



## FS999™ Fine Silver Overview & Firing

Available in lump clay form, slip/paste and syringe, FS999 fine silver metal clay comes right out of the package ready to form, fire and finish. FS999 is a great, all purpose metal clay with excellent working properties. Invented by Bill Struve from Metal Adventures, the inventor of BRONZclay™, COPPRclay™ and EZ960® Sterling Silver Clay.

### Wet Clay

Ready to use directly from the package, the first thing you will notice is its smooth, creamy consistency. The clay accepts and telegraphs the smallest of details in textures very well. It is easy to roll and form, and is surprisingly non-sticky. It also has a high moisture content, making it easy to work with in its wet form. For best long term storage and to maintain hydration and workability, store unused FS999 in a clay hydrator charged with distilled water.

### Silhouette Paper Cutter

FS999 clay, when rolled to 1 or 2 cards thick, cuts cleanly on the Silhouette paper cutter.

### Greenware and Dry Construction

We recommend using a metal clay hot plate or dehydrator to dry pieces. Using a dehydrator may cause slight warping. If warping occurs, pieces may be flattened gently. In its dried, greenware stage, FS999 is easy to sand and carve. Dried pieces are very flexible, less delicate and less fragile. Dried pieces can be easily adhered to each other using distilled water. Use paste for filling cracks and seams.

### Embedding Objects

Nano gems, cubic zirconia, lab created gemstones, bezel cups and other findings or embeddables can be co-fired with FS999. Please refer to our Gemstone Firing Guide for a comprehensive list of gemstones that are compatible with the firing times and temperatures of FS999. Most, but not all, CZs, nano gems and lab created gemstones can be fired at 1650°F / 900°C for 2 hours on an open kiln shelf (see Firing Schedule below) without failure or color change.

### Kiln Firing

**We do not recommend torch firing.** After ensuring the clay is bone-dry, kiln fire on a hard kiln shelf raised up from the kiln floor. Fire at full ramp speed at any of the times and temperatures below:

1650°F / 900°C	<b>30 minutes – 2 hours (*depending on piece size)</b>
1600°F / 871°C	1 hour
1550°F / 843°C	3 hours
1450°F / 788°C	4 hours
1400°F / 760°C	6 hours

\*Smaller, thinner pieces can be fired successfully in the 30 - 60 minute range. For medium to large size pieces, we recommend firing at 1650°F / 900°C for 2 hours.

**Note:** Muffle kilns have heating elements on three sides (no heating element in the door), therefore any air leakage around the door can create cool spots near and around the door. For this reason, to ensure complete sintering, we recommend firing all metal clays in the rear center portion of the kiln.

If firing a piece flat, we recommend a raised, hard ceramic kiln shelf lightly dusted with alumina hydrate to prevent sticking as the metal clay shrinks and sinters. For irregular pieces, fire in a kiln safe container such as an open stainless steel firing pan or a ceramic dish filled with alumina hydrate. For three dimensional pieces, fill interior with alumina hydrate to provide support and prevent collapsing. These pieces must have an opening to allow for the removal of alumina hydrate post firing. Vermiculite is an excellent firing media for irregular shapes, but should be crushed to a very small, fine consistency prior to firing.



COOL TOOLS

## Carbon Firing

Carbon firing of FS999 is not necessary unless you require carbon for another reason, such as co-firing an oxygen sensitive gemstone as noted in the Gemstone Firing Guide, located on the FS999 product page. After ensuring the clay is bone-dry, kiln fire using a firing vessel filled with coconut, coal or magic carbon. Place container on a raised kiln shelf. Use the two stage firing method below:

Full ramp to 650°F / 343°C – hold for 30 minutes, then full ramp to 1650°F / 900°C – hold for 3 hours.

## Shrinkage

During firing, FS999 will shrink 13% as a result of the sintering process, as the organic clay binders burn off in the kiln.

## Finishing and Polishing

When finishing, FS999 provides either an easy satin finish, or if you like, a beautiful mirror finish.

For a satin finish, brass brush your piece directly out of the kiln, followed by 1 to 2 hours in a rotary tumbler. A magnetic tumbler will drastically reduce the time needed in a tumbler.

For a mirror finish, use the same process as above. Then, using a flex shaft or other rotary tool, polish with radial bristle discs and lastly, silicone polishing wheels and points.

## Enameling

FS999 is an excellent choice for enameling. Like all fine silver, FS999 accepts both transparent and opaque enamels beautifully.

## Patination

To achieve a good, dark result from Liver of Sulfur (LOS) or Patina Gel, ensure your piece is absolutely clean by soaking and then brushing with hot water, soap, and ammonia. Using a strong solution of LOS in very hot distilled water, dip or soak your piece in the solution until you get the darkness or result you desire. Adding a teaspoon of ammonia to your LOS bath can also help achieve a darker result or possibly a rainbow effect. A bath of baking soda and water will neutralize the LOS bath and halt the patination process. Then, either by hand or by machine, bring up the high points with a polishing cloth, Scotchbrite™ pad (satin finish), or polishing wheels (high shine or mirror finish).

## Soldering

Once fired, FS999 is metallurgically just like other fine silver metals, but like other fired metal clays, it is more porous than sheet stock or cast items. Due to this porosity, FS999 will “soak up” solder. When possible, prepare areas for solder by burnishing to close the open pores and reduce the tendency to absorb solder. Join other metals and findings to fired FS999 by using the same flux, solder and torch(es) as you would to solder other silver products or gold.

## Hallmarking

Hallmark as .999 FS or Fine Silver