Glazing and Firing Instructions

All Coyote glazes, dry or wet, are designed to be equally suitable for brushing and dipping. Below you will find tips on both application methods, as well as information about firing.

Brushing

Coyote glazes should be applied to bisqueware. Underglazes can be applied to bisque or greenware. The trick to glazing is to get an even application of the correct thickness. Too thin and the colors can be ugly, too thick and they can be runny. We always quickly rinse our bisqueware right before we glaze, as this washes off any dust, and makes the glaze brush and adhere better. Thoroughly mix the glaze just before you use it.

A soft, full brush works best for glazing, we prefer a 1" or 2" wide hake brush; it holds a lot of glaze, and gives a nice even coat. It is easier to get even coverage if you alternate the direction of your brushstrokes: brush the first coat side to side, then the next coat up and down. Allow each coat to dry completely before applying the next.

It is important to remember that each brush and glaze is different. Most colors should look their best after 2-3 coats, but you should make several test pieces whenever you are trying a new color or combination, to find the thickness that works best for you.

Leave about 1/4" at the foot unglazed. All glazes move a little in the firing, and some are quite runny (see the list below for runny glazes). Always leave enough room for your glaze to flow some without sticking to the kiln shelf. Until you are familiar with a particular glaze, it is better to leave some extra room. Make sure that there is no glaze on the bottom of your piece; Glazes become molten glass in the kiln, so if there is any glaze on the bottom, or if it's too thick and runs, your pot will stick to the shelf. This will wreck your pot and your kiln shelves. If glaze has gotten on the bottom of your piece, just wipe it clean with a damp sponge. Underglaze fluxes at a higher temperature and will probably not stick to kiln shelves in most firings, but you should still test it, and avoid having any on the bottom of your ware if possible.

Dipping

In many cases it may be more convenient to dip your wares in a large bucket of glaze. As with brushing, managing the thickness is key to achieving the right look. A quick rinse of the bisqueware will wash off any dust and provide a more even coat of glaze.

Begin by applying wax resist to the foot of your pot and about 1/4" up the foot (where you don't want any glaze). Until you have done enough testing to be familiar with a particular glaze, it is better to leave some extra room. Use a thin coat of wax, it works better and dries faster. Let the wax dry for at least 15 or 20 minutes before dipping a pot in glaze.

Many Coyote glazes seem unusually thick if you are unfamiliar with them. Typically, they are suitable for dipping after thorough mixing. Adding additional water or deflocculants may cause the glaze to become too thin to apply properly with one dip. Always test your glaze before altering it.

To coat the whole piece in a single glaze, the easiest technique is to pick it up with a pair of glaze tongs, dip it in, count to three and pull it out. Make sure to empty it as you withdraw it: If you pull a bowl out still full of glaze it will weigh so much that the tongs will break through. Hold it upside down over the bucket to drain the excess glaze.

There will probably be some glaze sticking to the waxed areas. Wipe off what you can while you are holding it with the tongs, then set the piece down and let it dry. After it is dry enough to handle, turn it over and sponge off any glaze still remaining on the bottom. The foot must be perfectly clean before it can go in a kiln.

Glazes will run more the thicker they get. If you are going to double-dip a pot to create overlaps, it's best to keep the second glaze limited to the top half. This will allow room for the glaze to flow without flowing off your work.

Firing

Every kiln and firing is different. It is best to use witness cones in every firing.

Coyote glazes are designed to be fired between witness cone 5 and witness cone 6.

Coyote underglazes should be fired to at least cone 5 and can go all the way up to cone 10.

Cone readings are a combintation of time and temperature, and do not correspond directly to any specific temp in degrees. Most digitally controlled kilns have a pre-programmed cone fire setting that will allow you to reach the proper temperature with minimal fussing (we use a cone 5, fast, with 30 minute hold.) For manual (sitter) kilns we recommend using a 6 cone.

Thermocouples and other electronic measuring devices are prone to error and degrade over time. The only way to be certain that your kiln is firing to the right temperature is to use witness cones every time you fire your kiln.

