Success With Dyes

How to dial in the color and apply it evenly every time

BY JEFF JEWITT

Photos: Mark Schofield

Most woodworkers have read about the benefits of using water-based dye stains to color wood. They are available in a range of colors, from bright primaries to muted wood tones, and their transparency lets the wood's personality shine, popping the figure in woods like curly or bird's-eye maple.

But using dyes for the first time can be a frustrating experience. Newcomers often end up with streaky surfaces or uneven colors, perhaps because they apply the dyes the same way they wipe on pigment stains purchased from the local home center. With a pigment stain, you wipe on a heavy layer in a fairly random manner, wait a few minutes to let it soak in, and then wipe off the surplus. But dyes soak in almost instantly, so the application must be quick and precise to avoid lap marks and streaking.

In this article I'll explain how to use a water-soluble dye stain, giving you the keys to achieving reliable results the first time and every time.

The right color and concentration

Water-soluble dye powders are not only the most economical way to color wood but also come in the widest range of colors. A 1-oz. container will yield around a quart of liquid dye. You can buy them at www.wdlockwood.com, 866-293-8913; or www.woodworker.com, 800-645-9292.

Prepare the wood, tools, and dye

Dyes don't emphasize sanding errors as much as pigment stains do, but you still want a well-sanded surface, so sand up to P180 or P220 grit. The last sanding should be done shortly before applying the dye to lessen the chance of getting dirt or hand grease on the wood, which might interfere with the dye. Remove the sanding debris with a vacuum or compressed air.

Preemptive raising of the grain is advisable only with woods that really "puff" when water hits them, such as red or white oak. Woods that don't react to water as severely, such as maple and cherry, can be smoothed easily after the dyeing process. If you do raise the grain, wipe down the wood liberally with distilled water, let it dry, and then sand with the last grit of sandpaper you used.

You can apply water-based dyes with a spray gun or by hand. A spray gun will really speed up the process, but it isn't mandatory. If you do spray, protect your lungs: A standard organic vapor respirator rated for paints will suffice. When applying the dye by hand, I use cotton cloths, which I buy in 5-lb. boxes. These cloths are somewhat water-repellent straight out of the box, so to increase absorption, I soak each one in hot water and then wring out the excess before using it to apply the dye. Be sure to wear gloves.

It's impossible to keep dye from running over to an adjacent surface, so I always dye all sides at the same time. A nail board made with drywall screws works well because you can dye the underside of an object first, then place it on the nail board and dye the other sides without marring the underside of the project.

Water-soluble dyes are sold as powders or liquid concentrates. I'll focus on the powders, as they are more economical ($5 to $16) and come in a wider range of colors.

As an example, I want to give this maple side table from Shaker Workshops (see photo, facing page) an amber antique look. A starting ratio is typically 1 oz. dye to 2 quarts water, but don't mix up all the dye at once. Instead, use the same ratio but prepare just a little more liquid dye than you expect to use. For a small table like this one, a pint should be plenty. That way you'll have plenty of dye powder left over to make the liquid darker if necessary. There are a couple of ways to measure small amounts of powder if you don't have a scale. If the dye comes in a

Filter before using. *Dissolve the dye in hot water, let it cool, then pour the liquid through a fine-mesh paint filter to strain out any lumps.*

Make a test panel. *Test the dye on a scrap of wood from your project. If the color is too light, add some dye powder; if it's too dark, add some water.*

Preparation is key

transparent container, you can mark the quarter measurements on the outside. Or, pour the powder onto a sheet of paper; divide the heap into two equal halves, and then divide one half in half again to obtain roughly ¼ oz.

Tap water contains trace iron compounds that react with tannins in woods like cherry or oak and will produce gray spots that might be noticeable under light colors, yellows in particular. Therefore, use distilled water for light dye colors (tap water is fine for darker ones). The water should be about 140°F, or roughly the temperature of hot tap water. Stir in the dye and let the contents cool to room temperature. It's not a bad idea to run the cooled mixture through a fine paint strainer or, in a pinch, a coffee filter to remove any small lumps of dye powder.

