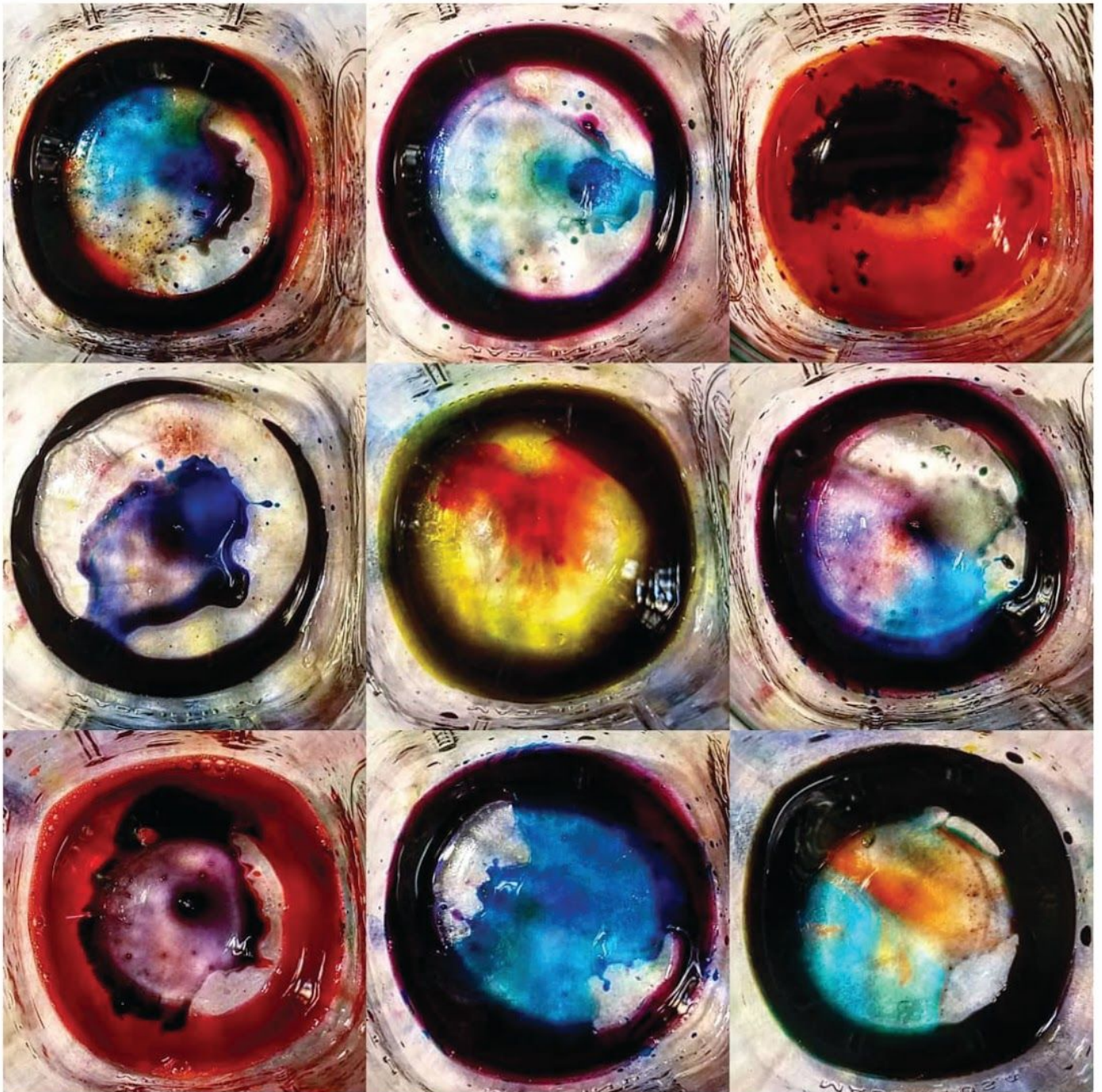
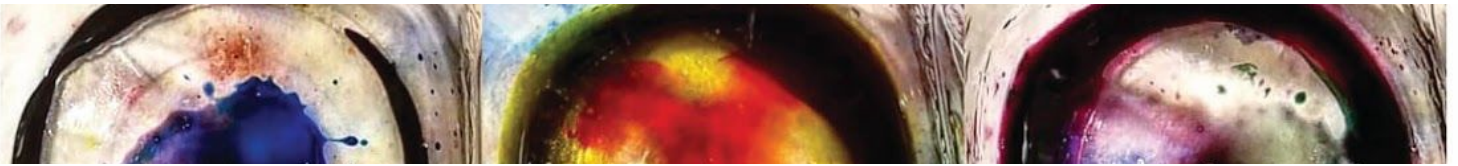


