Dust Dyeing written by Elena Dent, date: 15Feb2021
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A compilation of What I've Learned while dust dyeing. I started doing this around 2085. I got hooked on spinning and then started dyeing because of course you want to do All The Things.

My first local vendor carried Cushings dyes so that's what I bought and experimented with and am happy with the results.

I first got started dyeing with a little book called *I'd Rather Dye Laughing* by Jean M. Neel

http://www.amazon.com/Id-Rather-Dye-Laughing-Experience/dp/B0006RB47U

Do take a look at this, it's worth reading for her advice and ideas. She works with wet dye rather than dusting it dry and she bakes her fiber. That is probably a smarter, certainly safer, way to work with dye if you're doing it daily for a long time. I started using the dry dye because I liked the more subtle gradations, I was getting with using wet dye splashes and I don't do this every day.

Dust dyeing uses Cushings brand "Perfection Acid" dyes to dye protein fibers (wool, silk, etc) roving or yarn in variegated colors. They make a line called "Perfection Direct" for use on cellulous fiber – rayon, cotton, linen, etc but I've never tried it so if there are quirks to it I know nothing.

I would not suggest double dyeing a blended roving or yarn using both dyes because the acid (vinegar) needed to fix the protein dye isn't good for the cellulose fibers, nor is the base fixative in the cellulose dye good for the proteins. They once did make a Union dye – with binders that would grip whatever you were using, but those dyes are largely out of favor ecologically and are long gone from their stock.

You can dye blended yarn and roving, the cellulose fiber will not hold the dye so you will get a frosted appearance to the results. If you dyed silk/cotton, for instance, with a cellulose dye you might damage the silk getting it hot enough to get the cotton to take, I haven't tried it. I have seen a wool blend dyed with the acid dyes and it was lovely.

http://www.wcushing.com/

Above is their home page website; they specialize in supplies for rug hooking and their dyes are well suited to it. You can buy the dye from other suppliers too, many wool/yarn/spinning merchants sell it, but the Cushings company is quite nice to work with, prompt and helpful. The company mainly supplied rug hooking people at first, and they supply not just dyes but a lot of resources for dying color ranges – rug hookers use this, but if you're interested in dying your own embroidery yarn or making light/medium/dark sets for fair-isle knitting, this is where to go.

You need:

salt shakers, the ones found at restaurant supply stores are ideal. I found the square sided ones are smarter than the smaller ones, the larger mouth is a lot easier to get the dye into and a narrow measuring spoon fits nicely, the small ones are extremely annoying to work with.

Cushings dye packages don't contain an inert filler to help the dye disperse in a bath, this is why I use cornstarch or I'll dump far too much dye in one spot when I work. I wrote them and asked if this was indeed a good idea and they replied that yes, that's what they use themselves. I considered using baking

soda, but it is chemically active, cornstarch isn't. Do not try sifting the dye onto your wool with a spoon, it will clump. I learned this the hard way, early in my dying years, and was lucky I did it to a coarse wool. With a LOT of persistence, I was able to rinse those nasty little globs out of the wool and didn't felt it, but it was a near thing.

Steel steam tray, from the restaurant supply store; not cheap but very strong and far safer than the disposable turkey trays – trust me, they're worth it! There is nothing quite like the terror of trying to move a hot turkey tray and having it crumple and miss you by **that** much. I don't use a lid because I use the stovetop method of heating my fiber; if I were concerned about foolish critters or an outdoor setup messing with my cooling dye bath I'd use a lid.

Frosted clear tape and a **black sharpie** – put a strip of tape on the shaker, write down the color, put a second layer of tape over it to seal. It's impossible to tell what color the dye shakers are otherwise. The black ones are the least likely to fade, even the dark colors do fade out.

Cornstarch. ordinary table cornstarch

A package of disposable bamboo skewers or something else to stir the dye/cornstarch mixture. You can use steel but you'd want more than one because you want to be sure the thing is bone dry.

A heat source – stovetop, grill, a coleman stove if the tray will fit. Never leave this alone – the stench of burning wool is something to avoid.

Vinegar or citric acid I am assuming you are using the protein dyes

Steel tongs, also from the restaurant supply as they're those smooth lobe ended things.

