

**STABILITY**  
**SILVER-FREE WHITE CERAMIC ALLOY**

**PROPERTIES**

Melting Range . . . . . 2050° F to 2210° F  
Coefficient of Thermal Expansion  
    from 25°C to 500°C: . . . . . 13.5x10<sup>-6</sup>C<sup>-1</sup>  
    from 25°C to 600°C: . . . . . 13.9x10<sup>-6</sup>C<sup>-1</sup>  
Density . . . . . 10.7 g/cm<sup>3</sup>  
Grain Size . . . . . 9 microns  
Hardness . . . . . 300 HV  
Tensile Elongation . . . . . 20 %  
Tensile Yield Strength (PSI) . . . . . 103,230  
Ultimate Tensile Strength (PSI). . . . . 128,620

**CHEMISTRY**

Palladium . . . . . 77%  
Copper . . . . . 10%  
Gallium . . . . . 7%  
Indium . . . . . 4%  
Gold . . . . . 2%

Contains less than 1%  
Zinc, Ruthenium

Classification Noble

**PROCESSING TECHNIQUE**

**WAXING**

Wax to a minimum of .3mm for single units and .5mm for bridge work. Avoid sharp angles and wax to provide for an even thickness of porcelain.

**SPRUNG**

The indirect method is recommended for multi-units. Use an 8 gauge runner bar with 10 gauge connectors. If preferred, the direct method may be used on both single units and small bridges. Use a 10 gauge sprue 1/4" (6mm) to 3/8" (9mm) long. Sprues longer than 3/8" (9mm) should have a reservoir 1/16" (1.5mm) from pattern. Patterns should be a maximum of 1/4" (6mm) from top of investment.

**INVESTMENT**

A phosphate-bonded high heat investment without carbon is recommended.

**BURNOUT**

Place in a cold furnace and raise temperature to 1450°F (785°C). Hold at 1450°F temperature for 1- 1/2 hours. Increase hold time for larger or multiple rings.

**MELTING AND CASTING**

Wind casting arm one turn more than used for casting gold. Use a multi-orifice torch with 10 PSI gas and 20 PSI oxygen. Add 50% new metal to button. Use a high heat crucible. Heat the button and ingots until they pool together. After the alloy becomes molten, count slowly to 10 before releasing the casting arm. The casting temperature is 2300°F (1260°C).

**DEVESTING AND FINISHING**

Blast with aluminum oxide to remove investment particles. Shape and finish down metal with aluminum oxide stones. Blast outer surface with non-recycled aluminum oxide (50 micron-white preferred). Clean in ultrasonic for 10 minutes in distilled water.

**CONDITIONING**

Oxidize from 1200°F (650°C) to 1850°F (1010°C) under vacuum. Remove and bench cool. Proceed with opaque according to porcelain manufacturer's instructions.

**SOLDERS AND FLUX**

Pre-Solder: Spirit Solder  
Post-Solder: 1400 Solder  
Flux: Brown Fluoride Flux for both pre and post soldering