

**Test : Val Lewis' "FYI" : .999 Fine Silver Metal Clay (Oct & Nov 2014)
by Paula Long of *Wear the Music***

Safety Note

During any sanding (including etching on the Silhouette), I wear an appropriate mask and immediately cleanup all dust with a very wet paper towel, which is left to dry inside an open zip bag. When the paper towel is dry, I close the zip bag, saving the towel with silver clay residue for torch firing for silver recovery at a future date. I really don't like the health hazards with sanding, but I do love the results of etching and cutting metal clay on the Silhouette Cameo, so I do use as many precautions as possible.

GOAL

Record general information and immediate observations

Starting Weight of Clay : 15g gross (wet lump)
Total Dry Weight of Test Pieces : 8.4g
Leftover Dry : 2.0g
Total Dry Clay : 10.4g
Lost to dehydration, dust, waste : 4.6g

The clay was packaged in clear wrap inside a sealed foil pouch inside a zip-close foil pouch. Right out of the package, the clay was moist and felt similar to Art Clay brand. I was able to remove the lump of clay from the clear wrap completely and place on the scale for weighing. There was no clay residue left when the clay was removed from the scale. The color is beige, whereas Art Clay's brand is more grey.



NOTE: To reconstitute clay, I broke into pieces with my fingers, placed on double thick plastic wrap, and spritzed with water, flipping the pieces around to ensure all were coated with water. I wrapped the chunk of bits tightly in the wrap and set aside for 30 minutes to allow the water to soak in. I rolled the clay many times to distribute the water and then rolled into a ball. I spritzed both sides of the ball lightly with water, re-wrapped the ball, and allowed the clay to sit for about 15 minutes to absorb the water. After rolling, I inspected the thin slab and found the clay to be nicely reconstituted without graininess or dried bits.

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Small fissures were present in the clay when rolled into a slab straight out of the package (no water, lubricant, or kneading). The clay was rolled up, placed in plastic wrap, and rolled several times without additional water and without any lubricant.



GOAL

Two sided pendant, 4 cards thick

TEST PROCESSES

- Etch and cut 2 card thick slab on the Silhouette Cameo electronic cutting machine
- Water-glue each side together to form a complete two sided pendant

NOTE

No lubricant was used during any part of this process!

The clay was removed from the plastic wrap and rolled into a slab 2 cards thick on a silicone mat. Success! There were no fissures in the newly rolled out clay!

I was surprised and very pleased when, after the rolled slab was cut into a rectangle, the extra pieces were easily removed (remember, I didn't have any lubricant on the mat!). The clay was smooth and without any fissures. The slab was left to air dry, and it removed from the mat easily.



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I etched and cut the 2-card thick slab on my Silhouette Cameo. The clay both etched and cut easily, beautifully, and perfectly. I had no issues at all with this process or the result.



When the cut slab was being removed from the mat, it started to curl. After the pieces were completely removed, they were inspected. I noticed a few surface fissures on the back of each piece. I carefully handled the pieces and "glued" them together with water only, smudging them until they became difficult to move. I pressed all areas to ensure good adhesion and cleaned up the side seams. They were left to air dry.



Close-ups of the etching and cutting of both the front and back of the pendant. I am quite pleased at the smoothness of the walls of the etched and cut areas.



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General Note:

I usually make all my Silhouette pieces a total of 4 cards thick (5% - 12%) for low-ish shrinkage clays and 6 cards for high shrinkage clays (25% - 30%). Because *FYI*'s shrinkage rate sat in the middle of the two ranges I usually work with, I chose to test at 4 cards thick. If the results are not in the thickness or durability I demand, I'll make further pieces 5 to 6 cards thick. I also believe that the curling will be non-existent if I use thicker slabs in the future.

GOAL

Pair of Earrings, 4 cards thick

TEST PROCESSES

- Texturing clay with Scratch Foam texture designs
- Doming clay
- Cutting dry domed clay with cutters
- Cutting wet clay with tissue blade
- Light sanding dry clay
- Layering *FYI* and *Art Clay* brand clays

NOTE

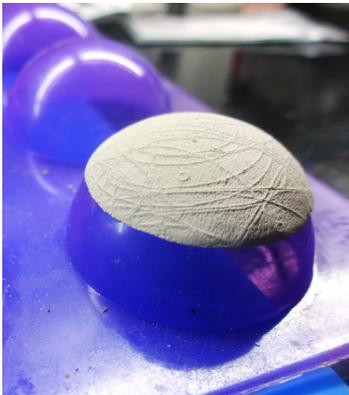
No lubricant was used during any part of this process!

