer's instructions.
- Recommended pre-solder: KERAMIT NP SOLDER / SOLDER 1130

CONDITIONING OF NON PRECIOUS ALLOYS BEFORE VENEERING

- Finish the sintered structure of KERAMIT NP-S with carbide burs
- Sandblast with 250 µm Al₂O₃ ; 3.5 bar
- **Heat treatment is not necessary.** The structures are supplied already stabilized.
- Apply NM-Bonding (1)
- Proceed with veneering following the instructions of use of the porcelain manufacturer and the recommendations for the cooling phase (2)

1- FIRING PROGRAM NM BONDING

Starting Temp [°C]	Drying time [min:sec]	Closing time [min:sec]	Preheating [min:sec]	Heat rate [°C / min]	Final Tempù [°C]	Holding Time [min:sec]	Vacuum [%]	Slow cooling
650	02:00	02:00	02:00	55	980	00:00	100	-

NOTE

Firing temperatures are given for guidance only. Variations may occur depending on the furnace used and the temperature may need to be adjusted accordingly.

2 - RECOMMENDATIONS FOR THE COOLING PHASE

Manufacturer	Veneering porcelain	Cooling phase
Nobil Metal	DIVA	normal
Dentsply	Ceramco iC	normal
Dentsply	Ceramco 3	normal
Willi Geller	Creation CC	normal
GC Europe	GC Initial MC	normale
DeguDent	Duceram kiss	slow
VITA Zahnfabrik	VITA VM 13	normal
VITA Zahnfabrik	VITA VMK Master	normal
Ivoclar	IPS InLine	normal
Wieland	REFLEX	normal
Noritake	EX-3 Superporcelain	normal
Dentaurum	Ceramotion Me	normal



Remove ceramics only mechanically. Do not use hydrofluoric acid (HF), because it corrodes the non precious alloy.

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