A place to let your fiber dry – ideally something you don't care much about because some dye does seep into raw wood.

Mesh lingerie bags are helpful if you are dyeing bats or gobs of fiber.

A salad spinner is useful but not critical, especially when you are dyeing a lot of batts.

Orvus paste if you can get it, which is fantastic for all your hand washables; **dish detergent** if you can't get Orvus. Orvus is sodium laurel sulthate, a common sudsing ingredient in toothpaste and liquid hand soap – it's pH neutral, unlike alkali detergent. It's made with coconut, I've heard of allergies, and it's strong, so a little goes a long way. Usually available in horse and dog grooming supply places. I also use it for scouring wool, I love the stuff.

Safety

How safe is this dye? I get the impression that the older union dyes were less safe than the modern binders that specialize in either protein or cellulose. I started dyeing just as the union dyes disappeared from the market. I used to dye a lot and I used my small apartment's kitchen because that was all I had. I did cut trash bags and carefully tape them over working surfaces because that dye powder is extremely fine and is rather a breathing hazard, I did sometimes have Technicolor snot. I don't use gloves because I don't care if I stain my fingers and the gloves don't seem to hold up. My cats live to a bit over 18 and both seemed completely fine until the end, I have no known issues, so I'd say for hobby dyeing, unless you're sensitive, it's fine as long as you respect the chemicals and clean the tools completely.

If you do this all day, every day for months or years on end it's probably a whole different situation. Use the dye in liquid form and take full industrial precautions including a dust respirator, hair covering, coveralls and gloves when making your dye jars and gloves when dyeing, AND get regular medical check ups. Do not get sick for your hobby!

I grew up playing with art supplies and my parents taught me how to recognize and avoid hazardous substances by smell and common sense – I take material safety seriously and do not use artists' pastels because those powdered pigments can be VERY dangerous, but I do use lead white oil paint because the linseed oil or gum arabic keep the lead safely bound in the paint. I don't lick my brush, I keep my paints off my hands and I don't pour my watercolor rinse water on myself either.

If you have any chemical sensitivity, if you even think you might have a sensitivity, if you need to keep your hands looking nice for work or chew your nails – wear nitrile or rubber exam gloves and a dust mask and work outdoors. Some people do have a problem with vinegar too, which is the fixative for the protein dyes.

You can take the dye off your fingers, even your cuticles, by using a good vegetable based soap and any good vegetable based hand cream that does not have any petroleum product in it (even propolyparabin which is a natural gas byproduct) – slather the cream on, wipe off with paper towels, repeat.

The dye will not set on you or your dog (yes, a friend used to use her Dalmatian as a color sampler) or clothes because it will need both heat and fixative, and the heat's too high to permanently set on you.

Colors:

Avoid Cushing's Burgundy. Exactly between violet, brown and red it will turn any colors it touches to drab, ugly mud. It probably has some black in it but it is the kiss of death to any blend it touches.

I use the medium and dark colors; I can always use less dye to get a lighter color but I can't get darker with a pale color. You can smoke or shade bright colors, but you cannot get bright, clear colors with murky ones so I've never used khaki, silver grey green, maize, apricot or tan; I used mint green and aqua long ago but they were a waste of time because they are so light. Sadly, their color card isn't very accurate and the wool dye sample book is EXPENSIVE.

Below is a list of colors I've used and some comments on the colors I got. By all means, try out other colors and see what you get. Over the years when my spinning guild did their annual dye day I would order my standards if I was low but would also try one or two to see what we could get. We had a supplier who carried the dyes and people would also run over and grab whatever interested them.

One thing to be careful of if you're very interested in specific colors: every once in a while we had trouble with packets being miss-labeled – that's how I found out about their Magenta. Someone did grab Cherry, but the dyepot color went funny, so I bought a Magenta and found that's what we had.

Cushing has probably fixed this problem by now though, this happened quite a long time ago.