# Dyeing Tips and Methods

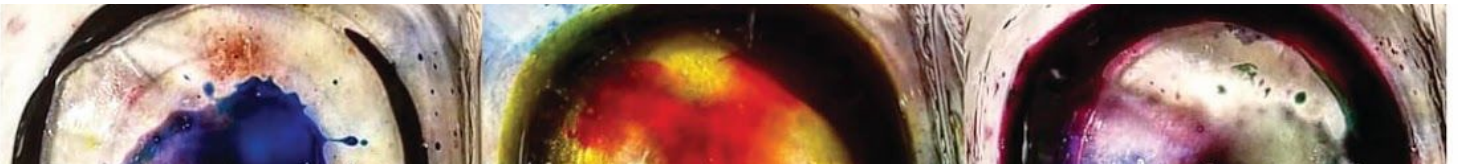


Alanna Wilcox



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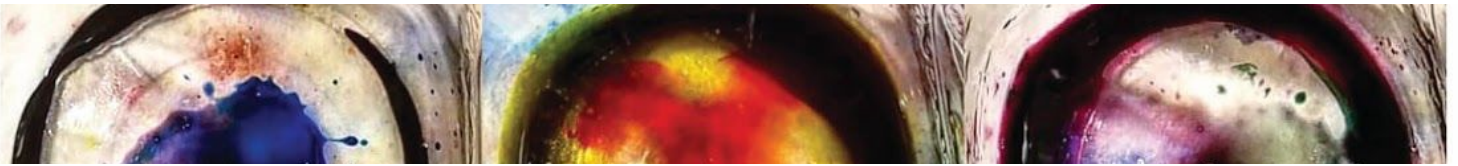


## RECOMMENDED DYE STUDIO EQUIPMENT

- 1mL and 10mL syringes
  - Monoject® brand syringes work very well for repeated use
- Stainless steel chopsticks
- Latex gloves
- Dye particle mask
- Paper towels
- Clorox® wipes
- .01 g scale
- Plastic wrap
- Synthrapol®
- Freezer paper
- Citric Acid
- Dawn® detergent
- Masking tape
- A Sharpie® marker
- 1000 mL measuring cup
- Wee-wee® pads
- Plastic picnic table cover
- Stainless steel or enamel canning pot for immersion dyeing

## DYE AREA SET UP

- 1) Make sure you are not using any utensils that will be used for food. My dye counter is in my basement and is covered with a plastic padded tablecloth for traction. When I mix the powder into dyestock solutions, I place a Wee-wee® pad on top of the plastic to catch any dripped liquids, and discard it at the end of the dye session.
- 2) I keep digital records of all my formulas and when I'm ready to dye, I print them out and tape them up on the wall near where I'm dyeing, for ease of access and to avoid spilling dyes on them.
  - Any modifications are jotted down on the paper and changes are made to the digital copy once I'm not in the dye area.
- 3) Before weighing dyes, I pull a large piece of plastic wrap off and place my scale in the middle. I fold one half over my scale so that the bottom and top of the scale are covered with the plastic wrap.



## MIXING THE DYESTOCK SOLUTIONS

Before mixing the color formulas, mix the dye powder in the formula into a liquid dye stock at a 1% solution. For a dyestock container I use wide mouth canning jars.

