

American Dent-All, Inc.

Made in the USA

SUPERBOND®

Nickel-Chrome Beryllium
Free Ceramic Alloy



Technical Data

Melting Range	1301°C – 1364°C
Yield Strength	261 MPa
Tensile Strength	316 MPa
Density	8.3 (g/cc)
Elongation	3%
Coefficient of Liner Expansion	14.07 (25-500°C)
Vickers Hardness	200 HV

Composition

Nickel	61%
Chrome	25%
Molybdenum	10.50%
Silicon	1.5%
Titanium	< 1%
Fe – Co – Al	< 1%

WAXING:

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

SPRUING:

Use direct method of spruing for single units and the indirect method for multiple units.

INVESTING:

Use high heat phosphate bounded investment. Use ring liner. Follow the investment manufacturers instructions carefully.

BURNOUT:

After proper bench set, place the ring in the oven at room temperature (or as high as 600 F° = 315 C°) and raise the temperature to 1800°F (982 C°) with one hour soaking time.
Add extra hold time for additional rings placed in the oven.

MELTING/CASTING:

Use Induction Casting unit or Torch Casting (gas/oxygen). For torch casting, use multiple orifice tip. Do not use acetylene torch. Do not use crucibles used for other alloys. Move torch in rotating motion for even distribution of heat on the ingots. Release the casting arm when ingots lose definition, slumped, and ingots are joined.

Note: Ingots will not puddle, do not over heat ingots.

For Induction Casting, set the temperature to 2700 F° (1480 C°). Set the casting arm speed between 425 and 450 rpm.

PREPARATION OF FRAMEWORK:

Follow the same procedure as you would for precious alloys. Sandblast the area bearing porcelain and clean with ultrasonic cleaner.

DEGASSING:

Place the metal work in a furnace at 1200 F° (650 C°). Create a vacuum and increase the temperature 100 F° (32 C°) per minute to 1800°F (982°C). Release the vacuum and let it cool down. After degassing, sandblast the area of the frame bearing porcelain.

OPAQUE & PORCELAIN APPLICATION:

Apply opaque in thin slurry. Fire the opaque slurry coating in ten degrees higher temperature. Quicker method is using the same procedure without degassing. Use opaque and porcelain manufacturers instructions.

Caution: This alloy contains Nickel; Not to be used in individuals with Nickel hypersensitivity.



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