

JP-5
WHITE CERAMIC ALLOY
NOBLE PALLADIUM SILVER

PROPERTIES

Melting Range	2150°F to 2275°F
Coefficient of Thermal Expansion	
from 25°C to 500°C:	14.9x10 ⁻⁶ C ⁻¹
from 25°C to 600°C:	15.1x10 ⁻⁶ C ⁻¹
Density	11.0 g/cm ³
Grain Size	14 microns
Hardness	250HV
Tensile Elongation	16%
Tensile Yield Strength (PSI)	74,500
Ultimate Tensile Strength (PSI)	105,000

CHEMISTRY

Palladium	53.5%
Silver	37.5%
Tin	8.5%
Contains less than 1%	
Zinc, Ruthenium	
Classification - Noble	

PROCESSING TECHNIQUE

WAXING

Wax to a minimum 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 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 spruce 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 content is recommended.

BURNOUT

Place in a cold furnace and raise temperature to 1400°F (760°C). Hold at 1400°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 tip with 10 lbs. gas and 20 lbs. oxygen. Add 50% new metal to button, use a high heat crucible. As JP-5 melts, a cloudy surface will appear. Continue heating until the cloudy surface clears, before releasing the casting arm. DO NOT OVERHEAT. The casting temperature is 2375°F (1300°C). DO NOT USE CASTING FLUX.

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. Hold for five minutes at 1850°F under vacuum. Bench cool. Proceed with opaque following porcelain manufacturer's instructions.

SOLDERS AND FLUX

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