Color considerations: Get a color wheel, if you haven't played much with color and take a look at what looks good to you. Split analogous colors will work well together. That is, take colors next to each other – say, blue, blue-green and green and go across the wheel to red-orange which is opposite blue-green. But… red will not go well with green, so try yellow-orange and orange. These will shade nicely with the bluish colors as they merge. Other colors that go well together:

Cherry/orange/rust/purple… rust/green/golden brown/seal brown… purple/rust/cherry/redgrape… blue/orange/rust/scarlet…redgrape/golden brown/cherry/rust…orange/turquoise/very little golden brown & yellow

Don't be afraid to go crazy with the colors but keep direct opposites away from each other. Yellow and purple, especially plum, will give you some very weird acid, olive greens but redgrape and golden brown with orange are pretty.

Colors in the pan will influence what colors you will get, so consider carefully what you want to do next. A rosy red can be pushed to oranges or to violets or even some browns but would make greens rather drab – which wouldn't hurt if you want smoky greens but would if you want clear spring greens.

Brownish water can be pushed to any color you don't want blazingly bright – it would not work well with bright blues or lavenders, but with smoky greens, smoldering blues, deep jewel colors it would be lovely.

Redgrape and rust are two delightful colors that can do some interesting things to colors around them. Because they are medium rather than very dark colors you can add mulberry, blue, even green as well as plum, mahogany or seal brown to deepen areas near them. Or brighten with orange or scarlet. Plum is an interesting dark violet with a bit of dark brown in it, this and Mulberry – a burnt carmine color – are nice

modifiers for browns, reds, and can do intriguing things to blues and greens too. Some colors, such as Myrtle Green (a peridot green) break into their component colors and mottle. This seems to be temperature related, one color strking before the other does.

For subtle variegated colorways use colors similar in the greyscale for more striking variations change not just hue (color) but saturation (color clarity) and tone (light to dark). A great variety of hue, if kept similar in tone, can make a subtle yarn. Similar saturation can go muddy, but varying that can be pleasing.

Lastly, there is nothing to stop you from plying two completely different batches to make a blend that would die in the color bath, or dye a small batch of eye-searing colors then card them gently into a larger batch of darker fiber. Especially if you have a bit of silk waste, which is short and hard to spin – card that into dark blue or black wool and you've got something stunning.

If you dye roving you tend to get color repeats; if you dye skeined yarn you will get repeats.

However, if you want a really evenly heathered yarn you scour your wool, but don't card it. Get as much wool together as you'll need for your project and it doesn't matter if it's too much for one tray. Dye taking care to vary your light to dark; and it doesn't matter if you get each batch of your fiber the 'same' variations. When dry lay out each dye batch and divide it. Half, quarter, eighths, sixteenths, on and on. Drop these into bags. Say you've got 32 bags with your first batch, do the same with the next one, drop the 1/32 into each bag, and continue.

Now you hand card, not enough to even the color, just enough to get a smooth bat. Grab a bit from the first bag, make a bat, lay it down. Grab some from the next bag, lay that bat down next to the first, all the way to #32. Take a stick, roll those bats into a giant doobie, then gently pull it a bit at a time until your giant doobie is a fairly thin snake. Break it into 32 chunks, bag those separately, repeat. When you're done you then spin by grabbing from each bag. At least you can ply each ball on itself; you'll have the color nicely evened out. That is how you get an evenly heathered batch of yarn that doesn't have splotches of different areas. Yes, I'm insane. But it worked.

Blue	Nice, dark, clear indigo blue
Navy Blue	Blackened indigo blue, very nice if you need a dark indigo but I don't use it for dust dyeing
Royal Blue Copenhagen Blue	Clear, slightly violet blue, Royal is a bit darker but they are very similar, especially when dusted.
Peacock Blue Turquoise blue	Pthalo blue, intense cyan, a printer's primary blue, Turquoise blue might be less overpowering I wasn't able to get it for quite a while so I'm not sure.
Purple Dark Purple	Nearly the same color, both a good, pure, slightly reddish brilliant violet and powerful, similar to dioxazine violet, but dark purple is a blended color and can break to show its magenta and blue origins. For a clear blue-violet add just a bit of peacock blue, for a darker one use Blue.
Plum	A dark, rich, blackened purple, good modifier but it is very dark.
Cherry	Screaming hot pink, printer's magenta, a little goes a long way but it's a very pure color and fun to add to both browns and blues; not green.

