



Combining Dyes and Stains

Use them together to bring out the best in a variety of woods

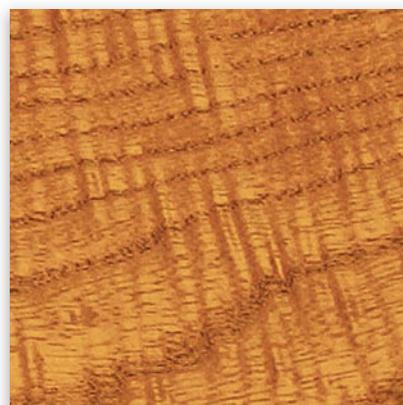
BY PAUL SNYDER



Dye only. Dye adds a uniform color change to the whole surface of the wood. The translucent color in dye will highlight a wood's figure without obscuring it.



Stain only. The pigments in stain lodge in open-pored woods, emphasizing the grain structure. Because they add less color to tight-grained areas, stains do not add color evenly to a board.



Dye followed by stain. A combination of dye and stain enhances both the curl and the grain, while the bright dye shining through the darker stain gives the wood a look of greater depth.

You may think that the only reason to dye or stain a piece of furniture is to change its color, but many more subtle changes are possible. With dyes and stains you can pop the curl in curly maple, enhance the rays of quartersawn white oak, and give fresh-cut, pallid cherry the deep glow of an 18th-century antique. More often than not, the secret to using these products is knowing that coloring wood is not a single process, but a multistep technique that combines a dye with a stain.

Different effects using dyes and stains

Some manufacturers tout combination dyes and stains as one-step solutions to coloring wood, but applying these elements separately will give you greater latitude over the final appearance.

The color of the dye will have a big impact on the look of the finish. Brighter colors, such as golden brown, red, yellow, amber, and orange create highlights that will transmit through a wide variety of stains, increasing the depth and visual appeal of the wood. A stain applied over the dye adds color, either by contrasting or harmonizing with the dye, and defines the grain and pore structure. Examples are dyeing walnut or mahogany yellow and

then applying a dark stain, or using a red dye to enhance that tone in mahogany.

Enhance the natural look of a wood—Using colors that occur naturally in wood as it ages, you can give your piece an antique appearance. Use a dye the underlying color of the antique to bring out the figure and the chatoyance. Then use a stain to tweak the color, to enhance the grain, and to add depth.

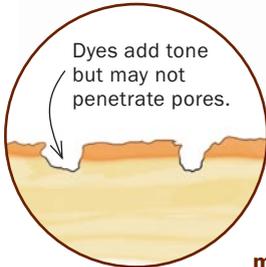
Replicate dark woods—This two-step method also can be used to get a deep, dark color such as ebony or dark mahogany from a different wood species. Often a dye or stain alone won't produce these deep shades, but using a dye and a stain in the same color range will make the final color much darker.

For subtle color change, try glazing with stains

Until now I've talked about applying stain directly to dyed wood. When a stain is applied over a coat of clear finish, it is known as a glaze. You can buy purpose-made glazes, or you can use a heavy-bodied stain such as a gel stain.

First apply a washcoat—Before using a glaze, seal the wood to prevent stain from penetrating it (possibly causing blotching),

