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Getting Started

by Jonathan Kaplan

Color and texture in cone 6 glazes are the result of three variables: First, selecting proper glazes; second, learning how to layer and combine different glazes by pouring, dipping and spraying; and third, using a controlled cooling cycle to further enhance the color and texture. This slow cooling not only creates a visual dialog in thick and thin areas of glaze application, but also helps with the crystallization of certain materials, which adds depth and interest to the glaze.

Glaze Selection

With so many cone 6 glazes, how do you know which glazes will work for you? It’s impossible to look at a written glaze formula and know how it will look when it’s fired and cooled. However, there are some things to look for that may provide some insight as to the surface texture. I like to use glazes that have a strong presence of calcium, provided by whiting and wollastonite in the formula. Dolomite, which is a combination in equal parts of both calcium and magnesium is also very helpful. These materials, when included in any glaze along with other ceramic materials, form small, suspended crystals in the glaze when cooled in a controlled manner.

Glaze Application

I spray or dip glazes over each other. My experience is that no single glaze can provide a visually interesting surface in an electric kiln, although there may certainly be exceptions. My layering technique allows the many differing glaze materials to combine and melt in unique ways providing a visually interesting surface with depth. All of this is caused by the interactions of multiple materials applied over each other. Applying glazes over textures in the clay allows the melted glaze to pool. A thicker concentration of glaze materials in these areas yields different areas of color.

When mixing and testing glazes for future use on your pottery, it is useful to try different methods of combining glazes. For example, if you mix up a few small test batches of different glazes, try dipping one glaze over the other on the top rim of your test tile. Then reverse the order. For instance, if you dip glaze A over glaze B, then do another tile with glaze B dipped over glaze A.

Firing

Most glazes have a range of several cones. I fire my cone 6 glazes to cone 7 using a programmable controller with the following heating and cooling cycle:

1st segment . . . . . . . . . 50°F/hour to 220°F
2nd segment . . . . . . . . . 250°F/hour to 2167°F
3rd segment . . . . . . . . . 150°F/hour to 1500°F
## Recipes

### PV Base
Cone 6
- Gerstley Borate ............... 30%
- Whiting .................. 10
- PV Clay .................... 15
- Custer Feldspar ............... 35
- Silica ..................... 10

100%

### Black Liner Glaze
Add: Mason 6600 ............... 6%
An excellent gloss base. Spray or dip over Blue/Green/Purple. This glaze is very receptive to commercial stains. Again, with encapsulated stains, an opacifier is not necessary. If a more opaque surface is desired, add between 6–10% opacifier such as zircopax.

### VC Glaze
Cone 6
- Whiting .................. 6.9%
- Gerstley Borate ............... 11.6
- Titanium Dioxide ............... 6.9
- Nepheline Syenite ............... 46.8
- Kaolin .................... 13.9
- Silica ..................... 13.9

100.0%

### Blue/Green/Purple Variation
Add: Cobalt Oxide ............... 1.1%
An excellent base glaze to spray or dip other glazes on top.

### Edgy Green
Cone 6
- Barium Carbonate ............... 15.6%
- Gerstley Borate ............... 10.4
- Wollastonite .................... 15.6
- Nepheline Syenite ............... 39.7
- Kaolin .................... 10.4
- Silica ..................... 8.3

100.0%
Add: Black Copper Oxide ............... 3.1%

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I have found that this provides a better melt and allows a good mingling of the many layers of glaze. It’s necessary to experiment and test your glazes to determine their range. Using kiln wash on the shelves or stilts under your ware is a necessity!

You can program a “hold” into the end of the second segment if you have a single zone kiln and wish to try to even out the firing from top to bottom. With the introduction of multiple zone controls on many of the new kilns, a soak at the end is not really necessary. If you don’t have a computer-controlled kiln, use the infinite switches to “fire down” the kiln. With the addition of a pyrometer and a decent thermocouple, you can achieve a reasonable controlled cooling cycle.

### Record Keeping
Keep accurate records so you can repeat pleasing results. In an electric kiln this is easy, especially if it is equipped with a programmable controller. There is no substitute for experimenting. It takes time and persistence to achieve the surfaces that are pleasing to you. No one glaze or method will work. It is a combination of glazes and applications, followed by the proper firing with a controlled cooling cycle.
Glazing, for a lot of people, is the bane of their ceramic lives. While there’s no specific glazing system that fits everyone’s needs and preferences, the more information you have allows you more options when you get into a glazing corner. My system for glazing evolved with my own body of work, and as the work changes, I draw on various aspects of it to suit the particulars of the pieces in front of me.