Test this mixture on a scrap of wood from your project to see if it's the color you're after. The color of the wet dye will be very close to how it will look after a clear topcoat has been applied. Once you have the color you want, finish another scrap board, end grain and all. Use this sample board to see if the dye colored unevenly. If you notice dark splotches or excessively dark end grain, you should use a stain controller on your project before dyeing it (see photos, left).

Dye quickly, or you'll live to regret it

Because it's easier to work on flat boards than inside corners, dismantle your project as much as possible before applying the dye. The next step is to apply a stain controller to areas the sample

SEAL PROBLEM AREAS

End grain is a usual suspect. Once you have the right color, test it on another sample board to see if the wood absorbs the color evenly. In this case (above), the end grain has absorbed too much dye and become darker than the surrounding wood. On areas your sample boards indicated would absorb too much dye, apply a coat of a water-based stain controller (right). This will limit the wood's absorption capacity.

GIVE IT A LIFT

To avoid liquid pooling under the bottoms of the legs and creating dark areas when you apply the dye, drive a drywall screw into the end of each leg.

Two ways to apply dye

WIPE FLAT SURFACES

Work fast to avoid streaking on large surfaces. Start at the edges and go with the grain, using a large cloth (above). Jewitt dyes only the face and the top edge of a drawer front (right). He doesn't dye the ends because the end grain will darken under a clear coat.

SPRAY COMPLEX SURFACES

You can use a plant mister to apply dye to complex or small shapes or to vertical surfaces such as legs (above). Wear a respirator even with this type of spraying. Use a cloth or paper towel to remove surplus dye (left) before it can dry.

board told you are likely to absorb too much color. On this table, I applied a water-based stain controller to the end grain on the top and also to the drawer pull. When it was dry, I sanded these areas with P320-grit paper.

The most common problem newcomers have with dyes is streaking or lap marks. This is caused by not keeping a wet edge when applying the dye, and consequently applying an overlap of dye to an area that already has started to dry. There are a couple of ways to lessen this problem. First, apply dyes in temperatures between 50°F and 75° F. In addition, avoid strong cross-ventilation such as open windows. There's no smell from water-based dyes and the fumes aren't considered hazardous unless you spray the dye.

Dunk a pre-wetted and wrung-out cotton cloth into the dye solution and let it soak for about 10 to 15 seconds. Take it out and squeeze out the excess. Then apply the dye as quickly and evenly as you can. When staining a tabletop, always start at an edge, never the middle, and go with the grain. Cover the back side, edges, and top, moving as fast and as efficiently as possible. If necessary, dunk the rag in the dye again to recharge it, or you can keep another rag sitting in the mix, ready to go.

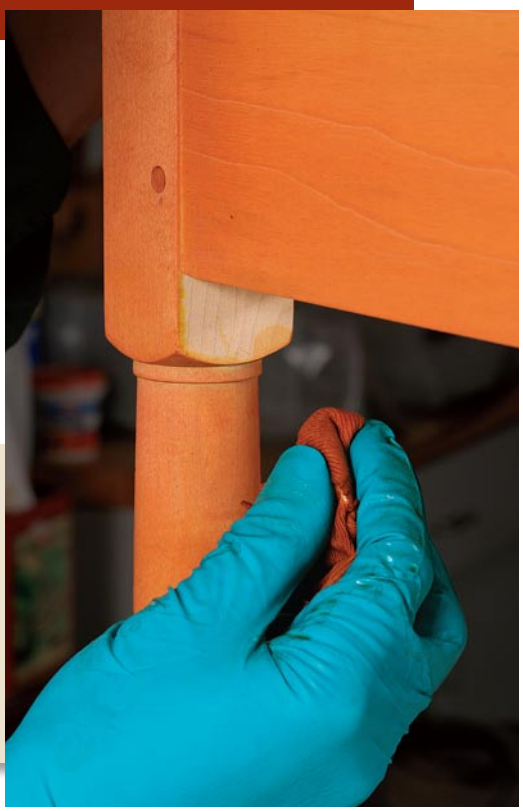
Once the top has been covered completely, remove any excess dye with clean paper towels. On larger areas, such as a dining table, you can use the same application methods, but you may want to have one helper to keep recharging the cloths with dye and another to handle the paper towels.

