

## The Use of Color with Woodturnings

By Bob Galloway and Oren Zehner, February 2005

### **When to Consider the Use of Color:**

The natural color or grain of the wood detracts from your otherwise perfect turning.

You wish to enhance treatments such as texturing or carving.

You want to increase interest by adding another artistic element.

### **Coloring Agents:**

**Paint:** Blocks the wood from sight, unless the paint is transparent or translucent. Seals the wood and is part of the finish. Transparent paint is similar to dye in the effect produced.

**Stain:** Enhances or accentuates wood grain and its natural color. Normally applied to unfinished wood. Can seal the wood due to the carrier (usually oil or varnish). Slow (oil) or fast (varnish) drying.

**Dye:** Transmits light, except for black dye. Does not seal the wood due to the carrier (usually water or alcohol). Fast drying. Rainbow of colors available except white. Can be applied to unfinished wood or mixed with a compatible finish. Natural dye plant extracts (used for organic textiles, reeds for basket weaving, etcetera) might be an alternative to commercial man-made dyes.

**Other Agents:** Inks and markers, charring (friction, wood-burner, torch), smoke, metal leaf, hazardous chemicals (liquid ammonia or fumes, lye, Drano, etcetera).

**Wood Bleaching** (hazardous and requires neutralizing the wood after use): An alternative to the use of whitewash to lighten wood. Three types of bleaching methods:

**Two part** (sodium hydroxide and hydrogen peroxide) bleaches out wood color.

**Chlorine bleach** (swimming pool bleach for strength) removes some dyes.

**Oxalic acid** can remove iron stains and some pigment stains.

### **The following notes are primarily directed toward the use of commercial dyes)**

**Complete your sanding before using dyes:** You may want to sand after applying a dye to create highlights or graduations of tone, remove excess dye to lighten a tone, or remove dye from all but the open grain pores.

Otherwise, you won't get a chance to improve the smoothness of the wood after the dye is applied. If you plan to use a water-based dye and want a smooth finish, wipe the bare wood first with a wet rag, let the wood dry, then sand it smooth again. Doing this one or more times will leave a smoother finish after the dye is applied. Alcohol-based dyes won't raise the grain as much as water-based.

**When to Seal (Before or After Dyeing):** Seal the wood first any time you don't want dye to penetrate and spread within the wood, such as under an applied masking. Seal the wood first to sand dye off of high spots later (for instance, dyeing a surface textured area, then sanding the dye off of high areas and leaving it in the troughs). If you seal the wood first, the dye may want to puddle. Adding shellac to alcohol-based dye can enhance its ability to spray and wipe evenly onto a sealed surface.

**Nitrile gloves versus latex to protect hands:** Nitrile gloves are tougher, but both do a reasonable job of stopping alcohol-based dyes from reaching your hands. Harbor Freight carries nitrile and latex gloves in M, L, and XL at reasonable cost. Woodturners Catalog (Craft Supplies) carries nitrile in the above sizes plus small.

**White cotton rags, not paper towels, to apply dye by wiping:** Less lint is created by cotton, and alcohol or water will not cause the rag to come apart.

**Spraying versus wiping:** Wiping dye onto large areas will leave streaks. To get rid of the streaks, multiple applications become necessary and the final color will be very strong unless the dye is very dilute. By spraying dye on, you can reduce streaking and easily control the amount of final color. When sprayed, some dye will remain on the surface rather than be absorbed into the wood. This can dull the grain's appearance underneath unless the surface dye is wiped or sanded off. You may want the dulled look, or not. An airbrush is a very good tool for spraying dye. End grain absorbs dye faster than side grain, so wiping dye on will tend to color end grain much more intensely.

With spraying, you can control how much dye is placed on the end grain. To get a flecked or speckled look, try flicking the dye onto the wood from a toothbrush.

**Wiping after dye is sprayed versus not wiping:** Wiping the dye with a dry cloth after spraying and drying will remove some of the dulling surface layer, may lessen the amount of color slightly, can create a slightly smoother surface and allow more grain to show through, but it may cause streaks. Not wiping the surface dye off can cause more dye to lift into the finish coat and cause streaks there. If you don't want dye in the finish, then fix the dye layer with a lightly sprayed coat of lacquer or acrylic, then follow with more finish, preferably one with a different carrier that won't dissolve the lacquer or acrylic. For instance, fix with an acrylic then finish with a lacquer. Definitely fix the dye layer before wiping on a finish, otherwise a lot of dye will bleed into the rag and be spread, perhaps unevenly or onto areas where you don't want it.

**Using tape or liquid mask (frisket) to block the color from areas:** Dye will spread through the wood under a tape or liquid mask unless either (1) the wood is sealed or (2) the dye is lightly applied, without enough solvent volume to penetrate into the surrounding wood. If spraying, spray light coats. If wiping, wipe quickly and lightly along the mask edge. Cutting tape or liquid mask to a pattern on the wood will leave a furrow caused by the cutting blade. You can apply alcohol after removing a mask to minimize a knife blade furrow, but alcohol will then spread water or alcohol-based dye across the furrow. The use of alcohol to close a furrow is best used after dried paint or oil-based dyes.

**Diluting and using several coats:** In most cases, it will be easier to get consistent color without streaks and the right amount of color by diluting the dye and applying multiple times. When finish is applied over dye, some amber effect might be added and the color may appear darker. Let the dye dry, then if you need to see what the finished piece will look like, apply some mineral spirits to simulate the application of finish. If the color is too light, let the mineral spirits dry then apply more dye. Popsicle sticks make good disposable stirrers for diluted dye.

**Glass paint (translucent, transparent) versus epoxy dyes:** Some designs use clear epoxy to create stained-glass windows in the piece. For these designs, it may be easier to paint hardened clear epoxy the color you want with an acrylic or lacquer glass paint rather than dye the epoxy before it is applied. Compatible dye mixed into epoxy will add transparent color, but the wood it is applied to must be sealed to keep the epoxy and dye from staining it. Sanding sealer will help minimize air bubbles in the epoxy and will prevent stains in surrounding wood areas.

**Superglue and dyes:** Dye alone will not penetrate or stick to dried superglue. Superglue applied onto a dyed area can cause dye bleeding and likely bleach the dye or change its color. If you want to combine the use of superglue and dye, experiment first to confirm what will work.

**Mix more than you will need:** If you are using a blend of dye colors, make some excess so that you don't run out before the project is dyed. It can be difficult to match different color batches.

**Basic dye colors for blending:** With red, yellow, and blue dyes you can create any color in-between. Red and yellow make orange. Yellow and blue make green. Vary the proportions to get a rainbow of shades. You can't get a vivid purple this way, but purple commercial dye is available. Light pastels such as pink are difficult to create because you need to begin with a white base. Without introducing a finely ground white pigment, try starting with very light wood and apply a diluted color sparingly.

**Local sources of dye in the basic colors (red, yellow, blue, black):** Tandy Leather sells an alcohol-based dye. Hobby Lobby sells a dye for epoxy. Woodcraft sells water soluble and oil-based dyes.