

# NIMON EXTRA<sup>TM</sup>

non-precious ceramic bonding alloy • type 4  
free from beryllium, cadmium and lead

INSTRUCTIONS FOR USE

CE 0473

For use with ceramic in appliances subject to very high forces, e.g. wide span bridges with small cross sections and implant-retained superstructures

Ni 64.3 Cr 24.2 Mo 10.0 Si 1.0 Co, Mn, Fe, Ce, Nb <1%	
Density (g/cm³)	8.2
CTE 25-500°C (10 <sup>-6</sup> x K <sup>-1</sup> )	13.9
Pre-heating temperature (°C)	800
Casting Temperature (°C)	1400-1440
Melting range (°C)	1250-1340
Modulus of elasticity (GPa)	200
Elongation limit (RP 0.2) (MPa)	330
Tensile Strength (MPa)	830
Elongation (%)	15
Hardness (HV10) after casting	180

**Safety:** Inhaled dust from metal and phosphate bonded investments is harmful to health. During investing, deinvesting and trimming, use extraction and face masks (type according to FFP3-EN149:2001) along with the normal safe working practices and PPE. Operator must ensure that appropriate risk assessment procedures are followed!

**Sprue addition:** General: Place sprues at the thickest, most solid part of the wax pattern. It is advisable to use additional sprues for complicated wax patterns. Minimum metal thickness for ceramic veneering is 0,3mm.

**Investing & Burnout:** General: Use a phosphate bonded investment material. Mix and use to the manufacturer's instructions. Heat to the recommended temperature and ensure to heat-soak.



wax-up of coping



wax pattern attached to sprue  
ready for investing



This product contains nickel



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**Casting: General:** Use clean, ceramic crucibles and do not overheat the alloy. Ensure any re-cast alloy is sand-blasted clean and used with at least 50% new alloy. Vacuum casting machines with induction heating, and centrifugal casting machines with induction heating: once all solid alloy has submerged in the molten mass, heat for 2-10 seconds – according to equipment used - and then cast. For flame/torch centrifugal castings: cast once all solid alloy has submerged in the molten mass and molten mass is clearly fluid.

**After Devesting:** Sandblast at 3-4 bar with 100 micron aluminium oxide, being extremely cautious of any critical or fragile parts of the casting. Trim and polish using fine carbide, ceramically bonded stones or sintered diamond burrs. Follow the manufacturer’s guidelines. Steam clean thoroughly to remove any residue from finishing.

**Oxide firing:** NOT NECESSARY. If completed, must be at 950-980°C for 5 minutes, coping should then be steam cleaned and/ or sandblasted with aluminium oxide at 3-4 bar.

**Opaque firing:** Complete initial wash firing at temperature recommended by ceramic manufacturer. Steam clean and apply second opaque layer (on average fire 10°C below wash firing temperature).

**Porcelain build-up and layering:** Use ceramics according to ISO 9693 with firing temperatures up to 980°C (eg, HeraCeram, Vintage Halo, VM 13). Always follow the manufacturer’s instructions. After cleaning/sandblasting avoid skin contact with coping (preferably hold with forceps) to prevent contamination of surface.

**Final work:** Blast visible metal surfaces with 50 micron aluminium oxide. Polish with rubber polishers and finish with nickel chrome polishing paste. Steam clean.

**Soldering:** For soldering prior to firing with flame use compatible solder and flux. For soldering after firing in the furnace use WGL solder and Minoxyd flux. Bench cool normally.

**Laser welding:** Use compatible dental welding filler materials (diameter 0,35mm or 0,5mm). Follow the manufacturer’s instructions!

**Secondary effects:** Such as allergies to the alloy can occur very rarely.

**Reciprocal effects:** Where any contact with different alloys takes place, electrochemically based reactions may very rarely occur.

**Contraindications:** Not to be used for patients with a known sensitivity to the alloy’s constituents.



*final crown on model*

**WARRANTY:** MD Alloys reserves the right to alter alloy composition with further research and development. All instructions and mechanical properties are based upon our own extensive experience.

REV 04/15



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