

## Materials List

**Bisque: by Various Suppliers**

**Colors: by Mayco & Duncan**

Mayco UG Underglazes

Duncan Cover Coats

Duncan Pure Brilliance Clear Glaze

Duncan SN366 Black Satin Matte Glaze

Mayco FN-304 Black Velvet Matte Glaze

**Glass: by Slumpy's**

BC271-71

BC210-72

CF-138A VS-C

(Any glass colors can be used)

**Raku Tongs: By ClayPuzzling.com**

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To truly experience the magic of ceramics, artists need to experiment and try new things. Sometimes combining new ideas and old methods creates something new. At some point in time it was determined heating clay made it harder. Apply a mixture of chemicals and heat, and like that you have an object that holds water and can be used with food. It probably took a few tries, but somebody had to make that first attempt and over the years the process has been perfected. New techniques in ceramics are always ongoing. Push yourself to experiment and discover the next great combination.

Horsehair firing techniques have been around for ages. Artists have tried burning all kinds of materials on ceramic surfaces and some have been successful. Feathers leave an interesting impression. Feathers can be a little more challenging for a couple of reasons. If not placed properly or done in windy conditions, only partial designs are left. And on rounded or indented areas, it can be a challenge to get the feathers to bend and get into the lower spots. Flat areas are the best and easiest to work with.

I've seen many beautiful horsehair and feathered items. But I always want to try new things and for this article, I wanted to incorporate glass as well. Glass can be fully fused into glaze or it can be partially fused and referred to as tack fused. Glass comes in many colors and some have sparkles. Most kinds of glass will work, including stained glass, fusing glass and glass pebbles or marbles. Most

fusing glass will come out true to color where stained glass or inexpensive craft glass can change colors in the firing process. The glazes the glass is combined with can also alter the colors slightly. Experimentation is recommended.

The most common horsehair method is done over a white background. What may appear to be a matte glaze is often a blend of products to create a Terra Sigillata coating. Generally, it's a mixture of clay, water and sodium silicate. This solution is applied to the outside of clay or greenware shapes and then polished or burnished. Polishing or burnishing can be accomplished in several different ways. Some artists use the backside of a spoon, metal rod or stones where others use polishing cloths or chamois. Occasionally, baby oil or similar products are used in conjunction with the polishing process.

Once the greenware or clay item is covered with Terra Sigillata and polished, it's loaded into the kiln and fired to cone 06. Some artists will pull the items as they cool from the firing (between 900 and 1,000 degrees Fahrenheit) but I've had the best results allowing them to cool, and then reheat. The items are removed from the kiln using tongs while they are hot, and horse hair and feathers are held up along the sides and burns on the surface. Once cooled and the ash is brushed away, carbon deposits remain on the ceramic surface. Wax is usually applied to protect the somewhat porous surface from moisture or contaminates from handling.

Please understand many variations of horsehair firing exist and every artist has tips and tricks that work for them. So don't be alarmed if this method differs from others you've read about. Take bits and pieces and develop your own style and look. The actual process of making true Terra Sigillata is complicated and takes time. I wanted to combine more colors and banding techniques into my horsehair firing. So this is my simplified, low-fire technique.

### Creation Process

Begin with low-fire earthenware clay shapes. These can be cast with regular casting slip, they can be built by hand or clay puzzled using almost any low-fire clay body. Smooth any imperfections or seams on the ware. If you plan to glaze any part, it's best to fire the item to cone 06 first. Yes, that's 06, not 04. Do a little cooler firing so the ware can withstand the shock of being removed from the kiln when it's hot. Also note, horsehair items are for decorative purposes and are not food safe. Because the items are removed from the kiln while still hot, there's a chance crazing (small cracks in the glaze) could occur, so they may not hold water.