On complicated surfaces such as a table base, a plant mister allows you to apply the dye with one hand and then blot up the excess with a clean cloth in the other. Work from the bottom up, and if you get a drip on any area, apply more dye immediately to that area or it will show up as a dark spot later. If you have even a portable compressor, a $35 spray gun works great (www.northerntool.com, item No. 222087).

On drawers, I like to stain only the outside and top edge of the drawer front, which takes a bit of care. I soak a small piece of rag in the dye, wring it out as much as possible, and then carefully apply the dye. The end grain of the dovetails will darken after the

When things go wrong

If you make a mistake, the die is not cast. If you miss a small spot on a large surface, it is best to dye the whole area again. Likewise if the color is too weak, apply the dye again.



BARE SPOTS

If you overlook an isolated area, wait until the dye dries and then touch up the bare spot.

topcoat is applied, so I don't bother trying to stain them. If you choose to dye the end grain (for example, if the rest of the piece is being dyed a dark or vibrant color), use a small artist's brush (for more on finishing a drawer, see Finish Line, *FWW* #189).

Be very careful when dyeing work veneered with standard interior PVA glue (yellow or white). Water-based dyes really soak into the wood and can release the glue's bond, resulting in a bubble under the veneer. If you veneer your own work, use a two-part glue like Unibond 800 or a waterproof glue like Titebond III.

Use a clear finish of your choice

When the dye has dried, the wood may take on a dry, matte, or mottled appearance that's very different from what it looked like as you were applying the dye. This is normal; the color will take on depth and luster as you apply a clear topcoat.

If the surface feels rough, don't resort to sandpaper; instead, lightly smooth it with a gray abrasive pad, going with the grain. The pad's cushioned surface is less likely to cut through the stain. Most of the time I don't bother; I just apply a couple of coats of clear finish and then sand the surface with P320-grit paper.

One note of caution: Brushing on a water-based clear coat over a dried water-soluble dye will lift some of the color. To prevent this, apply a sealer coat of dewaxed shellac or an oil-based sealer first. If you're planning to use an oil- or solvent-based finish, you don't have to worry; the dye won't lift with these products. □

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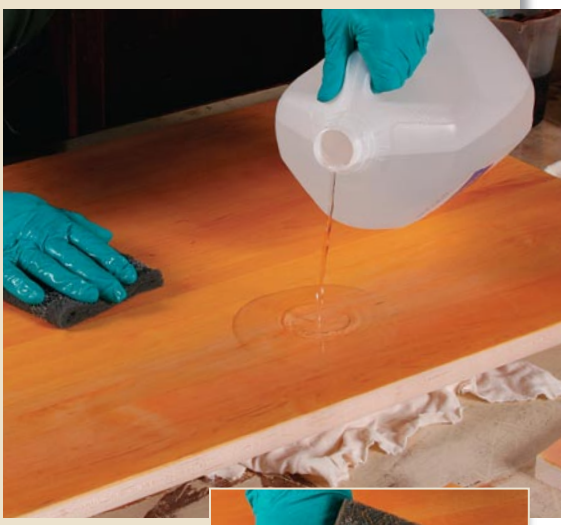
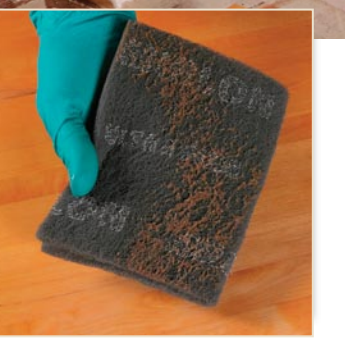
STREAKS

While the wood is still wet, rub the darker areas with a clean, damp cloth to remove some of the dye.

TOO MUCH COLOR





If an area needs a drastic reduction in color, pour a little distilled water on the surface and scrub the wood with a gray abrasive pad.