

JPW
WHITE CERAMIC HIGH NOBLE ALLOY

PROPERTIES

Melting Range. 2020° F to 2325° F
Coefficient of Thermal Expansion
 from 25°C to 500°C: $14.0 \times 10^{-6} \text{C}^{-1}$
 from 25°C to 600°C: $14.6 \times 10^{-6} \text{C}^{-1}$
Density 13.6 g/cm³
Grain Size. 12 microns
Hardness 260 HV
Tensile Elongation 12%
Tensile Yield Strength (PSI). 80,600
Ultimate Tensile Strength (PSI). 100,500
Modulus of Elasticity (PSI) 13.5×10^6

CHEMISTRY

Gold 49%
Palladium. 31.5%
Silver 15%
Tin 4.5%

Contains less than 1% Rhenium

Classification - High Noble

PROCESSING TECHNIQUE

WAXING

Wax to a minimum thickness 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 (3mm diameter) runner bar with a 10 gauge (2.5mm diameter) connectors. If preferred, the direct method may be used on both single units and small bridges. Use a 10 gauge (2.5mm diameter) sprue 1/4" to 3/8" (6mm to 9mm) long. Sprues longer than 3/8" (9mm) should have a reservoir 1.5mm from the pattern. Patterns should be a maximum of 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 1400°F (760°C). Hold at 1400°F (760°C) for 1-1/2 hours. Increase hold time for larger or multiple rings.

MELTING AND CASTING

Wind casting arm one turn more than usual. Use a multi-orifice torch tip with 10 PSI gas pressure and 20 PSI oxygen pressure. Continue heating until the cloudy surface clears, releasing casting arm. DO NOT OVERHEAT. DO NOT USE CASTING FLUX. The casting temperature is 2425°F (1330°C).

DEVESTING AND FINISHING

Finish with aluminum oxide stones and wheels. Blast with 50 micron (220 mesh) non-recycled aluminum oxide (50 micron-white preferred). Clean castings for 5 minutes in distilled water.

CONDITIONING

Oxidize from 1200°F - 1800°F (650°C to 980°C) in air. Bench cool. Proceed with opaque following 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