Magenta	Rhodamine red, slightly duller than Cherry and not as pure a hot pink, it will make your secondary colors smoky if you accidentally use it instead of cherry, not ugly, just clearly not made with a true magenta.
Redgrape	The color of red grapes, hard to describe, deeper than Magenta, easier to work with because it's less intense and a nice modifier for both browns, reds and violets; I'd get it instead of magenta.
Mulberry	Very pretty, deeper than redgrape, lovely color to use instead of burgundy. More red than the Purple but that dark, burnt carmine color
Yellow	Good, pure, spectrum yellow, neither greenish nor orangish and perfect for use as a primary.
Scarlet	Cadmium red light, a bite your eyes out clear scarlet, doesn't take much
Terracotta	A coppery apricot orangish color when diluted, close to turkey at full strength
Turkey Red Egyptian Red	Pleasing "madder" reds, less obviously a 'modern dye' color than Scarlet, so similar I don't remember any difference with dust dyeing
Garnet Cardinal	Very similar to the above, slightly cooler red than the others, not a pure color but clear and very pleasing. If there's a difference between the two it must be in the paler shades, I couldn't see a difference at full strength.
Green	Beautiful forest green, a dark color but not a drab one.
Myrtle Green	"sap green" in the artist's colors, it's a medium, golden, peridot green and being a mix of yellow and a bit of pthalo green it tends to break into marvelously mottled almost yellows and not quite pine blues with everything in between. It will stabilize if you get the heat just right, but of all the colors it is the least even. If you need an even color, dye in batts and card it afterward.
Rust	Burnt Sienna in artists' colors this is my favorite modifying color. A coppery, clear, medium brown it goes beautifully with reds, oranges, yellows, greens and blues and violets too. It does not break Use it with Blue you will likely get slate colors, use it with Peacock blue and you could get pine blue-greens.
Golden Brown	A very nice medium tawny brown; if you're trying to get a 'gold' use yellow, a little of this and some rust and a little bit of seal in tiny splashes.
Seal Brown	Very pretty deep chocolate brown
Mahogany	I've used this only once, a dark, slightly violet reddish brown
Black	I've never used this with dust dyeing; I did manage to get some silk an unusually deep black by adding both peacock and purple and using twice as much black as was called for.

Procedure:

Your fiber must be clean or it won't accept the dye well. Commercial roving and sometimes even yarn often has spinning oil or finishing products left on it, this must be removed. Silk can smell strongly fishy, which means they didn't get all the sericin off and it will glue your fiber together like you would not believe – I've had a 'silk stick' when one dried. Very provoking because the dye didn't take very well at all.

If your fiber is suspect, prepare a bucket of warmish to cool water with a bit of detergent and get it good and wet. If the water is filthy, well… do it again; carefully with wool, too much agitation can felt it. Silk doesn't care but don't rumple it around a lot; if the color didn't take properly you can re-dye it immediately. It's better to do two or even three gentle washes than one fierce one.

If you've got angora rabbit, I'd use it only in yarn, singles or finished. Soak for several hours in water laced with a little bit of Orvus or even less detergent.

Alpaca can also felt, be careful and treat it like wool. It won't be greasy but raw alpaca can be very dirty as they love dust baths and don't bathe.

It is a good idea to soak your silk before dyeing. If it smells fishy it isn't as clean as you thought, and the bug spit is a resist. It will glue the silk together and turn that beautiful roving into a 'silk stick'. I use a bit of Orvus paste, add to warm water, move the roving into that, gently move around with my fingers, then rinse and repeat until the stink is gone. Two gentle washes are better than one enthusiastic one - you won't need much at all to get rid of the fish smell and making sure your silk is clean is well worth the effort when you see the finished result. The colors are amazing. I found I use a lot more dye to get silk to a good, intense color.

A friend who's been spinning for decades and is a hair dresser told me that a very little bit of detergent or orvus in your damp fiber actually helps the fiber accept the dye – hair conditioners are acid, they smooth and sleek the hair so it can resist dye a bit, alkali will get the tiny scales in wool and other fibers to open and let the dye in. But don't soak for a very long time (days or weeks) or you will damage the fiber.

