

Vince Pitelka, 2012

### Notations on Pitfiring and Sagger-Firing from the Clayart Internet Discussion List

The following is a collection of relatively unedited comments from people who do sagger firing. For anyone new to sagger-firing or pitfiring, at least it will give you a place to start your experiments.

The dark lines come from steel or copper wire, or steel wool or copper scrub pads draped over the pot. You'll get darker colors if you have a tight-fitting sagger with no gaps or openings admitting air. Color will come from salt, copper carbonate, and ferric chloride.

If you want to use salt or copper to good effect, the fire has to be hot enough to volatilize them. That's true of all chemicals in sagger fires. They do no good if it doesn't get hot enough. I fire to a minimum of 1500F, and usually to cone 010, about 1625F, or so. Salt will produce reds and pinks at that temp (caveat - sometimes; sagger-firing is always iffy). Copper carb can create reds and pinks too. If you want a dark line, try pulling apart some fine steel wool (not soap pads, but just the plain steel wool from the hardware store). Wrap a strand or two around the pot; you'll get a rich dark brown from it. Dried manure (I don't think it matters much what kind, though personally I like horse or cow manure) can create a variety of colors. You can even use the packaged manure from the garden supply store - just dry it before you use it; it's always damp in the bag. There are a variety of other substances one can use for sagger firing; some use charcoal briquettes for rich blacks. Just fire hot enough, let cool long enough, and see what you get. Like anything else in ceramics, it takes a while to figure out the nuances.

I don't see how ash could do much, its melting point is pretty high.

I use cone 6 porcelain and burnished it. I often place the pot on three layers of heavy duty aluminum foil, add sulphate salt, (CoSO<sub>4</sub>, CuSO<sub>4</sub> and FeSO<sub>4</sub>) and a small amount of pine needles or whatever (too much and the piece will be all black). Another fun thing is to open up a copper or brass "Chore Boy" scrubbing pad and enclose the piece in the mesh (makes a grid pattern). Then wrap it up in the three layers of foil and you have a sagger in a pitfire.

I like the colors I get from seaweed. If gathered yourself, it will have sufficient salts in it already from the seawater. You can soak it or other organics in a salt solution. We soak hay in salt water and use that. We try to dry out the materials somewhat before loading them in the saggars. Copper sulfate and carbonate add interesting results. You can sprinkle a mixture of rock salt and copper carbonate in your saggars. Put charcoal briquettes in the sagger for dark black to grey, bury half of the pot in dense sawdust to get blacks.

You can use the seaweed either wet or dry. When I used it I went to the beach and harvested it and used it before it had a chance to dry. Used that way it would tend to flux the clay more where the seaweed was (mostly where there were two or three layers of seaweed). I was firing around cone 1 and also at cone 5 or 6 at the time I used seaweed.

I took a sagger firing workshop where they used dry dog food to surround the work along with powdered charcoal. The charcoal gave wonderful blacks and the dog food contains lots of sulfides and oxides, lending color in random patterns. They also used sawdust soaked in copper sulphate solution also.

You might try experimenting with various strengths of ferric chloride solution on all or part of the pots. Depending on the variables, it can be brown, red, or purple. In my low temp saggar firing, it works great. For ferric chloride I buy Etchant solution at Radio Shack. If your pit temp is really hot and seems to overpower your additions, try covering a few pots (with a smidgen of combustibles and chemicals) in aluminum foil. Put them in the pit with the naked pots and see what you get. And don't forget copper can give us reds, greens and blacks too. Find various sources and try them all: carbonate, sulfate, wire, scrubby pads, etc.

I have always found that for the best color - reds, iron browns, salt oranges, etc, it is necessary to reach a temp of 1500F to 1650F. At lower temperatures the salts do not volatilize with any degree of regularity. There are other reasons for purely black pieces, but low temperature is a common cause.

I do saggar firing in aluminum foil. I have a small gas raku kiln and I take it up to 1250 c. as going higher will destroy the foil. I've had some very nice results using things like Etchant solution (available in Radio Shack), liquid plant food, copper sulphate and kosher salt. It's fun to experiment, as you have no idea how it's going to turn out. In addition, I burnish the pots and bisque to 06 before saggar firing.

You can use red clay flowerpots for saggars. Also, soak some tall grass in salt water, dry it and arrange this in your saggars to make nice patterns on your piece. I have seen saggars fired within an hour and I've seen them fired much longer. I would not want to take a chance on firing greenware. So, I always bisque before saggar firing. Saggar containers take a beating and should be considered expendable. A hand built saggar would not be as strong as a thrown one. I've fired some slab work before in saggar-firing and it's more fragile than coil or thrown work.

I started my clay career as a "Potters Assistant" for a potter whose specialty was pit fired pottery. He mixed copper carb directly into his clay body, used sheep or llama dung as fuel, and the pots were usually very multi-colored. Reds, salmon, magenta, green, blue, purple, just beautiful. Burnishing accentuated the colour too.

For colorants I layer the following: first a layer of salt, then on top of that a layer of Copper Sulfate (small crystals that can usually be found at feed and grain companies or from flower and landscape retail outlets) then on top a layer of Copper Carb. The layers are placed around all the pots -- in my case I have a layer of sawdust on the floor about 3-4 inches thick so the pots sit on the sawdust and the fumigants are trailed around the pots. Don't put the ingredients directly on the pots unless you want big blotches. Prior to putting the pots in the pit I use terra sig so they are polished -- when they come out I clean them up and put on some polish i.e. bees wax (or Johnson Table Wax) both seem to work, then buff with a soft cloth like flannel. I should say that after about 20 minutes of leaving the "pit" uncovered I cover it with sheet metal to create the smoke necessary to create the colors. There are many other methods -- this one works for me. Breakage is usually less than 20% --you must accept some loss in this method as the temp rises quickly and (in my pit) can approach 1800F degrees.

The best saggar-fired pot I possess has a design which looks rather Asian. It was created with a banana peel or two (not dried) tied onto the pot with copper wire. Not only is there a most distinctive design but it has raised portions which create textured spots ..... very nice. The pot has no blush colors.... just a gray pot with black somewhat textured designs.