For complex forms consisting of thrown and textured elements, I use a combination of pouring, dipping and brushing to get the color where I want it. Dipping is the easiest way to ensure an even application, and pouring, with a little practice, is the next. Brushing takes more practice, time and attention, and I only use it when the first two methods are not options for a tricky place on a pot.

The two troublemakers involved with glaze application are water and gravity. When a bisque pot becomes too saturated with water, it won’t accept glaze correctly, so use the least amount of water possible when glazing, including when you are making corrections. And as for gravity, I doubt there’s anyone who hasn’t experienced the wayward drip of one glaze flowing toward the earth across the perfect application of the previous glaze.

Tips for Success

Keep bisqueware clean. Lotions, or even the oils from your hands, can create resist spots where glaze adheres unevenly or not at all. Throughout all phases of the glazing process, including loading and unloading the kiln, handle bisqueware with a clean pair of disposable gloves (figure 1). If you think your bisqueware has been compromised—splashed with something, covered with grime, or maybe handled by a visitor—bisque it again rather than risk a crawling glaze.

Remove all dust before glazing including bisque dust and studio dust. Use an air compressor for foolproof results, but work outside or in a well-ventilated area away from your primary workspace, as bisque dust is extremely abrasive to your lungs (figure 2).
Use silicon carbide paper to remove any rough spots you missed before bisque firing. Place your work on a piece of foam to prevent chipping. After sanding, wipe with a damp sponge to remove all traces of sanding dust (figure 3).

Use a damp sponge instead of rinsing, which should be kept to a minimum. Wring the sponge thoroughly and rotate it so each area is only used once. I tend to use half a dozen or so of those orange round synthetic sponges during any given glazing session (figure 4).

Glazes must be well mixed. I use an electric drill with a Jiffy Mixer attached (figure 5). If there is dry glaze caked on the sides of the bucket, sieve the glaze, then return it to a clean bucket.

Glaze all the interiors of your pots first by pouring the glaze in, then rolling it around for complete coverage (figure 6). For complex pieces requiring a number of glazing steps, glaze the insides the day before to give you a drier surface to work with, especially for brushing.

When removing unwanted glaze, scrape off as much of it as you can with a dental tool or a similar small metal scraper to keep a sharp line. A damp sponge removes the remain-
ing glaze with a few strokes, keeping water usage to a minimum (figure 7).

Use a stiff brush to help clean glaze drips out of texture (figure 8).

For dipping glazes, select an appropriately sized container for the work at hand. I have lots of different sizes of shallow bowls perfect for dipping the sides of my pieces. Wide shallow bowls allow you to see what you’re doing, so use them even for smaller things that fit into the glaze bucket (figure 9).

When you can’t dip or pour, it’s time for brushing. Watch your bisque as you brush—glaze is shiny and wet when first applied, then becomes matt as the bisque absorbs the water. If you re-coat too soon over a damp coat, you’ll move the foundation layer rather than imparting a second coat (figure 10).

Consider gravity when brushing and hold the pot both to encourage the glaze to go where you want it to and to keep it from running where you don’t want it (figure 11).

If a drip flows onto a previously glazed surface, stop, set the pot down and wait. Resist the urge to wipe the drip with a sponge. Let the drip dry, then carefully scrape it off with a dental tool or metal rib. Use a small compact brush to wipe away
Brushes

I use sumi brushes, which have long bristles that come to a point, but in the past, I have also used hake and multi-stemmed hake brushes for large areas. Experiment with all the long, springy-bristled brushes. Mop brushes might work for you, but don’t buy expensive water-color brushes. Applying glaze is a cruder application than watercolor, and an expensive, fine water-color brush won’t work as well for a glaze as a cheap hake from the ceramic supply store.

A brush with long, springy bristles that come to a point is best. Successful brushing not only relies on technique of application, but also the glazes you’re using and the temperature you’re firing to. Some glazes lend themselves well to brushing, while others are more finicky. Make wide tiles representative of your surfaces and use them to test how well your glazes take to brushing.

glaze in areas you can’t reach with a sponge (figure 12).

Don’t brush glaze from the big glaze bucket. Pour a small amount into a cup, then briskly stir it occasionally to ensure that it stays properly mixed. Keep a large, damp sponge nearby to keep the brush handle clean (figure 13).

If you’re glazing pots that don’t have a defined foot, push them across a piece of 220-grit silicon carbide sandpaper. The sandpaper removes some of the glaze from the contact areas, indicating where you need to wipe off any remaining glaze (figure 14).