For wool, angora kid, alpaca and angora rabbit you want the water steaming, very tiny bubbles forming but not actually simmering. For silk you don't want as much heat; you want the water steaming and just hot enough to feel great in cold weather.

If you're using a wool/silk blend get the water to the right temperature for the silk, let it warm more as you dye, then let the fiber cool in the pan – the silk will suck up any extra dye left around but it will discharge the dye if it's too warm.

You want enough water to float your fiber; you're making a 'fiber bog' if you will. This is especially important for silk, which really REALLY wants to clump together.

Don't forget to add vinegar. Put your fiber in, dust your colors. If the color isn't taking up you're either low on vinegar or your temperature isn't warm enough (or it's too warm if you're working with silk). You should see the dye actually fade out of the water and the fiber darken with color. The beauty of this method is that lifting your fiber and letting it drain should show you the color you will get; if it looks

good, it's done. Take out the fiber and consider your next batch.

If you can, get a couple of pans and let the fiber cool in the pan; it may take up more dye than you expect and if it's a silk blend or pure silk you will probably get better color doing this than you would taking it out while still quite warm.

No matter what your fiber, let it dry completely before rinsing it. It may crock a bit, but if you've used clean natural fibers you shouldn't have trouble with a lot of dye washing out. Use warm water, not hot, because you do want to get rid of any excess dye. I use Orvus, but again, dish detergent will work and don't use very much. However, you should certainly use vinegar in your final rinse, especially with dish detergent; the smell will vanish as the fiber dries.

A final note: never use Woolite; that stuff is nasty and leaves a sticky film on anything it touches. Use dish detergent if you can't get Orvus, a little bit will work just fine on any hand washable fabric including silk. Silk probably will discharge more dye than wool, but if it's free of serecin it won't change color; if it does, just re-dye. Unlike wool it won't felt.

The metallic fibers you see in some of these batts is called angeline or angelina, it's mylar, quite soft to the touch and while it can be melted with an iron I've never had it melt while dyeing. It's popular with felters too. I've never found the maker's website but many spinning supply places sell it. Google 'angeline spinning fiber' or 'angeline mylar felting fiber' and see what comes up.

Detail of the angeline, hard to see, but the reason I made this batt dark, this won't show well in pale wool

This is white wool carded with Enchanted Forest Angeline fiber (a copper/green blend)
Green/Rust/a bit of Yellow in the pan, left at the start, right when it's been melding

Next: Rose Gold angeline with Turquoise/Orange/with a little Golden Brown and Yellow:

Detail of the angeline

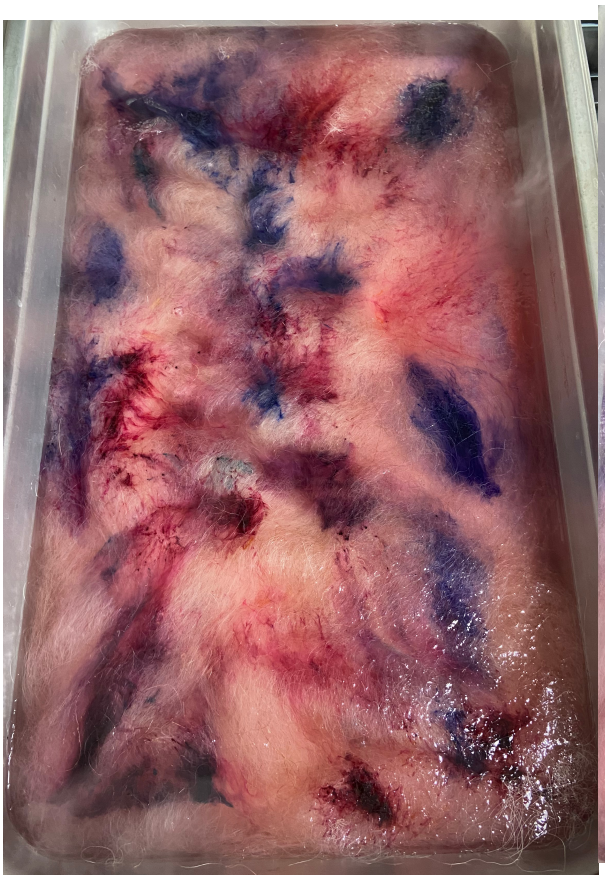
Didn't take enough pictures, but I started with Turquoise and Orange. As these colors merged I added a little Golden Brown inbetween and a very little Yellow.