The difference between dyes and stains



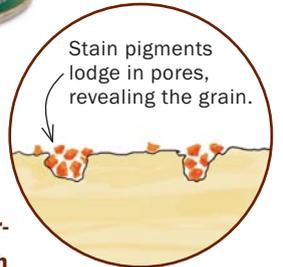
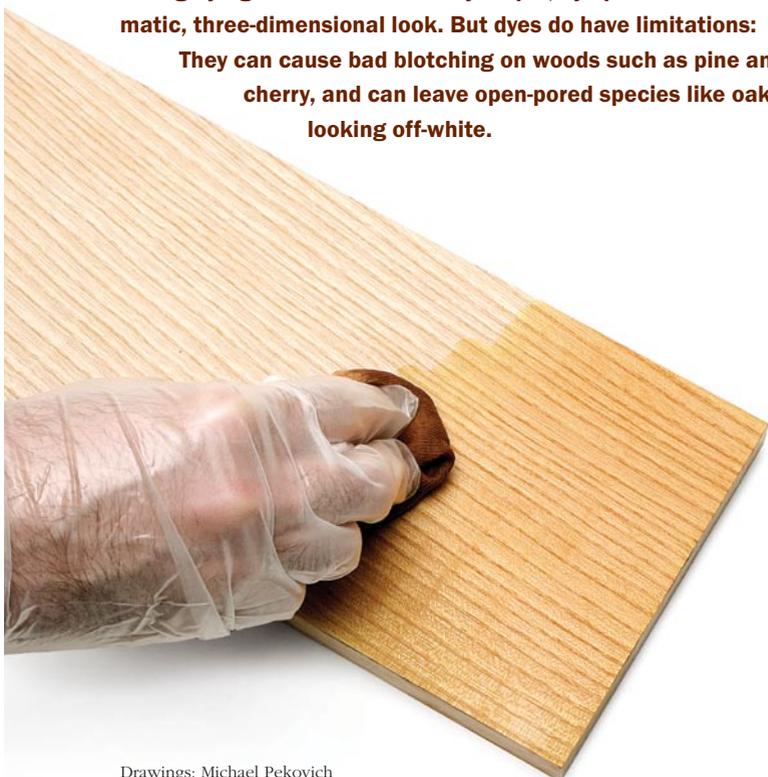
Dyes add tone but may not penetrate pores.

DYES DISPLAY FIGURE

Dyes are made up of molecular-size particles that attach themselves to wood fibers. Because dye particles are microscopic, they are essentially transparent and can add a lot of color without loss of grain definition. Dyes are available in liquid form or as powders to be dissolved in a solvent such as water, alcohol, or oil. Unlike pigments in stains, dye molecules stay in solution and don't settle to the bottom of the container.

Because dyes are transparent, they enhance the figure and make wood shimmer (an effect known as chatoyance). On highly figured woods like curly maple, dye produces a dramatic, three-dimensional look. But dyes do have limitations:

They can cause bad blotching on woods such as pine and cherry, and can leave open-pored species like oak looking off-white.



Stain pigments lodge in pores, revealing the grain.

STAINS ENHANCE GRAIN

Stains consist of colored pigments combined with a binder that glues them to the wood. The binder can be oil, varnish, or acrylic (water-based), in liquid or gel form. Unlike dyes, which penetrate the wood, the pigments in stains color the wood by lodging in the grain and pore structure. This makes them a good choice for open-pored woods such as ash and oak. On tight-grained woods such as maple, the pigments find very little structure to lodge in, so most of the color is removed when the excess is wiped off, and the result is uninspiring.

Although stains accentuate the grain and pore structure in the wood, the figure (shimmer) is not highlighted nearly as well as with a dye. Pay careful attention to surface preparation as stains will lodge in any scratches, tearout, or gouges that you may have overlooked.

Multiple coats of stain become more like paint, and because the binder usually isn't very strong, multiple coats become a weak link in the finish.





1 BEGIN WITH A DYE

Alter the underlying color of the wood and bring out any figure by applying a dye to the bare wood.

2 A WASHCOAT IS OPTIONAL

A thin coat of finish, known as a washcoat, can be used at this point to seal the wood and control the stain's penetration. Dewaxed shellac is ideal for this step.

3 WIPE ON A STAIN

After working the stain into the grain, wipe off the surplus. When a thick-bodied stain is applied over a washcoat, it is known as a glaze.



