



AURIDENT, INC.

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VANGUARD CERAMIC ALLOY TECHNIQUE OUTLINE

Vanguard is a noble metal alloy containing 51.2% palladium, 48.0% silver, balance iridium and ruthenium. The absence of oxide forming base metals gives the alloy a unique esthetic advantage over most other gold and palladium based PFM alloys.

Wax-up: Sprues should be no smaller than 8 gauge (6 gauge for induction casting). Sprue length should be no longer than ¼ inch. Minimum thickness of wax should be 0.3mm.

Investment and Burnout: Use Aur-*i*-Vest investment or equivalent high conductivity, carbon free investment. The pattern should be covered by no more than ¼ inch of investment. Burnout using standard or rapid procedures at 1650°F/900°C for 45 minutes or according to investment manufacturer's recommended time.

Casting: Centrifugal type casting machines should be wound to a minimum of 4 turns due to the low density of Vanguard. At least 10% new alloy should be added for each casting using a previously used button. A hot propane-oxygen or natural gas-oxygen torch flame should be used with the inner cone of the flame approximately ½ inch long. The alloy should be heated to approximately 2550°F/1230°C before casting. A slight film that appears during melting should become clear a few seconds before the metal is ready to cast. If correct burnout and casting temperatures are used, the button edges should be relatively sharp. A rounded button edge may indicate too low a burnout and/or casting temperature.

Cleaning and Finishing: The investment should be removed by sandblasting with aluminum oxide or glass beads. Finish by using diamond wheels or carbide burrs. Remove any grinding debris by sandblasting with 50-60 micron aluminum oxide at a pressure of 60 psi. Steam clean or use denatured alcohol in an ultrasonic cleaner for 2 to 3 minutes. Degassing is not necessary if care was taken not to contaminate the alloy surface during finishing.

Bonder Application: Vanguard Bonder powder should be mixed with Vanguard special liquid to form a thin creamy slurry. Apply a thin coat to the alloy surface and air fire at an entry temperature of 930°F/510°C with a rate of climb of 140°F/60°C per minute to a final temperature of 1830°F/1000°C. Hold for 30 seconds. Apply opaque, and build porcelain, according to manufacturer's instructions. One coat of opaque should be sufficient.

Colorant Application (optional): If internal color enhancement is desired, colorant should be applied to the appropriate surfaces after firing of porcelain. Colorant powder should be mixed with Vanguard special liquid to form a thin creamy slurry. Allow to dry for 2 minutes before firing. Air fire at an entry temperature of 930°F/510°C with a rate of climb of 140°F/60°C per minute to a final temperature 65°F/20°C below the porcelain glaze temperature. Finish by blasting with glass beads at 30 psi pressure.