ADVANTAGE

NOBLE WHITE SILVER FREE PORCELAIN ALLOY

ADVANTAGE is a silver-free, 77% Pd porcelain dental alloy that is perfect for just about any type of restoration from single units to long-span bridges. The unique composition of ADVANTAGE, which includes 1% Au and 1% Pt, assist in avoiding marginal creep and marginal lifting, common problems facing many silver-free palladium alloys. Because ADVANTAGE has low specific gravity, you get more castings per ounce.

PROPERTIES	
Melting Range	2030º to 2300ºF (1110º to 1260ºC)
Coefficient of Thermal Expansion	
from 25ºC to 500ºC:	$13.5 \times 10^{-6} C^{-1}$
from 25ºC to 600ºC:	$13.9 \times 10^{-6} C^{-1}$
Density	10.7 g/cm^3
Grain Size	12 microns
Hardness	260 HV
Tensile Elongation	33%
Tensile Yield Strength	85,450 psi (590 MPa)
Ultimate Tensile Strength	120,115 psi (830 MPa)

CHEMISTRY	
Palladium	77%
Copper	10%
Indium	6%
Gallium	5%
Gold	1%
Platinum	1%
Contains less than 1% Ruthenium	
Au & Pt group - 79%	
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.

SPRUING 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 1450ºF (785ºC)

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 2390ºF (1310ºC).

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.

OXIDATION Oxidize from 1200ºF (650ºC) to 1850ºF (1010ºC) at 145°F/min (80°C/min) under vacuum. Remove and bench cool. Proceed with opaque according to porcelain manufacturer's instructions.

SOLDERS AND FLUX Pre-Solder: Spirit Solder or LX Solder
Post-Solder: 1400 Solder
Flux: Brown Fluoride Flux for both pre and post soldering

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