The dye bath was quite green when it was done, so I dropped in some light grey/brown roan wool.

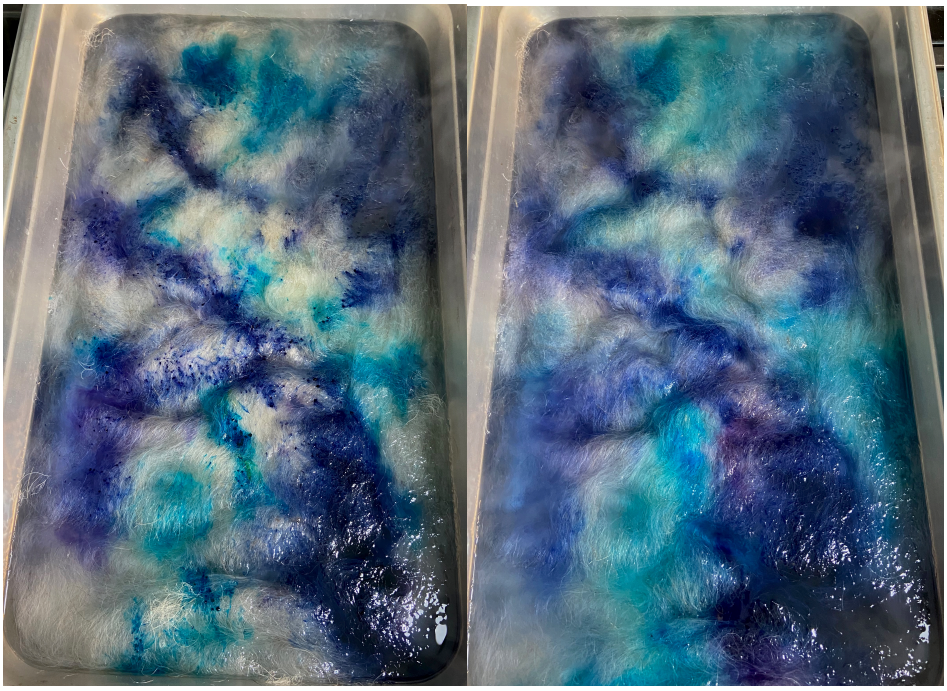
The bath is nearly clear now, the dye has taken nicely but I added a bit of Green and threw Orange on the brownish areas here. The dye does not always go all the way through, here are the top and bottom of that batt.

Next I decided to try to run the bath through a gamut of colors, started with reds:
Garnet, Cherry, Rust, Terra Cotta, Egyptian Red and Orange
A little poking with the tongs and a dust or two and the colors start moving.