The tip of your self supporting cone 5 should be at least even with the base, and the tip of the cone 6 should not touch the shelf.

Slow Cooling

Cooling glazes at different rates can provide dramatically different finishes. Many Coyote glazes are designed specifically to take advantage of this to create special effects, and many more are affected in surprising ways. All Coyote glazes can be slow cooled.

Slow cooling effectively lengthens the period of firing during which most crystals develop, resulting in more and larger crystals. Depending on the composition of the glaze, this will usually produce either large visible crystals, or a matted surface (microcrystals.)

To slow cool a glaze, you must be firing in a kiln with a digital controller. As the control panels for programmable kilns vary across brands, you should consult your owner's manual, or contact the seller or manufacturer of the kiln, for instructions on how to program your specific kiln.

Once you know how to program your kiln, it will take some experimentation to find the firing cycle that works best for your ware. The only way to be sure your kiln fired correctly is to use witness cones. As a starting point, our schedule is below:

Ramps 5

100/hr to 220

350/hr to 2000

150/hr to 2200 hold for 15 minutes

500/hr to 2150 hold for 15 minutes

125/hr to 1400

It is important to note that you will need to tweak this schedule for your own kiln and firings. Every kiln is different, so there is no schedule that will work for every firing.

The tip of your self supporting cone 5 should be at least even with the base, and the tip of the cone 6 should not touch the shelf.

Clay and Glaze Fit

Not all glazes will fit well on all clay bodies (nor do all clay bodies fit well with all glazes), so it is always a good idea to test a glaze on the clay you are using to insure they are compatible.

Each clay and glaze have their own expansion (and contraction) rate, and if they are too different problems can result. At about 1000 degrees fahrenheit, the glaze solidifies, and the clay and the glaze undergo contraction side by side.

The most common fit problem is crazing, caused by the glaze contracting more than the clay body on cooling. This means the glaze is stretched over the clay, resulting in a crazing or crackle pattern. Although there is some evidence that crazed glazes may result in a weaker finished pot, the main concern is aesthetic, and many people just ignore it.

Of much more concern is the opposite problem of shivering. In this case the glaze contracts less on cooling than the clay body, putting the glaze under compression. Some compression can be a good thing, resulting in a stronger pot, but too much can cause the glaze to flake off the pot (shivering). In extreme cases this condition can cause the pot to break (shattering).

It is important to realize that this might not happen for days or even weeks after work comes out of the kiln, so do your testing early.

Expansion/contraction is often confused with firing shrinkage, which is irreversible. Expansion is temperature dependant and occurs with each heating and cooling. Shrinkage doesn't tell you anything about the expansion rate. Some high shrinkage clays have a low expansion rate and vice versa.

Most of the Coyote glazes have fairly average expansion rates, and are likely to fit most average clay bodies. We have one series (the Archie's series) that can shiver if used on a high expansion clay body, so care should be taken to make sure these glazes fit the clay you are using. They are: Archie's Base, Blue Purple, Eggplant, Gun Metal Green, Ice Blue, Opal, Red Gold and Rhubarb.

We have had reports of this series shivering on the following clay bodies:

Aardvark: SBF
Alligator Clay: MC360 Lovestone high fire
AMACO: No. 58
Axner: Mike's Stoneware
Columbus Clay: Buff Stoneware #146
Continental: B-Clay, Mid-Range White, and Mid-Range Oxidation Body
Georgie's: G-Mix
Highwater: Half & Half, Red Rock, Loafer's Glory, and Brownstone
Kansas Clay: Flint Hills Buff
Kentucky Mudworks: Sheltowee
Laguna: #80, Speckled Buff, and Sybil's w/speckles
L & R: Deep Red
Macsmud: Northern Redstone
PrimoPro: WMS2502
New Mexico Clay: WH8
Rovin: R077
Standard: #112, #201, #266, #245, #308, and #760
Stone Mountain: 202, 255, and 302
If you know of any others please let us know.

If the clay you are using doesn't fit with these glazes but you want to keep using them (they are beautiful), the only solution is to try a different clay body. These glazes work fine with most clays, only bodies with unusually high expansion cause a problem.

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