I sandwiched a fresh slab of clay between scratch foam textures created on the Silhouette Cameo. The clay received the textures perfectly and lifted away easily from the scratch foam (without tears or cracks!).

I laid the textured clay on my mat, cut it with a circle cutter, and placed it on a doming mold to dry. The reason I didn't use lubricant on the mat is because I didn't press the clay onto the mat; I just set it atop the mat for cutting with circle cutters.

The extra (scrap) pieces were balled and placed in plastic wrap separate from the fresh clay.

The textured clay domed beautifully. Because the dome was deep, I kept pressing opposing sides until the clay stayed down on the dome. The clay never cracked during the entire procedure although it was on the dry side. It was left to air dry and removed easily from the dome. At inspection, all textures were intact and no cracks or fissures were visible. The inside of the domed piece was damp at removal so it was set aside to continue air drying.



After the domed piece was completely dry, a circle was cut out of the center to create two shapes. I placed the dome's edge side down on the mat and turned the metal cutters in a continuous circle hoping to cut the clay. When that process failed, I dipped the cutter into water, spread the water with my fingers around the edge, and went back to turning the cutters in a continuous circle. This worked! I continued this process until the entire inner circle was completely cut away from the outer circle. I set aside to dry and then lightly sanded the edges.

I drilled holes with progressively sized drill bits in the earrings for connection findings after firing. I also drilled another hole to the side for a decorative element: a balled piece of fine silver wire, which I placed in the hole atop a tiny drop of clay slip so the wire would stay in place during drying and firing. Drilling the holes was

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fairly easy (harder to complete than Goldie Bronze but easier than Hadar's steel) and none of the surrounding clay cracked or broke.



The second earring's slab was textured, cut to size and shape with a tissue blade, drilled to receive ear wire, and placed on a warming plate to dry. After the earring was dry, the edges were lightly sanded and slightly beveled.

My Maker's Mark was placed on the back of each earring using water only to attach. These pieces were on hand previously made with Art Clay brand silver clay. The purpose of mixing the brands was to discover if layering the two would cause issues since each has different binders and shrinkage rates. No Hallmarking at this point was done.



GOAL

Wide band embellished ring, 5 cards thick

TEST PROCESSES

- Photopolymer plate stamping (PPP)
- Ring forming on mandrel
- Snake rolling & attaching to ring band
- Carving fully dried clay
- Dust texturing
- Repairing pre-firing cracks/breakage

NOTE

A teeny tiny (pin-head size) drop of olive oil for lubricant was used on the mat during the rolling of the band since it needed to be lifted off the mat right away.

I made three bands, with the pictured band (below) being the final of the three. All bands were made assuming a 2-1/2 size shrinkage rate.

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First Band

I started with fresh clay and rolled it out onto a very slightly lubricated silicone mat. I used a ring shape template made from stencil material in the size I needed, laid it atop the clay, and cut the clay with a needle tool. This stencil's design is a wide oval top with a band that tapers its way to a thin band back. The back must be joined to create a seamless ring. The clay cut cleanly without jagged edges. The band was immediately placed on a round mandrel covered with freezer paper. I cut the overlapping area and allowed the ring band to dry on the mandrel. After the ring was dry to the leather hard state, I applied water to the cut ends, allowed it to absorb, and then pressed the ends together, moving them back and forth against one another until they resisted moving. I wiped the mud off the join and set aside the band to dry. I noticed the mud was a bit gritty, but I knew I could sand that off so left it alone. When I checked on the band several hours later, the join was cracked on the inside and outside of the band, but not fully separated. I thought about sandwiching the break between two fresh pieces of clay but instead decided to reconstitute the ring and try again using a different method.

Second Band

I created a second band the same as the first and instead of cutting the ends of the band, I wet the overlapping ends, allowed them to dry, removed the band from the mandrel when dry enough to remove without misshaping it, allowed it to fully dry, and sanded them down to the same thickness of the rest of the band when dry. I thought this was successful until I noticed small cracks in the sandwiched area. I have no ideas as to why this area cracked.

