



Studio 550 Art Center Glaze Basics

Please review before using the glaze studio

What is glaze? Glaze is not paint. It is not just colors - it is chemistry. Mixing or layering a red and a white doesn't necessarily make pink.

- What is in there? You will find the recipes on the side of each bucket. Most glazes consist of a variety of ingredients (clay, silica (glass), flux, and colorants in the form of metal oxides and carbonates). The ingredients are in powder form suspended in water. These ingredients turn molten in the heat of the kiln, so any surfaces that are touching in the kiln will end up stuck together.
- None of the big bad heavy metals (Lead, mercury or Cadmium), but there is Chrome, copper, cobalt, Tin, and other assorted oxides and carbonates.
- This is why when you look at the bucket that is “Glossy blue” looks pink (that’s the cobalt) unfired and “glossy black” looks red (Iron oxide). After they are all melted, it will be blue/black. Chemistry, not just colors.

What should I consider when picking glazes for my pieces? When you are choosing glaze for your pieces, the first thing you usually notice is the color. While yes, color is important, you should also consider the characteristics of the glass.

- Opaque vs. Translucent. If you worked hard on a decoration, don’t pick black or another opaque glaze
- Glossy vs. Matt - not better or worse, just preference
- Intended Use: If it is for food, you might be best off with a clear or a white as a liner glaze. The other glazes sure are pretty, and while they should be stable after being fired, after repeated heating and cooling from regular use, it is just safer to have a glaze on the inside that has fewer colorants in it.
- Also know that you do not have to layer glazes. They are perfectly fine, functional and beautiful as a single color.



Why do we glaze? To add color, to decorate, or to make pieces watertight/food safe, change the surface texture (firing a clay to maturity will make it 97%-99% watertight, but it won't be a nice texture to eat off of)

Why do we bisque? If you remember the timeline up on the wall in the front studio, clay before it is fired can be rehydrated and reused. The work is bisque fired (a lower temperature firing to partial maturity) so that when you dip it into the glaze it does not disintegrate and turn back into wet clay. For one – your piece is ruined. Second, it would contaminate the glaze with wet clay.

How do we glaze? There are multiple ways to apply glaze, but the best way to get an even coat is to dip your piece into a *well mixed* bucket of glaze. Other options (pour, brush, drip, spray, etc.)

1. **Make a plan. Take notes.** Take a look at the tile wall and make a note of what solo glazes or glaze combinations you like. Write them down.

The glaze tile wall is a suggestion of what the combinations look like. How the glaze is applied (thickness, method, order of glaze, etc.) will all make a difference in how it looks after firing.

Please avoid removing tiles from the wall. It is easy to put them back in the wrong place (which could mess someone else up!) and some tiles are nailed in place.

2. **Measure your pieces.** We charge 5 cents per cubic inch that goes through the kiln. If you imagine your piece in the smallest possible box it would fit into, those are your measurements. If your mug is 3" wide x 3" tall x 4" deep (handle), then your math would be: $3 \times 3 \times 4 = 36 \text{ in}^3 \times 0.05 \text{ cents} = \1.80

There are rulers and “quick corners” that will give you the height, width, and depth of your pieces quickly. There is even a list of cubic inch volume in increments and how much they will cost to save you from doing the .05 math.

The lowest shelf we will ever use is 1inch tall, so even if you have a flat piece that is only $\frac{1}{2}$ inch tall, 1" is your measurement.

If you have lots of low flat ornaments, buttons, beads, etc. that are small and loose. It is \$12 for a square foot. Lay out what will fit in a 12inx12in section of table instead of measuring each piece.



If you need things placed on stilts or on a bead rack, that additional kiln furniture should be factored into the calculation.

3. **Wipe it down.** Make sure your hands are clean (no greasy food, no lotion, no wax). Take your bisque fired pottery, and use a slightly dampened sponge to lightly dust off your piece ("damp" to minimize dust and "lightly" so you don't end up with chewed up sponge bits all over your piece). You want a clean surface for the glaze to adhere to.
 - a. Since the clay has only been through this lower temperature firing, it is not yet fully vitrified (matured to a non-porous glass-like state). Think of your piece like a sponge. It will still absorb moisture. When we dip the piece into the well-mixed glaze ingredients suspended in water, the glaze will be absorbed into the clay body and the glaze will coat the surface of your pot. The longer you hold it in, the thicker the glaze will get (until it is over saturated). Thus, do NOT run your piece under water to remove dust and do NOT use a soaking wet sponge. It will over saturate your piece and it will not hold enough glaze.
4. **Apply wax (optional).** You don't have to wax if you don't want to. It sometimes gives a false sense of security, because it only helps you keep the bottom cleaner. It does not keep you from having to wipe the bottom after glazing. It is an optional step, because you can just as easily wipe back the glaze on your pot with a sponge after it dried. A little more glaze is wasted if you don't wax.
 - a. Wax resist fills the pores in the clay. Waxing requires patience. Sometimes you can get a big gob that drips down the side. Once it is on there, you can't just wipe it off. You need to re-fire, or incorporate the drip into the design. Similar to when you are painting, you dip, wipe the brush on the side of the container so you don't have too much material, and then you apply the wax. This helps to prevent unwanted dripping.
 - b. No Cross Contamination: It is important to not take brushes from the front. Once used with wax... it becomes a forever wax brush. Use the wax rinse bowl or the sink to clean off the brushes, NOT the glaze rinse bucket. Don't leave your brush caked in wax or sitting in the wax rinse bowl.



