

JP-IA
WHITE GOLD PALLADIUM SILVER-FREE CERAMIC ALLOY

PROPERTIES

Melting Range 2050°F to 2255°F
Coefficient of Thermal Expansion
 from 25°C to 500°C: $13.6 \times 10^{-6} \text{C}^{-1}$
 from 25°C to 600°C: $13.9 \times 10^{-6} \text{C}^{-1}$
Density 13.6 g/cm³
Hardness 305 HV
Tensile Elongation 25%
Tensile Yield Strength (PSI) 84,400
Ultimate Tensile Strength (PSI) 106,000

CHEMISTRY

Gold 48%
Palladium 38.5%
Indium 8%
Copper 4%
Gallium 1.5%

Contains less than 1%
Ruthenium, Rhenium

Classification - High Noble

PROCESSING TECHNIQUE

WAXING

Wax to a minimum thickness of 0.3mm for single units and 0.5mm 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 a 8 gauge runner bar with a 10 gauge connector. 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 the pattern. Patterns should be a maximum of 1/4" (6mm) from the top of the investment.

INVESTMENT

A phosphate-bonded, high heat investment with or without carbon content is recommended.

BURNOUT

Place in a cold furnace and raise temperature to 1500°F (816°C). Allow casting ring to burnout for one hour and 10 minutes at temperature. Increase time for larger or multiple rings.

MELTING AND CASTING

Wind casting machine one additional turn. Use a multi-orifice torch with 10 PSI gas pressure and 20 PSI oxygen pressure. Use a reducing flame to prevent overheating. When alloy is melted, a cloudy surface will appear. When cloudy surface clears, release casting machine. DO NOT OVERHEAT. DO NOT USE FLUX. The casting temperature is 2350°F.

DEVESTING AND FINISHING

Blast with aluminum oxide to remove investment particles. Shape and finish down metal with aluminum oxide stones. Reblast porcelain receiving surface with non-recycled aluminum oxide. Clean casting in ultrasonic 10 minutes in distilled water.

CONDITIONING

Oxidize from 1200° to 1850°F (650° to 1010°C) under vacuum. Hold for 5 minutes. Bench cool. Proceed with normal porcelain technique.

SOLDERS AND FLUX

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

