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## FOCUS CERAMIC ALLOY TECHNIQUE OUTLINE

**Focus** is a palladium based precious metal ceramic alloy (2.5% gold; 0.1% platinum; 70.3% palladium, and 9.7% silver) designed for use in applications where cost considerations preclude the use of higher gold content alloys.

**Wax-up:** Minimum section thickness should be no less than 0.4mm. Use direct sprues 8 gauge (3.2 mm diameter) and sprue length should not exceed ¼ inch.

**Investing and burnout:** Use Aurivest investment or equivalent carbon free investment. Carefully follow manufacture's recommended liquid to powder ratio. To prevent air entrapment in mold during casting, the pattern should be covered by no more than ¼ inch of investment. Burnout at 1500°F allowing one hour for each one inch of ring diameter after reaching the burnout temperature.

**Casting:** If a spring loaded centrifugal casting machine is used, lock casting machine arm in position after winding three full turns. Use a quartz crucible that has not been previously used for a different alloy. Avoid graphite crucibles or the use of carbon, asbestos, or flux in contact with the metal during melting. If an automatic induction casting machine used, do not use a graphite insert in the crucible.

If any previously melted alloy is included (buttons, castings, etc) in the crucible, a minimum quantity of new alloy equal to one-half (1/2) the weight of the previously metal alloy should also be included. Melt using a gas-oxygen flame with the inner cone of the flame about ½ inch long. To avoid excessive preferential oxidation of some of the alloying constituents, maintain the tip of the inner cone at a minimum distance of ½ inch from the metal. Cast at a temperature where the metal appears completely molten but do not overheat. Allow the ring to bench cool after casting.

**Preparation for Porcelain:** Remove adhering investment with brush and ultrasonically clean. If a sandblast is used, maintain air pressure below 30psi to avoid damaging margins. Rough grind with a hard mounted stone to all metal surfaces to which porcelain is to be applied. Heatless stones are not recommended. Clean in an ultrasonic cleaner using distilled water. Avoid contact with fingers.

**Degas** at 1800°F for 2 minutes in air and 2 minutes in vacuum for a total of 4 minutes. (Either the air exposure or the vacuum exposure may be done first.) If the surface is sandblasted, clean again in distilled water in an ultrasonic cleaner. After this step, take particular caution to avoid contact between the metal surface and fingers or any other foreign object that could leave a contaminant deposit on the surface.

Alternatively to the degassing procedure, the bond between the metal and porcelain can be enhanced by use of Aurident's Vanguard Bonder. If Vanguard Bonder is used, the golden color of the Vanguard Bonder will enhance the chroma and hues of the porcelain. Follow instructions with the bonder to apply.

Surfaces are now ready for application of opaque, according to porcelain manufacturer's instructions.

**Recommended Solders:** WCS, PSF