To mix the dye stock solution:

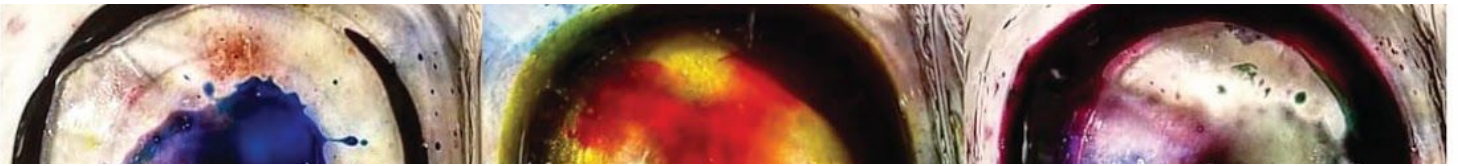
- 1) Put on gloves and dye mask.
- 2) Add 700mL of the hottest tap water (~160° F) to measuring cup.
- 3) Tear a small square (4x4") of freezer paper and place it on the scale.
- 4) Turn on scale, and tare it to 0.
- 5) Weigh out 7g of dye powder on the freezer paper.
- 6) Pour a small amount of the measured water into an empty canning jar.
- 7) Dump the dye powder slowly into the jar.
- 8) Hold the freezer paper over the jar at an angle and pour some more of the measured water onto the freezer paper causing any residual dye to wash off into the dye jar. I pour about  $\frac{1}{4}$  of the measured water out this way.
- 9) Using the metal chopstick, vigorously stir the dye powder and water until mostly dissolved.
- 10) Add remaining water, stir some more, cover the jar and shake vigorously. Always check to make sure the cap is sealed tightly. (Trust me on this one!)

## MIXING AND APPLYING THE DYE FORMULAS

### For immersion dyeing

Once the dye stocks are mixed, mix your formula by adding each color to the dye pot.

- 1) Fill the pot with water so that the yarn/fiber can swim freely. (Hot water will speed up the dye process, so for colors that break easily try using cold water for a more even color distribution)
- 2) Prior to adding the yarn/fiber to the dyepot, stir the dyepot (I use the metal chopstick) to ensure any dye particles settling on the bottom are floating in the liquid.



- 3) After adding the yarn/fiber to the pot I allow it to sit for 10-15 minutes before putting it on the stove and start to raise the temperature.
- 4) Once on the stove I turn up the heat for 25 minutes until it reaches 185°F. Using the stainless-steel chopstick, I remove the fiber from the dye pot, add the acid and mix thoroughly with the chopstick, then put the dyed fiber/yarn back into the pot and let it sit for an additional 20 minutes.
- 5) After 20 minutes the heat is turned off and I allow the dyepot to cool on the burner so the temperature lowers gradually. This is especially helpful for colors that have turquoise.
- 6) Some formulas may have residual color in the pot, but that occurs more with the deep saturated colors. The majority of the colors should exhaust leaving clear water remaining in the pot.

### For direct application dyeing

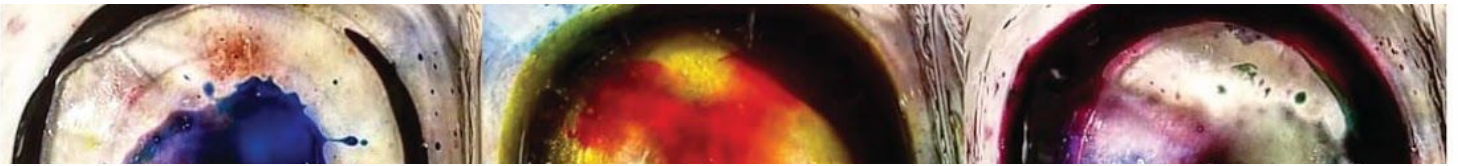
#### Method

My method for direct application of the dye is the same as immersion dyeing (above) up to the mixing of the dye formula, except for the following:

1. Instead of putting the colors in a dye pot, add them to an empty canning jar.
2. Label the jar (I use a piece of masking tape and a sharpie marker) with the following:
  - a. Date the formula was mixed
  - b. Color number you are trying to match
3. Top off the jar with the amount of water shown in the green box on the formula page labeled “Additional amount of water to add if using a painting/direct application method”.

