

## **Firing Metal Clay Accents with the SpeedFire® ElectricMini™**

### **Summary**

- The SpeedFire® ElectricMini™, and precious metal accents Accent Gold for Silver™ and Accent Silver™ (by Jewelry Material Innovations, Inc.), appear to be made for each other! The SFEM Artisan One model readily fired Accent Gold for Silver™ onto PMC3 and PMC+ sample pieces in a single firing; adhesion was excellent, and multiple firings were not required. It also fired Accent Gold for Silver™ onto PMC Sterling during the normal sintering step in activated carbon with perfection adhesion, thus eliminating the need for a separate firing step for the accent. The ability to *co-fire* this accent, and no requirement for using a silver paste base layer to achieve adhesion, are real advantages. The SFEM Artisan One also fired Accent Silver™ onto FastFire BRONZclay™, with a resulting bright silver accent layer. The SFEM Artisan Two likewise easily fired Accent Silver onto COPPRclay™, leaving a beautiful silver layer.
- ***Firing Accent Gold for Silver™ onto PMC3 and PMC+***
  - Firing Accent Gold for Silver™ (AGS) onto PMC3 and PMC+ is very straightforward with the model SFEM Artisan One. A major advantage of using the SFEM Artisan One is that AGS can be attached to silver clay with only a single firing. After I formed the piece in PMC3 clay with a template and stamp and dried it in a dehydrator, I applied two layers of AGS with one-hour drying in a dehydrator after each application. The two layers were sufficiently thick to provide complete visual coverage of the silver (no thin spots). Next I placed the piece in the SFEM Artisan One and fired it for 40 minutes, after which the kiln was allowed to cool. The fired piece was strong, indicating thorough firing of the clay, and the AGS was firmly attached. I lightly burnished the AGS with a steel tool and then tumbled the piece in stainless steel shot with a burnishing fluid added. The finish was bright and attachment of the gold was perfect.
  - The procedures for firing PMC+ were identical, except that the piece coated with AGS was fired for 50 minutes instead of 40 minutes. The fired piece was strong, and after light burnishing and tumbling the AGS accent was a lustrous 24k gold color. Because of the similar nature of Art Clay 650 and PMC3, the procedures for firing AGS onto Art Clay 650 clay would be very similar, if not identical.
  - For both PMC3 and PMC+, all firing was done without the need for a temperature controller and pyrometer.
  - A significant advantage of using AGS as a gold accent is that a base layer of silver paste is never required to achieve excellent adhesion.
- ***Firing Accent Gold for Silver™ onto PMC Sterling***
  - AGS nicely accommodates the two-step firing process used for PMC Sterling. After forming the PMC Sterling piece, I dried it in a dehydrator and then fired it in air at 1000F for 30 minutes to burn out the binder. This step was readily accomplished with the use of two SFEM accessories: the Temperature Controller and the Digital Pyrometer. I paid some attention to controlling the temperature at 1000F by making several minor adjustments to the Temperature Controller during the firing process. After the piece cooled I coated it with two layers of AGS and dried each layer in a dehydrator for one hour. Next I placed the piece in activated carbon, fired to 1500F, held for 30 minutes, and then cooled in the kiln. The Temperature Controller permitted accurate temperature control. Mild burnishing with a steel burnisher followed by tumbling in stainless steel shot produced a beautiful 24k gold layer.

- The advantage of being able to co-fire AGS with PMC Sterling (as well as PMC3 and PMC+) eliminates the cumbersome step of a third firing to attach the accent layer. In addition, because of the thermal profiles developed by the SFEM Artisan One, it is difficult to over-fire the AGS and lose the rich 24k gold color. The time/temperature combinations achieved with the SFEM Artisan One resulted, in every case, in a mechanically strong piece with a perfectly attached gold accent.
- ***Firing Accent Silver™ onto FastFire BRONZclay™***
  - I fired Accent Silver™, which is a silver-base accent developed for bronze and copper jewelry pieces, onto FastFire BRONZclay™ easily. I formed the FastFire BRONZclay™ piece using a template and stamp, and then dried it for two hours in a vegetable dehydrator. I then fired it in activated carbon in the SFEM Artisan One for 55 minutes and allowed the kiln to cool. Because Accent Silver™ undergoes a brief liquid phase during firing, it can spread a bit on the surface beyond the original edges of the application. Spreading can be eliminated by the use of a mask, such as yellow ochre or an oxide layer. I used the copper oxide layer that developed during firing to maintain the Accent Silver™ in the exact location it was applied, because Accent Silver™ will not adhere to a metal oxide layer.
  - Thus, I removed the copper oxide with 400 grit silicon carbide paper where the Accent Silver™ was desired, and then I applied it and placed the piece in a dehydrator for one hour. I applied a second layer of Accent Silver™ and dried as before, after which the piece was fired to 1050F in the SFEM Artisan One. As soon as the temperature reached 1050F, I turned off the power to the kiln and allowed it to cool. After the piece had cooled I brushed the firing residue off the Accent Silver™ layer and the oxide off the uncoated region with a soft stainless steel brush. To finish the piece I tumbled it in stainless steel shot.
- ***Firing Accent Silver™ onto COPPRclay™***
  - Like the procedure used for *FastFire BRONZclay™*, I fired Accent Silver™ readily onto COPPRclay™. I formed the COPPRclay™ piece using a template and stamp and then dried it for two hours in a vegetable dehydrator. I next fired it in activated carbon to 1825F in the SpeedFire® ElectricMini™ Artisan Two and held the temperature for one hour, and then let the piece cool in the kiln. I removed all oxide from the piece with a stainless steel brush, and then applied two coats of Accent Silver™ with thorough drying in between coats. I outlined the boundary of the region coated with the Accent Silver™ with yellow ochre to prevent spreading of the silver outside of where it was placed. I fired the piece in activated carbon to 1050F, after which I turned off the kiln. After the piece had cooled, I again wire brushed it and followed by tumbling in stainless steel shot to produce a nice luster.