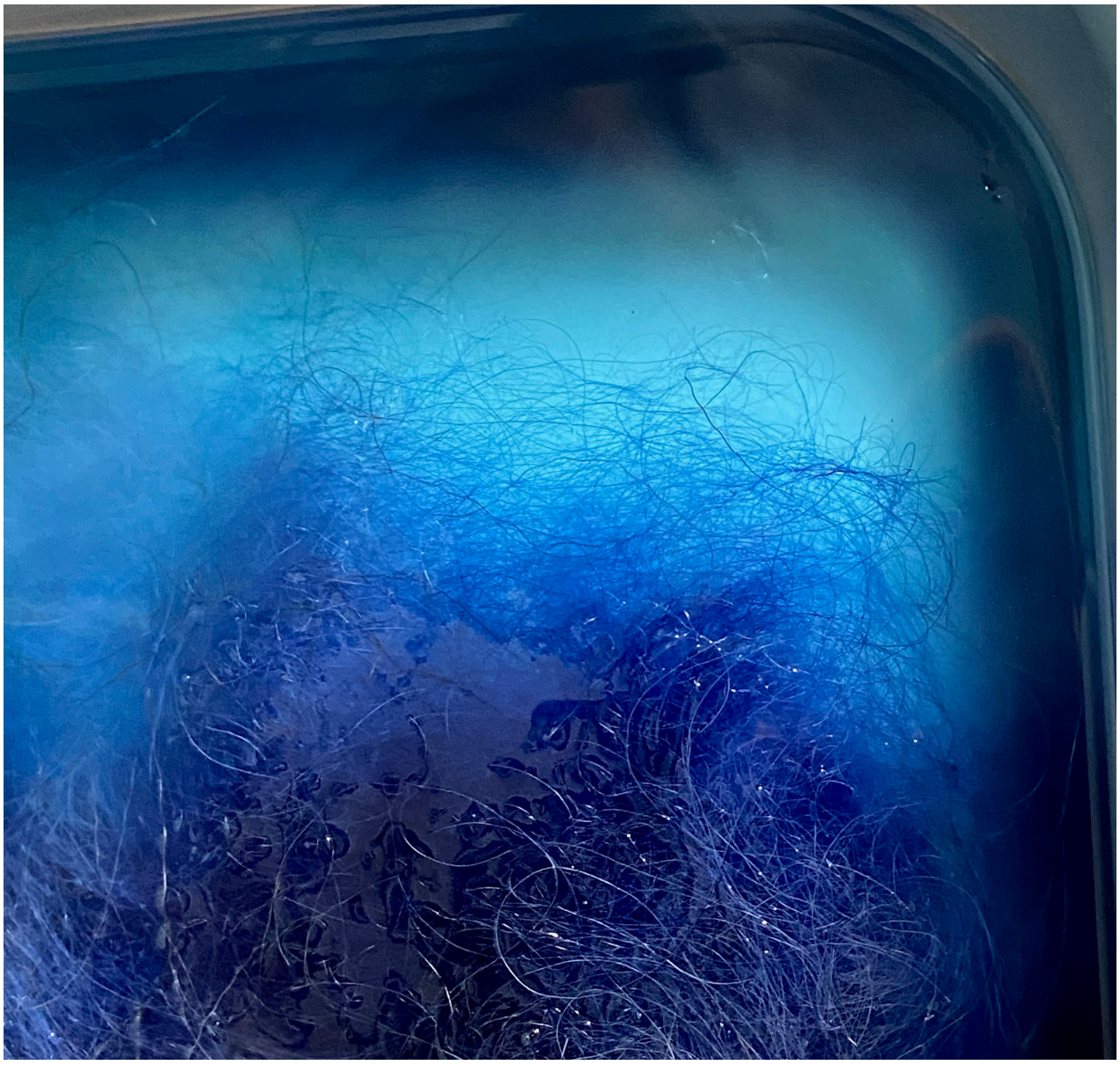
Since the dyebath was a light rose, violet was my next color and I knew it would be a pinkish violet. Light Purple, Royal Blue, Redgrape and then added more Light Purple. This batt will turn into a mauvy-lavender color when spun, it is rather more toward rose than I generally like.



On to blues, the dyebath was very faintly violet. Colors used: Turquoise, Royal Blue, and a little Blue to darken. The color is actually a little more clear than the photos show, closer to the dyebath colors, this will actually seem more blue when it's spun as the dark colors average into the lighter ones.



This is what you'll see when the dye is biting nicely, the colored fibers floating in a lighter bath. I didn't let any of these set for as long as I'd like. Ideally, I let the entire bath cool before I remove the fiber to get the full blend, and with silk it's really necessary because silk will discharge its dye if it gets too hot.



On to Green: Turquoise Green (pthalo green, intense color), Green, Rust, Yellow
Exasperatingly, I was out of Myrtle Green, my favorite green and didn't realize it until it was too late to get more before this was made.

I didn't take a second picture, but you can see the batt is more yellow. I hit the bath with yellow here and there to get that.

A change of bath at this point, and an intense red batt carded with rose gold Angeline:
Terra Cotta, Egyptian Red, Garnet, Mulberry, Rust

There was a fair amount of color left in the dye bath and I love reds, so this batt used a little Terra Cotta and Egyptian Red but was modified with Rust and Mulberry. There's no angeline in this, the batt wasn't really dry when I took the picture.

