

Stains & Dyes

A. Make up of stains & dyes

1. Colorant
 - a. Pigment or Dye
 - b. Combination of Pigment & Dye
2. Amount of Colorant
 - a. Little or a great deal
3. Binder
 - a. Oil, Varnish, Lacquer, or Water
4. Thickness
 - a. Liquid or Gel

B. Colorant

1. A pigment colorant is either finely ground natural earth or synthetic colored particles suspended in a liquid.
2. Suspended: the pigment particles are floating in a liquid.
3. A dye colorant is either a natural or man-made color dissolved in a liquid.
 - a. Natural colors come from things like coffee, tea & berries.
 - b. Man made colors are derived from petroleum products (aniline dye).
4. Dissolve: to pass into a solution, forming of two or more mixtures into one substance.
5. There are some colorants that are a combination of pigment & dye.

C. Amount of Colorant

1. The amount of colorant in any stain is measured by the ratio of pigment, dye or their combination suspended or dissolved in a liquid.
2. The more colorant creates a darker and more intense color on the wood.
3. Less colorant creates a lighter and less intense color on the wood.

D. Binder

1. Binders are the glue that holds the pigment to the wood.
2. Without a binder, the pigment particles could be brushed or blown off the wood like dust once the liquid has evaporated.
3. All pigment stains must have a binder.
4. Binders are oil, varnish, lacquer or water.
5. Dyes are made with or without a binder

E. Thickness

1. Most stains are liquid, however there is a gel stain.

Stains

1. Pigment stains always have to be combined with a binder.
2. Pigment will settle to the bottom of a container, so before using a pigment stain you must stir its container.
3. When applying a pigment stain you should whip the excess stain off before it dries.
4. Pigment stains obscure the wood when the excess is left on the surface.
5. Pigment stains can be made more intense by adding additional pigment to the mixture, or by applying additional coats of stain and not wiping off the excess. However, this procedure has the effect of painting, and will further obscure the wood the more coats you apply.
6. Pigment lodges only in the scratches and pores in the wood large enough to hold it when the excess is wiped off.
 - a. Pigment lodged in sanding scratches that run with the grain is usually difficult to distinguish from the grain itself, which is why you should always sand your wood projects with the grain. Pigment stains will accentuate cross grain sanding.
7. Pigment stains are very resistant to fading.

Dyes

1. Dyes don't require a binder.
2. Dyes are dissolved not suspended, so they don't settle out of their liquid.
3. Dyes penetrate pretty much everywhere on a wood surface along with the liquid it is dissolved in.
4. Dyes stay transparent even when the excess isn't wiped off.
5. There are four types of dyes
 - a. Water soluble
 - b. Alcohol soluble
 - c. Oil soluble
 - d. Non-grain-raising
6. Dyes are made in different forms.
 - a. Water, Alcohol, & Oil soluble dyes are made in powder form.
 - b. N.R.G. is made in liquid form.
7. Natural dyes (coffee, tea, berries) are limited to earth tone colors, and fade quickly when exposed to strong ultraviolet light.
8. Man made dyes (aniline dye) are available in an infinite range of colors, and are more resistant to fading.
9. Dyes can fade quickly when exposed to strong ultraviolet light.
10. You can lighten a dye color by wiping the excess dye off the wood before it dries, or by wiping the dyed area with the solvent for the dye. Each time you let the dye dry you can redissolve it and remove more of the color.
11. You can darken a dye color by allowing a coat to dry and then applying additional coats without obscuring the wood grain.