Create an imitation Terra Sigillata coating. I used underglaze colors (the three coat kind like Cover Coats by Duncan, Velvets by Amaco or UG colors by Mayco). If the surface is going to be a solid color, use the color right from the jar and apply three coats. If banding the colors and creating blends, mix two ounces of color with one ounce of water and mix well. Use a very soft fan glaze brush (like the Royal Aqualon R2845 Ultimate Glaze Fan) to apply four to five coats of Terra Sigillata

over the surface. Try blending colors wet into wet with the use of a banding wheel to get a gradual fade from one color to another. The color is thinned with water to make the application process easier and smoother. If the color is too thick, it can have ridges and bumps. This mixture will go on ultra smooth! Add any finer lines of color with the use of one-coat underglazes

Allow the shape to dry until the shiny look is gone, but is not completely dry. At this point the polishing begins. I prefer to use a chamois by rubbing it in a small, circular motion repeatedly over the surface. You'll begin to see a sheen and polished look. Don't rub too hard that you remove the color. If the color is too damp, you'll get scratch marks. Allow more drying time if you notice this happening.



You may decide to add glazes to some areas and that can be done at this time. The bowls shown in this article only have polished underglaze on the outer rim. Clear glaze was applied over the underglaze in the centers of the bowls. The polishing was only done on the outer edge, not in the glazed areas. The backsides were also glazed.



Once polished and spot glazed, the objects are ready for firing. Place the stilted shapes in the kiln and fire again to cone 06 and allow to cool. Electric or gas kilns can be used. Just make sure the kiln is within a short distance of an exterior door so the burning of the hair can be done outdoors. Trust me; you don't want the burnt hair smell in your home! I've found it best to allow the items to completely cool and reheat to 1,000 degrees before removing from the kiln with the use of metal tongs (normally used for Raku methods) and place the object on a flame-resistant surface. Immediately touch the horse hair or feathers to the ceramic surface and watch it curl up and burn. Work quickly, as items that get too cool will not burn the hair and feathers. It needs to be completed within a couple of minutes. Allow the items to cool.

Some artists will tell you they take their items out when they are cooling from the 06 firing. I've done this and found that even though the digital readout on the kiln controller says it is 1,000 degrees in the kiln, ware can be hotter. If you have ever opened a hot kiln, the temperature reading goes down. When you close it, the temperature will often increase, even though the kiln is not running. Depending how thick the ware is, some will retain heat more than others and they can crack while applying hair and feathers. So to be on the safe side, this is the method I use.

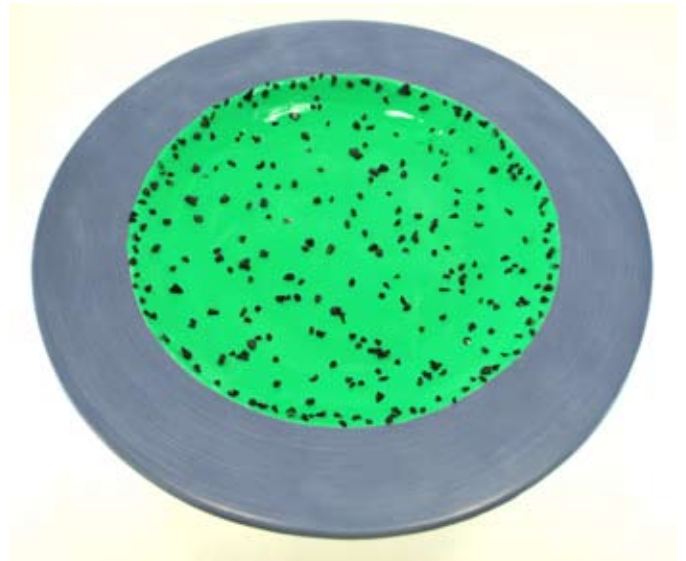
When the shapes have cooled, use a small dust-er brush to remove the hair ash. It should come off with ease and you do not need to scrub the surface. What remains (and is permanent) is a carbon deposit where the hair came into contact with the surface. Apply a couple coats of floor wax to the surface for additional protection.