You can see a lot of color left in the dye bath, this could've been pushed to browns, but I'd get a more interesting red so I did that.

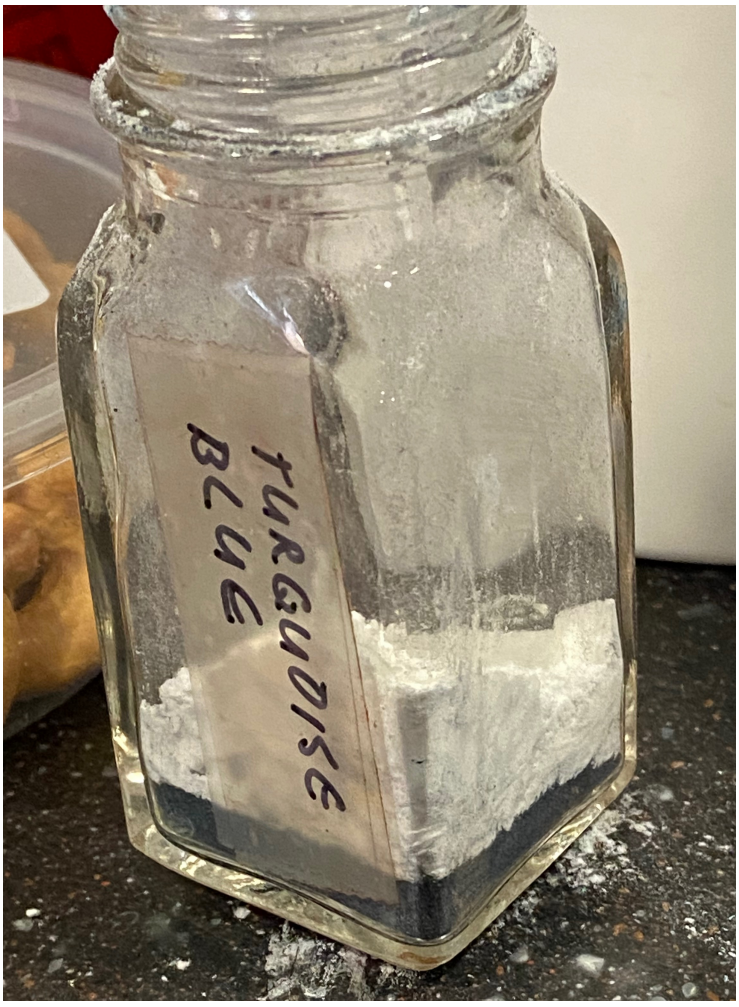
The dye bath was pretty much clear after the last batt, on to a dark violet with gold rose angeline. Colors used: Copenhagen Blue, Royal Blue, Bright Purple. Rather surprising how it looked when the dye was first put into the bath.

To see what a dye may do before actually using it, you can use a clean white ceramic saucer, or I flick a bit into my stainless steel sink. It's not foolproof, sometimes heat will reveal color changes you don't expect but here is Plum on a paper towel I used to clean off the mouth before dyeing, I dropped it into the sink and added some water. See the dark violet, but also a bit of dark chocolate brown and an almost amber shading in one place just showing?

It's a great modifier for reds, browns, violets and used sparingly could be interesting in lavender too.

How much cornstarch should you use to help disburse the dye when you're doing this? Remember that you've just put enough dye to color one pound of fiber into this little shaker. Yellow won't need as much as, say, Turquoise or Plum, so I'd use about a teaspoon for Yellow and around 2 teaspoons worth in darker colors – which is more than I have in there now, I think. You can see how very dark the colors are when they first hit the dyebath in those photos. You can always put in more, but you sure can't remove it once it's in the pan. Blend well.

Do use this size, it's a royal nuisance to try to get the dye into the smaller ones, static electricity makes it want to cling to its packaging and the cornstarch too will want to cling to your funnel rather than slide into the shaker. I cut the zipper seal off the bag before adding, otherwise the dye hangs up in that plastic edge.



And always, Always, ALWAYS mark your shakers – you won't be able to tell Plum from Brown or Cherry when they're dry.