

Colorful Horsehair Firing with Glass

By Artist Michael Harbridge

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Materials List

Kiln & Tongs:

by LearnFiredArts.com

Raku Tongs

Digital Pyrometer (for manual kilns)

Raku Gloves

Colors: by Mayco or Duncan

Cover Coats or Fundamentals 3-Coat Underglazes

Gloss or Matte Brush-on Sealer

Banding Wheel:

by LearnFiredArts.com

AM5 Banding Wheel

Brushes & Tools: by LearnFiredArts.com

R2855-6 Aqualon Synthetic Goat Glaze Fan

R2855-8 Aqualon Synthetic Goat Glaze Fan

R2855-10 Aqualon Synthetic Goat Glaze Fan

R2855-12 Aqualon Synthetic Goat Glaze Fan

Miscellaneous:

Horsehair

Craft feathers

Bisque shapes

Needle-nose pliers

Glass

Epoxy

Chamois

Contact the artist:

Michael Harbridge

P.O. Box 108

Iola, WI 54945

info@claypuzzling.com

www.claypuzzling.com

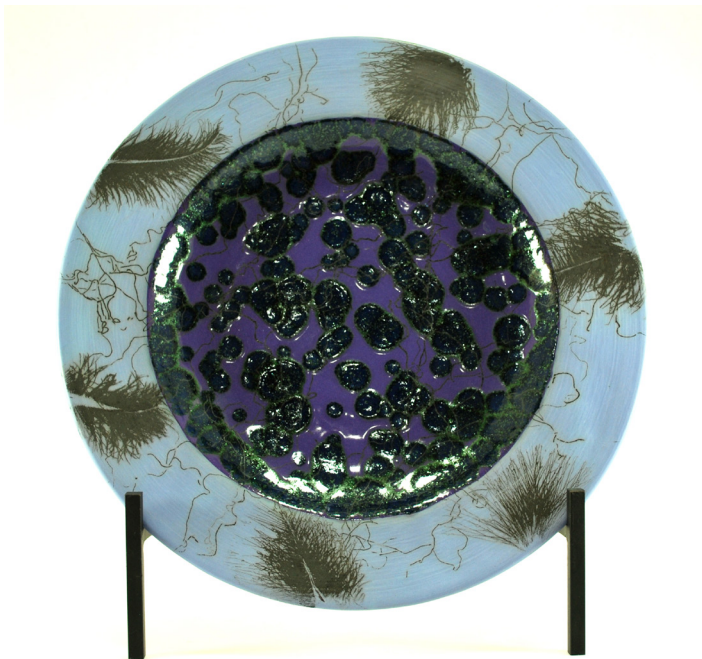
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Begin with low-fire earthenware clay shapes. These can be cast with regular casting slip; they can be built by hand or clay puzzled using almost any low fire clay body. Smooth any imperfections or seams on the ware. It's best to fire the item to cone 06 or 07 first. Yes, that's 06/07, not 04 like most fire traditional earthenware. Cone 04 ware will work, but I've found I have less breakage with items fired a little cooler. 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.

I used underglaze colors (the three-coat kind like Cover Coats by Duncan, Velvets by Amaco or UG colors by Mayco) and use a very soft fan glaze brush (like the Royal Aqualon R2855 Synthetic Goat Glaze Fan) to apply three coats of underglaze 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 can be thinned with water to make the application process easier and smoother. If the color is too thick, it can have ridges and bumps. 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 chamois that have been washed to soften (available from Dollar Tree) 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.

If you plan to add glass to your project, you need to clear glaze any areas where the glass will be added. Apply two to three coats of clear to those areas (follow instructions for specific clear glaze used). You do not want to glaze the entire item. Horsehair carbon lines hold up best on dull polished underglaze surfaces better than shiny areas. Once polished (and possibly glazed in areas), the objects are ready for firing. Place them in the kiln, right on the shelf if the clear glazed areas are not making or close to contacting the shelves. Underglaze (clay based) does not require stiling. Electric or gas kilns can be used. Fire to cone 06/07. (For instructions on fully fusing glass to create flowing looks, see instructions below. These instructions are for tack or contour fusing glass for dimensional looks.)



If you plan to add glass, place the glass on areas where it will not slide off in firing. Fusing glass was used on all these projects because the color fires true, where craft glass could change colors. Glass can be fused in cone mode or the ramp/hold program mode. Either way you do it, you'll want to be near the kiln after about 1,300 degrees F to look inside the kiln and turn it off when you get the proper fuse. Every kiln fired differently, but you'll probably turn the kiln off between 1,400 and 1,500 degrees. If cone firing, you'll be in the range of 014/016. In program mode, ramp up ware at about 500 degrees per hour to 1,450, and adjust for longer or shorter firing. You'll lean quickly and exact cone or temperature to fire to for the proper fuse.

Horsehair firing

Make sure the kiln is within a short distance of an exterior door so the burning of the hair can be done outdoors. If you need to do this indoors, make sure you have good ventilation in the room because the smell of burning hair. Heat the items to between 900- and 1,000-degrees F 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. It's best to have a surface like a kiln shelf that has been sitting on top of the kiln keeping it warm. Placing items on cool or damp cement can cause items to crack. Warming the tips of the tongs in an open peep hole or resting against the warm kiln will help prevent cracking items if the tongs are cold.

Immediately touch the horsehair to the ceramic surface and watch it curl up and burn. Work quickly, as items that get too cool will not burn the hair. The hair needs to be completed within 15 to 20 seconds, so have the hair separated and ready to go before taking the items out of the kiln. Be careful not to use large bunches of hair. More is not always better. If adding feathers, fluffy craft feathers work great. Use needle-nose pliers to position the feathers so you don't burn your fingers.



Allow the items to cool. When the shapes have cooled, wipe the



surface with a dry cloth to remove the hair/feather 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/feathers came into contact with the surface. Of you have any smears of color from the ash, use a damp cloth or sponge to clean the surface, and allow to dry. Apply a coat of gloss or matte sealer to the surface for additional protection.

About the kiln

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. 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

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 vase. Some artists also use feathers and hair from other creatures, but horsehair has always given me the best results.

What not to do

Things can go wrong. What can happen if the items are removed from the kiln when they are too hot? First of all, the risk of cracking is increased. The hair also catches fire, flames up and will often leave larger black areas on the ceramic surface.

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!

Steps for full fusing glass to surfaces

The methods above focus on dimensional glass fused to the surface, so it still has dimension. If you want the look of flowing glass, or glass completely melted into the glaze, the glass can be added into the final coat of glaze applied to the bisque and then fired in the 06/07 firing. This will melt the glass and get it to flow. This can be done with matte or gloss glazes of nearly any color. The sample shown here with red glass happens to be done with three coats of black matte glaze, and on the third coat, red course frit and chunks of green Aventurine glass were embedded. On the blue and white bowl



shown, a gloss clear glaze was used and blue and turquoise glass, along with Aventurine blue glass were embedded.



Due to the different coefficients of expansion (COE) between glass and ceramic clay, you will most likely always get some crazing and fractures in the glass. Sometimes it can leave some sharp edges if you have a lot of glass puddled in the bottom of the bowl. It's recommended to use an epoxy coating to seal the glass area.

Step 7 Make impressions in the bottom of the pot where legs will attach. Score, slip and attach legs. Poke small hole in the bottom of each leg to vent. Position head, score, slip and attach. Add a small coil of clay around neck and body attachment for support and smooth into body and neck.

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