Third Band

I created a third band from reconstituted clay, this time, in the shape of an approximately 15mm wide rectangle. For this ring's join area, I cut the ends and immediately smudged them together using my finger dabbed with a tiny bit of water to allow the clay to blend. The blending was messy, so I allowed the band to dry enough to remove from the mandrel and created 2 card thick rectangles to place on either side of the join. I joined these to the band with a small amount of water placed on both sides of the band. After drying, I intended on sanding this area down to match the thickness of the rest of the band. When the band was partially dry, I removed it from the mandrel and allowed it to thoroughly dry. After inspection, the join seemed strong, and I sanded the outside pieces down to match the thickness of the rest of the band.

At this point, I was left with a simple wide band. I decided to cut the band into a different shape, which allowed me to test the density of the clay. I placed the ring on the mandrel covered with freezer paper as to avoid putting pressure against the shape, drew random wavy shapes onto the clay, and rough cut the shape with a surgeon's scalpel. The clay was denser than both Goldie Bronze and Art Clay Silver, which means it was harder to cut through. However, it was not as difficult to cut through as Hadar's steel clay. The cutting seemed to require the same effort as when I drilled holes in the earrings, so I did find consistency in the density from fresh to reconstituted clay. The new shape of the band resulted in a front that was wider than the back, and as I started cutting the back where the join was, the clay cracked at the join. I was surprised since that join had been sandwiched with fresh clay and had been cut directly on the solid surface of the mandrel. A wee bit frustrated, I decided to complete the ring's design and work with the crack/break after the other work was done.

I rolled a snake from reconstituted clay, and the results were a snake with no cracks. I lightly wetted the top of the ring band against the waviest edge and placed the snake on top and then used my finger to coax the snake to bend parallel with the ring's edge. I tapered the snake on the sides of the band and blended the ends into the band with a bit of water on my finger, shaping it and blending it further with a damp paintbrush. I also blended the edge of the ring and the snake using a bit of water, my finger, and finally a paintbrush to blend them smooth. The clay blended nicely without graininess.

After drying, I carved the other side's edge of the bend several millimeters from its edge, creating a slope. I also went back to the snake side of the band and carved between the snake and the ring's edge. There was no real design reason to do this; I simply wanted to further test carving this clay. I found it difficult to start the carving process, but once I got a little bit into the clay with the tool, deeper carving was fairly easy.

For the final decorating step, I waited until the band was dry and then used a slightly wet paintbrush (more than damp but not saturated) to apply water between the two edges of the band. I had a piece of dry clay that I sanded over top of the band's wet area. I allowed to fully dry and then used a dry soft paintbrush to remove any dust that had not adhered. The intention to apply dust to the band was to see the texture results.

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The time had come to address the band's join area. I decided to use two methods to secure this darn join: 1) I wet the edges of the break, smudged them together and held them in place for a minute or so. I then set the band aside while I prepared for step 2. 2) I created a 2 card small slab, cut two small rectangles from it, and again sandwiched the join area with water. I spread the clay a bit with a damp paintbrush and my finger. I noticed the clay was messy (see picture) at the join inside the ring after it was dry, but I decided to leave it alone and fire it without chancing breakage during cleanup. I don't like to grind metal, but at this point, I felt I had no other choice but to hope the join fused and held up during grinding and after firing cleanup.

There were also other areas inside the band that got a little messy during the time I was working on the outside of the band, and again, I decided to leave the inside of the band alone and conduct more intensive cleanup after firing.



GOAL

Fire 5 pieces of metal clay jewelry

TEST PROCESSES

- Supporting pieces with vermiculite
- Combining small piece of *Art Clay* with *FYI*
- Firing method

NOTE

No lubricant was needed for firing (haha)!

I placed all curved/domed pieces of thoroughly dried clay atop its own bed of vermiculite. I use vermiculite only because it is benign during firing. For safety reasons, I do leave the area for at least the first half hour of firing to avoid the binder burnout fumes.

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I ramped Full to 480°F and held for 15 minutes (to allow for binder burnout) and then ramped Full to 1650°F and held for 2 hours to allow for a complete annealing soak.



GOALS

- Examine and record firing results
- Record Measurements
- Determine shrinkage rates



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Earring #1 - Flat

Was misshaped where the Art Clay Maker's Mark was placed on the back. A leather mallet flattened the areas around the Maker's Mark and work hardened the piece without issue. The front of the piece has a small indented area where the Maker's Mark has pulled the silver towards it.

