CERACAST NNB (MMI-CERACAST-NNB) updated Aug 05, 2015

Non-Precious Dental Casting Ceramic Alloy - Nickel and Beryllium Free

Technical Specifications

Melting range (°C)	1,308 - 1,391
Yield strength (MPa)	432
Tensile strength (MPa)	518
Elongation (%)	2.0
Density (g/cc)	8.89
Vickers hardness (HV)	382

Composition

Chrome	63.0%
Cobalt	29.0%
Molybdenum	6.0%
Silicon	1.0%
Manganese	1.0%
Tungsten	<1%
Carbon	<1%
Iron	<1%
Others	<1%

Waxing

Waxing procedure is very similar to the application of precious and semi-precious alloys. However, waxing could be as thin as 0.3 mm to 0.35 mm.

Sprueing

1. Direct for single units. Sprueing should be 1/4" (6 mm) in length. Based on the size and the thickness of crowns use 6-8 gauge sprues.
2. Indirect, for multiple units. Use straight 8 gauge sprue, about 1/8"; (3 or 4 mm) in length, and connect it to the unit.

For long spanned bridges use and additional sprue connected to the last unit.

Investing

Use high heat investments; follow the manufacturer's instructions carefully. Use debubblizer. Use one-two ring liner.

After investment has set, scrape the top of the investment to allow gases to escape.

Burnout

Place the ring in the furnace at room temperature (or as high as 600°F = 315°C if needed) increase the temperature to 1800°F (982°C) with one hour holding time. Add 10/15 extra minutes for each additional ring.

Melting & Casting

Use induction melting equipment or gas/oxygen torch.

1. Torch casting: Use multiple orifice torch tips. Do not use crucible used for other alloys. Preheat the crucible. Move the torch allowing even distribution of heat. The individual ingots will not form together to form a single mass. Release the casting arm as soon as the alloy starts to slump or sag. Bench cool the cast for about 5 minutes.
2. Induction Casting: Set the temperature to 2700°F (1480°C). Set the casting arm speed between 425 and 450 rpm.

Metal Finishing

Sandblast the investing with pure non-recycled aluminum oxide. Do not smooth the surface of the frame bearing porcelain.

Use carbides, discs, diamonds and stones for metal finishing.

Metal Preparation

Sandblast the area bearing porcelain, and do not touch the area accepting porcelain; clean with ultrasonic cleaner. To degas the metal, place the metal work in a furnace at 1200°F (650°C): create a vacuum and increase the temperature 100°F (38°C) per minute to 1800°F (980°C). Release the vacuum and bench cool.

Opaque & Porcelain Application

Follow manufacturers instructions.

Note

For best results use at least 50% new metal with 50% sandblasted and cleaned buttons.

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