

# SUPERIOR PLUS

## NOBLE WHITE PORCELAIN ALLOY

**SUPERIOR PLUS** is a palladium-silver dental alloy that's great for all types of restorations. The alloy contains 2% Au, casts well, divests easily, and is resistant to hot tears. Its coefficient of thermal expansion is perfect for Creation Porcelain and other silver-tolerant porcelains. A high melting range allows for ease of soldering. SUPERIOR PLUS is considered to be "workhorse" alloy that is both dependable and effective.

PROPERTIES	
Melting Range	2175° to 2330°F (1190° to 1275°C)
Coefficient of Thermal Expansion	
from 25°C to 500°C:	14.2 x10-6K <sup>-1</sup>
from 25°C to 600°C:	14.6 x10-6K <sup>-1</sup>
Density	11.1 g/cm <sup>3</sup>
Grain Size	8 microns
Hardness	215 HV
Tensile Elongation	30%
Tensile Yield Strength	68,860 psi (475 MPa)
Ultimate Tensile Strength	113,130 psi (780 MPa)
Modulus of Elasticity	20.3 x 10 <sup>6</sup> psi (140 GPa)

CHEMISTRY	
Palladium	62.5%
Silver	22%
Tin	9.5%
Gold	2%
Indium	2%
Zinc	2%
Contains less than 1% Ruthenium, Rhenium	
Au & Pt Group - 64.5%	
Classification - Noble	

### PROCESSING TECHNIQUE

#### WAXING AND SPRUING

Wax to a minimum thickness of .3mm for single units and .5mm for bridge work. Avoid sharp angles and corners. The indirect method of spruing 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" to 3/8" long. Sprues longer than 3/8" should have a reservoir 1/16" from pattern. Patterns should be a maximum of 1/4" from top of investment.

#### INVESTMENT

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

#### BURNOUT

1550°F (840°C)

#### MELTING AND CASTING

Wind casting arm one turn more than used for casting gold. Use a multi-orifice torch with 10 psi fuel and 20 psi oxygen. The alloy will fully puddle and form a ball before it is ready to cast. **DO NOT OVERHEAT. DO NOT USE CASTING FLUX.** The casting temperature is 2435°F (1335°C).

#### DEVESTING AND FINISHING

Blast with aluminum oxide to remove investment particles. Finish with aluminum oxide stones. Reblast porcelain receiving surface with non-recycled aluminum oxide. Clean in ultrasonic for 10 minutes in distilled water or denatured alcohol.

#### OXIDATION

Oxidize from 1200°F (650°C) to 1850°F (1010°C) at 145°F/min (80°C/min) in air with 5 minutes hold time. Bench cool. Proceed with normal opaque technique.

#### SOLDERS AND FLUX

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

5222Y r2