5. **Mix the glaze VERY Well.** All the good stuff settles to the bottom, so whisk and stir more than you think you need to. When stirring, it's not just stirring, but lifting as you stir. Think of the motion you use when scrambling eggs or whipping cream. Different glazes behave differently. We do our best to maintain a proper glaze consistency, but some glazes may get too watery and need to be thinned out and some may get thick and cause issues. Check with your teacher if in doubt.
6. **Apply Glaze.** Dipping with tongs is a great way to get an even glaze coat. Do not submerge your pot in glaze for more than a second or two. In-out-done. Gently pour/shake the piece to get extra drips off. Lightly wipe the bottom and put it down foot facing the table and carefully remove the tongs to not scratch your piece. Leave it until it is dry. It should only take a few seconds (longer than that and your glaze coat is likely too thick). If you are layering, then allow it to dry fully before applying the second coat.
 - a. Variations:
 - i. Different colors on the inside and outside: Pour the inside first, if you drip on the side, you can wipe it off. (Practice with water in a cup first.) Hold your pot by the foot/base, fingers facing chest/thumb away, pour and rotate at the same time, work quickly because glaze sitting inside there will get thicker and pour quickly but evenly to avoid drips. To coat the outside, hold the pot right-side up on the inside with tension from your hands, or hold upside-down by the foot and get finger marks.
 - ii. Dip all in one color and dip another color on the rim/drip colors on top (Just a quick one second dip is enough, if you use two glazes – keep them thinner coats. Best if layering is only on the inside so the curve of the piece can catch drips, or keep layering to the rim or upper portion).
 - iii. Dip in one color and apply wax and then a second color on top (allow wax to dry fully before dipping, otherwise you will get glaze staining/sticking in the wax).
7. **Clean the Bottom.** All surfaces touching any other surface MUST BE GLAZE-FREE. Whether or not you waxed, YOU MUST WIPE THE BOTTOM! Clean up the flat part of the foot, and anything else that is within $\frac{1}{8}$ of an inch of



the bottom. Wipe glaze back 1/4-1/2 inch if you are not familiar with glazing or if you are layering glazes. Think: liquid molten glass on a vertical surface will run down your pot. Some combos move more than others, and some not at all. If you want to experiment with more colors, do it on the inside, or the very top.

- a. Also, if you are applying glaze to the inside of a foot, hold a ruler across the foot to make sure there is enough clearance in the middle so the middle of the bottom does not stick to the shelf.
8. **Double Check!** Make sure all bottoms are clear of glaze and have enough clearance up the wall. Put it on the cart to be fired to about 2300F.

MISTAKES:

1. **Oops shelf.** This is where things go if they need to be revisited before firing.
2. If you drop your pot in the bucket, it will likely be too thick by the time you take it out. Wipe or scrape the glaze off into the glaze bucket (if it was only one color) or into the junk rinse bucket (if it was a combination of colors). Wait 24hrs before re-glazing. It must dry first.
3. If you don't mix properly, then you won't get the right chemistry to get the results you're looking for. If it has already been glaze fired, it doesn't usually work to re-fire. You get bubbles/pinholes, stress cracking, the original glaze result sometimes changes. Mix often and get the results you want the first time.

How to maximize your time in the glaze studio:

1. Study up! Read this sheet before glazing so you can ask questions while you have an instructor available. Reread this hand out before your first time using the glaze room outside of class so you feel confident about what you are doing. Ask if you have questions.
2. Take your bisqueware home to measure, wipe off, and wax. You will need a small container of wax, a wax brush, a clean round throwing sponge, bisque ware and a log sheet.
3. Have a plan. Deciding what colors to use can take a while, dedicate a small notebook to glazing (we have some for sale in the gallery) and make a list of your top 5-10 glaze combos and ways of layering. Feel free to take pictures of



your favorite tiles or pieces you see on the glaze cart for inspiration. Decide what colors you will use on each piece before you come in. Write the combos and notes to yourself on the bottom of your piece in pencil, it will burn off

4. Keep it simple. If you are new to glazing, start simple. This is good advice when time is not a factor, but it will certainly make things less stressful if you are feeling rushed.

*** Please remember that you are expected to finish working on pots and glaze them within the bounds of your 10 week class. Items left more than 2 weeks past the student's enrollment period will be discarded or donated. If you are unable to finish your pieces during the class, it is your responsibility to book an one time visit (\$30) to glaze within two weeks of the class ending, or to take your bisque home until you can glaze.