#### For best results...

- Since painting can use more dye, mix a larger quantity of a formula than what is used when following the immersion method for the same weight of yarn/fiber.
- For crisp color breaks between colors, only apply enough dye to cause the yarn or fiber to swell slightly but not pool.
- For dyeing multiple batches of fiber or yarn using this method, I will put pieces of tape down where I want colors to begin and end, then lay plastic wrap on top of the tape

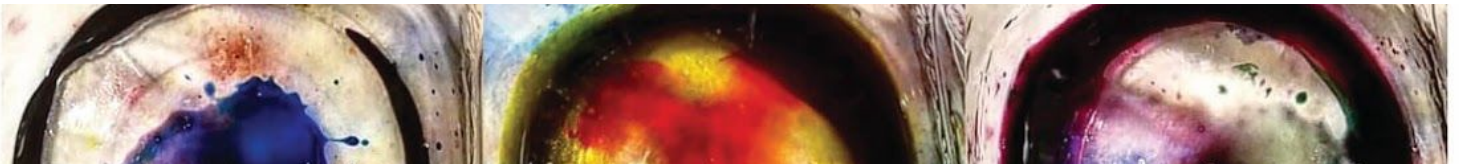


with the fiber/yarn next to the tape but not covering it. I have tape marking where the start or top of the yarn/fiber should be to ensure consistency from batch to batch.

- Since different dyes strike at different rates, and the color formulas consist of mixed dyes, I like to add my acid after painting all the dye onto my yarn/fiber. I put a 10% solution of citric acid mixed with water in a spray bottle and gently mist the top of the fiber/yarn. You can flip the fiber/yarn over and spray/mist the other side. Experiment with adding the acid before and after to see which yields the results you are after.
- Since the painting method is less precise with regard to quantity of dyes mixing with the weight of the fiber, there might be more variations in the color—especially if the fiber/yarn was not thoroughly wetted prior to applying the dye, or if ties on a yarn cause areas of color resist.

## DYEING TIPS & BEST PRACTICES

- Formulas are designed to be used in all dye application methods where acid dyes are used. Formulas will be given so that you can do immersion dyeing or direct application dyeing, mixing from stock solutions or with dry powder. Whichever method you prefer, I suggest mixing the starting dyes into 1% stock solutions first. After stock solutions are mixed, then using the formula provided, mix up whatever color you are trying to match. Depending on the weight of the fiber to be dyed, such as a 10g skein, some quantities of dye are so small that having the dye powder mixed in solution first will help you achieve the most accurate color.
- If possible, sample a small 10g skein to see how the color formula looks on your fiber base. The formulas were calculated on a 10g 80%/20% superwash wool/nylon blend natural white (unbleached) skein. Different breeds of sheep and different types of protein fibers such as mohair, silk, alpaca, angora, etc., will absorb the dye differently and may influence the final color.
- If you're using a Pantone® “Formula Guide Uncoated” swatch book, please note that the colors may look different under different lighting conditions. Fluorescent, incandescent, and natural lighting all can shift the way a color appears. Formula results have been tested and observed under a 5000K daylight bulb to ensure the closest match.



- Prior to dyeing, mix a 10% solution of 100g citric acid mixed with 1000mL water and use a syringe to inject the acid into the dyepot for immersion dyeing. Having the acid mixed into liquid makes it easier to disperse when adding it to the dyepot.
- When I am done mixing up my formulas, I keep a large bowl filled with warm water and a little bit of Dawn® dish soap in it (1/2 tsp). As I am done using my syringes, I draw in the soap water and express any residual dye left in the syringe. I then dismantle the syringe and let them soak in the bowl until I'm ready to wash them at the end of a dye session. It helps keep the dye from drying inside the syringe and contaminating future color mixtures.
- After the yarn/fiber has been dyed, and the heat has been turned off, allow the fiber to cool overnight/24 hours for best absorption of colors.
- For direct application dye methods such as hand painting, you can add the citric acid into the yarn/fiber presoak or fill a spray bottle with the citric acid solution and spray it onto the yarn/fiber either before adding the dye or after. Experiment with different effects to see which method you prefer.
- To finish your yarns/fiber, you can rinse them in a bin of water and some fiber rinse to remove any excess dye particles/chemicals.
- If a formula requires a very small amount of dye liquid, like 1.25mL I will use my 1mL syringe. If a larger volume is needed, I will switch to a larger syringe but I don't use my 10mL syringe to measure 1mL.
- When measuring with your syringes, leave a gap of air between the stopper on your syringe and the line where the dye goes so you can see very clearly how much liquid is in the syringe.