

# American Dent-All, Inc.

Made in the USA

## LITHECAST®

Nickel & Beryllium Free  
Biomedical Ceramic Alloy



### Technical Data

|                                |                 |
|--------------------------------|-----------------|
| Melting Range                  | 1308°C - 1391°C |
| Yield Strength                 | 432 MPa         |
| Tensile Strength               | 518 MPa         |
| Density                        | 8.3 (g/cc)      |
| Elongation                     | 2%              |
| Coefficient of Liner Expansion | 14.74 (ppm/°C)  |
| Vickers Hardness               | 382 HV          |

### Composition

|                     |     |
|---------------------|-----|
| Cobalt              | 63% |
| Chrome              | 29% |
| Molybdenum          | 6%  |
| Manganese           | 1%  |
| Silicon             | 1%  |
| W + Fe + C + 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:

A- Direct for single units. Sprueing should be ¼ (6 mm) in length. Based on the size and the thickness of crowns, use 6-8 gauge sprues.  
B- 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 additional sprues to connect the last unit.

### INVESTING:

Use high heat investments. Follow the manufacturer's instructions carefully. Use debubbler. 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.

A- Torch casting: Use multiple orifice torch tips. Do not use crucibles used for other alloys. Preheat the crucible. Move the torch allowing even distribution of heat. Individual ingots will not form together into a single mass. Release the casting arm as soon as the alloy starts to slump or sag. Bench-cool the cast for 5 minutes.

**Note: Ingots will not puddle, do not overheat ingots.**

B- Induction Casting: Set the temperature to 2700°F (1480°C). Set the casting arm speed between 425 and 450 rpm.

### METAL FINISHING:

Sandblast the investment 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 the manufacturer's instructions.



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