### **Adding glass**

Glass can be added to glazed areas and fired right into the glaze at cone 06. The purple bowl shown in this article had Adventurine blue glass course frit applied randomly. When fired, the glass melts completely and flows. The brown bowl had large chips of glass placed over the fired glaze and tack fused by firing again to



cone 015. The edges of the glass round and the glazes get soft enough to bond with the softened glass. The bowl was then reheated for the hair/feather application.



### **About the kiln**

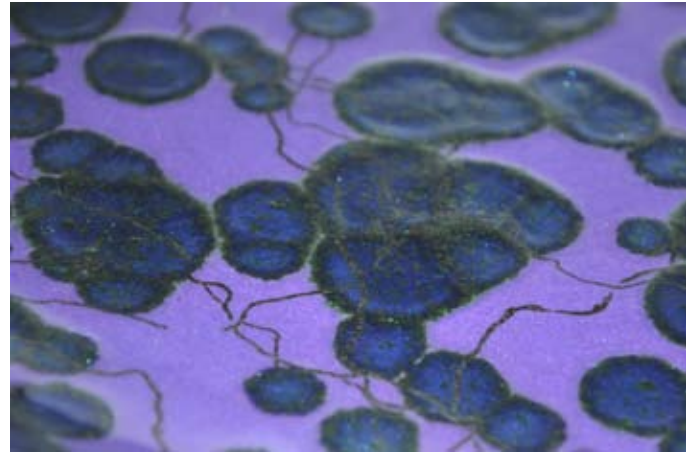
As mentioned, a gas or electric kiln can be used for this procedure. The reason you'll often see artists using gas kilns is because they are portable and used outdoors, where many larger electric kilns can be difficult to transport and may require special wiring. I like to use electric kilns with digital controllers because I can see when the temperature is right and the items are ready to pull. I do use a large kiln in my basement and it requires I carry the items with tongs about 50 feet to get outside. I also use a small electric kiln (Paragon Home Artist) with a 12-inch interior out on my patio because it can be plugged into a regular outlet. Many kiln manufactures have small electric kilns which plug into standard outlets and have digital controllers.

If you don't have a digital kiln, don't worry. It can be done with a manual kiln. A digital pyrometer is needed to give the actual temperature and those can be purchased for under \$80. Digital pyrometers are easy to use and can be placed through a peephole plug hole.

What about larger kilns? Is it safe to be opening the kiln when it's hot? With larger kilns it may require opening a lid where your arm or face is directly over the opening of the kiln, exposing you to heat. Create a pulley system by purchasing metal cable and a pulley at a hardware store. Hook the cable through the kiln lid handle and run that through a pulley attached to the ceiling above the kiln. Have the cable long enough so a second person can pull to open the lid while the other person reaches in with the tongs.

### **About the hair and feathers**

Will any kind of hair work? Even though most hair will burn, the thicker the hair, the better. Hair from the family dog probably won't leave many markings. Hair from a horse's tail or mane is thick. Check with local horse



owners to see if they would give or sell the loose hair collected when brushing. It does not take a lot of hair to do a shape. Hair can also be ordered online from companies selling it for musical instruments. And kind of feathers will work but look for softer feathers with some openings. Solid, stiff feathers do not leave a wispy look.



### **Safety**

Don't forget the pieces are hot when removing from the kiln. Be sure to wear protective clothing, pull long hair back, don't wear loose clothing and don't do it in bare feet or while wearing flip-flops. Keep flammable materials away and don't allow small children or pets in the area. Also have a fire extinguisher handy, just in case. Disconnect power to the kiln before reaching in with metal tongs. If the firing is done indoors, move rugs or other flammable items from the path. Pull back any curtains or draperies which could blow into hot items if a breeze blows. Always wear protective gloves when opening a hot kiln.

Much of this sounds like common sense, but always stop and think and walk through the process to see if you're forgetting or missing anything before moving hot items. The technique is fun, but you also need to be safe!