	<u>Pre Firing</u>	<u>Post Firing</u>
Weight	1.8 g	1.7 g
Measurements (mm) ¹	47.5 x 12.5	37 x 9.5
Card Thickness	4	-
Shrinkage Rate	Length: 26% Width: 24%	

1-length x width

Calculations

Length	$35/47.5 = .7368$ (74)	$100 - 74 = 26\%$
Width	$9.5/12.5 = .76$ (76)	$100 - 76 = 24\%$

Earring #2 - Domed Circle

Was misshaped where the Art Clay Maker's Mark was placed on the back. It was able to be re-domed in a wooden dapping bowl and a wooden dapper. This procedure also served to work harden the piece.

	<u>Pre Firing</u>	<u>Post Firing</u>
Weight	1.2 g	1.2 g
Measurements (mm) ¹	19 x 19	14.5 x 14.5
Card Thickness	4	-
Shrinkage Rate	Edge to Edge: 24%	

1-outer edge to edge

Calculations

Edge to Edge	$14.5/19 = .7632$ (76)	$100 - 76 = 24\%$
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Earring #2 - Domed Cut Out Circle

This piece was a little misshaped out of the kiln. A quick leather mallet hammering completely around the piece on a horn anvil along with a couple of taps on a ring mandrel reshaped and work hardened this piece.

	<u>Pre Firing</u>	<u>Post Firing</u>
Weight	.9 g	.8 g
Measurements (mm) ¹	27 x 27	20 x 20
Card Thickness	4	-
Shrinkage Rate	Edge to Edge: 26%	

1-outer edge to edge

Calculations

Edge to Edge	$20/27 = .7407$ (74)	$100 - 74 = 26\%$
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Two-Sided Pendant

The front's etched area was bulging a little bit, which indicates to me that the piece was a bit too thin for front and back etching. For the next piece, I will use 5 or 6 card thickness at the start. I flattened and work hardened the piece with a leather mallet without issue.

	<u>Pre Firing</u>	<u>Post Firing</u>
Weight	1.4 g	1.3 g
Measurements (mm) ¹	51 x 12	40.5 x 9.25
Card Thickness	4	-
Shrinkage Rate		

1-length x width (at widest)

Calculations

Length	$40.5/51 = .7941$ (79)	$100 - 79 = 21\%$
Width	$9.25/12 = .7708$ (77)	$100 - 77 = 23\%$

Ring

Just by looking at the ring, I could tell it had obviously shrunk more than 2-1/2 sizes. When placed on the mandrel for size information, it was a bit misshaped. I hammered it round using a leather mallet without any issue or breakage (the seam fused - yay!). The thickness of the band appears to be 4 cards thick; there are no thin areas where breakage could occur. I feel I'll be able to increase the size of this ring by half a size on the mandrel without compromising band thickness, strength, or risk of breakage.

	<u>Pre Firing</u>	<u>Post Firing</u>
Weight	3.1 g	3.1 g
Measurements (mm) ¹	10 x 5	8 x 4
Card Thickness ²	5	-
Shrinkage	<u>6 Sizes</u> & 20% Band Width	

*1-widest & most narrow
2-undecorated band area*

Calculations (Band Width)

Widest	$8/10 = .8$ (80)	$100 - 80 = 20\%$
Most Narrow	$4/5 = .8$ (80)	$100 - 80 = 20\%$

GOAL

Perform Finishing Work

TEST PROCESSES

- Ring - Grinding & Sanding
- Applying Patina
- Polishing

Ring

I was able to sand (240 grit sandpaper) the ring's seam, and it's barely visible. I sanded and polished it to a satin finish and applied a patina (LOS solution). I left the interior and the dusted area with the magentas and blues achieved with the LOS solution, lightly polished the other areas, and tumbled with steel shot and Dawn for 45 minutes.

Earrings & Sound Wave Imprinted Pendant

For the earrings, I used a brass brush to burnish. I applied a LOS solution until I achieved a variety of colors, neutralized, tumbled with steel shot and Dawn for 45 minutes, and polished the raised areas. For the pendant, I applied a different coloring medium., polished, and finished to a high shine.

In all areas of finishing work, I was pleased with the results and had no issues with any of the processes.

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