TEST THE STRENGTH OF YOUR DYE

Before using a dye, you should test it in various dilutions on a color-step sample board. Dyes in small containers (for example, 2 oz.) are very concentrated and are designed to be diluted to a “standard” concentration of 1 oz. dye per quart of solvent. To use less dye, I start with ½ oz. dye and 16 oz. solvent. After testing the standard concentrate, I thin it with equal parts solvent, then two parts solvent to one part dye, then 4:1, and possibly 8:1, applying each dilution to the board. If the standard dilution is too weak, add more of the undiluted dye, but measure precisely and record the amount.

Dyes in larger bottles usually aren't as concentrated. With these, I make a step board starting with dye straight from the bottle and thin from there. Keep the step boards for future reference.

Sources of dyes, stains, and shellac

WOODWORKER'S SUPPLY
www.woodworker.com
800-645-9292

HOMESTEAD FINISHING
www.homesteadfinishing.com
216-631-5309

but not so much that the pores are filled (unless you don't want to accentuate the grain patterns). Dewaxed shellac works well for this first step, known as a washcoat, because it can be thinned while still providing a continuous seal. Thin the shellac to a ½-lb. cut or a 1-lb. cut. Use a ½-lb. cut on woods with a fine pore and grain structure in combination with a thick oil-based glaze. For a water-based or thin oil-based glaze, a 1-lb. cut helps prevent blotching. Also use a 1-lb. cut for wood with larger pores, perhaps applying a second coat to further limit how much color the glaze will add. If you use Zinsser's SealCoat, dilute it with denatured alcohol in a 1:1 ratio for a 1-lb. cut or 2:1 ratio for a ½-lb. cut. If you make shellac from flakes, a 1-lb. cut is about 10% flakes by volume. For example, to make 8 oz. of shellac, pour 7.2 oz. of alcohol into a measuring container and add flakes until the level reaches 8 oz.

Working with blotch-prone woods—Woods such as alder, aspen, birch, cherry, and pine may appear mottled or blotchy when a dye or stain is applied to bare wood. This is especially true for darker colors. The solution is to apply a diluted dye to the bare wood to pop the figure, then seal the wood and apply a dark glaze to add more color without blotching.

Adjust the grain pattern or tweak the color—On wood with a prominent grain structure, a washcoat will allow glaze to accentuate the grain, without unduly coloring the whole board.

Because the surface of the wood has been sealed, the glaze will add only a small amount of color. The effect is rather like looking at the wood through colored sunglasses. Just as some sunglasses improve the contrast of everything you see, a glaze should have the same kind of effect on the wood.

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Recipes for dyes and stains

INSTANT ANTIQUE CHERRY

Apply the following blend of Solar-Lux dyes: 3 parts golden fruitwood, 1½ parts American walnut, 12 parts denatured alcohol. After the dye has dried, seal the board with a washcoat of shellac. When dry, wipe on a coat of General Finishes black cherry water-based stain. Used as a glaze, the stain brings out the grain and imparts a darker tone, but won't blotch the wood.

DYE COLOR



+

STAIN COLOR



=

FINAL RESULT



A DEEPER, DARKER MAHOGANY

Apply a coat of TransTint honey amber dye at standard strength to give the wood a warmer undertone. Then wipe on and wipe off Minwax's red mahogany oil-based stain. Used on bare wood, the stain gives a dark but shallow appearance. Used in combination, the overall look is darker, but the brighter dye shows through, giving greater depth.



AN ARTS AND CRAFTS FINISH FOR WHITE OAK

Here is a way to maximize the impact of quartersawn white oak. Dye the board with TransTint golden brown at standard strength. Next, apply a washcoat of shellac. Then wipe on and off a coat of Zar oil-based walnut stain. The combination gives the wood a rich tone, highlights the grain structure, and pops the ray flecks.



LIVEN UP KILN-DRIED WALNUT

Most commercial walnut is steamed during the kiln-drying process, which neutralizes the sapwood but leaves the whole board with a gray, pallid appearance. Use TransTint medium brown dye to improve the color. Next, use Bartley's dark brown mahogany gel stain as a glaze to deepen the color without hiding the figure.

