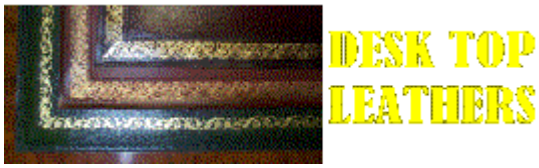

USING WOOD BLEACH

By Jeff Jewitt

TYPES OF BLEACHES

There are three general classification of bleaches used on wood; peroxide or "two-part" bleaches, chlorine bleach and oxalic acid. Each type will work on some colors and not on others. The trick in using any bleach is selecting the correct one for the stain. Knowing beforehand what made the stain in the first place will help in selecting the correct bleach.

Peroxide Bleaches

These bleaches are sold as two-part or A/B bleaches. The two components are usually sodium hydroxide and strong hydrogen peroxide. Used by themselves they are ineffective but when mixed together, a strong oxidizing reaction is formed which is most effective in removing the natural color in wood. To a lesser degree they will lighten some pigment stains, but are ineffective on dye stains.

Chlorine Bleaches

Chlorine is a strong oxidizer that will remove or lighten most dye stains. A weak chlorine based bleach such as Clorox will work but generally takes too many applications to be effective. A much stronger solution can be made from swimming pool bleach, which is a dry chemical called calcium hypochlorite. It is inexpensive and can be purchased from a pool supplies retailer.

Oxalic Acid

Oxalic acid is unique in that it will remove a certain type of stain formed when iron and moisture come into contact with tannic acid in the wood. Some woods like oak, cherry and mahogany naturally contain a high amount of tannic acid and a black stain is formed when the wood gets

wet with tap water (tap water contains iron as a trace mineral). A wet glass or leaky vase left on these woods will produce a black ring. Nails and screws will form black rings around the head if the wood gets wet. If tap water is used to wet unfinished oak and mahogany, small gray spots may form on the surface of the wood. Oxalic acid will remove this discoloration without affecting the natural color of the wood.

Oxalic acid is also used to lighten the graying effects of outdoor exposure. It is the ingredient in most deck "brighteners". Used on furniture that has been stripped for re-finishing, it will lighten the color and re-establish an even tone to the wood, particularly oak.

USING BLEACHES

Ideally, a bleach should be selective in its removal of color. What this means is that it should only remove the color that you want and not the color of anything around it. The guide below should provide a starting point, but in most cases you'll need to experiment, particularly if you do not know the composition of the stain in the first place. Since most bleaches are poisonous and/or caustics, wear the appropriate gloves, dust mask (if mixing dry bleach powders) and chemical safety glasses.

Lightening Wood

Removing the natural color of wood is best done with the two-part peroxide bleaches. These are available as "A/B" bleaches sold in most paint and hardware stores. The most common way to apply this product is to wet the wood thoroughly with part A (sodium hydroxide) then immediately apply part B (hydrogen peroxide). It's important that part A not sit too long before applying part B because sodium hydroxide will darken some tannin-rich woods like cherry and oak. You can also mix the two parts together and apply them at the same time, as long as you do it as quickly as possible after the two parts are mixed. Usually one application is all that's necessary, but another application may be needed to even out the bleaching effect. Some dark woods, like ebony, are not affected by this bleach which is an advantage if you want to bleach a wood that has ebony stringing. On some woods, particularly walnut, a greenish tinge may appear in some areas if the bleach is not applied evenly. To alleviate this problem, try to apply the bleach evenly and sparingly, just enough to make the wood wet. Do not flood the wood with bleach. Neutralize the alkaline effect of this bleach after the wood is dry by applying a weak acid like vinegar. Use white vinegar mixed one part vinegar to two parts water.

A/B bleach will remove all the natural color variations present in wood, so use them judiciously. Over - bleached woods will lack tonal variations and depth even if stained afterward. I use them only when matching sun-faded wood, or to provide a neutral base upon which I create a decorative finish like pickled oak or blond mahogany. When re-creating the fruitwood finish on bleached cherry explained above, I had to hand glaze selective areas during the finishing process to provide some color variation. A/B bleaches can be used to compensate for heartwood/sapwood

variations, but I prefer to bring the sapwood in line with the heartwood by hand coloring or spraying the sapwood with a dye stain.

Color Removal

Chlorine bleaches are best used for removing dye-based stains. The chief advantage of this bleach is that it will remove or lighten the dye without affecting the natural color of the wood. To use this type of bleach, purchase dry calcium hypochlorite from a swimming pool supplier and mix a saturated solution of the powder in hot water. A saturated solution is formed by adding the powder to the water until no more powder will dissolve. The mixture will start to foam a little and loses its effectiveness if stored, so I only make up what I'll use right away. Apply the solution liberally to the wood and in some cases, the dye will immediately disappear. Other dyes may take a while to bleach and some may only lighten. Wait overnight to determine the full bleaching effect. If the color hasn't changed after two applications, applying more bleach will be ineffective and you'll need to try an alternate technique. Chlorine dyes are usually ineffective on pigment based stains. The only way to remove these are by sanding or scraping.

Stain Removal

If you can determine the composition of the stain you can remove it with the correct bleach. Iron based stains are fairly easy to spot. They are grayish-black and usually ring shaped. It may also show up as a splotchy appearance on oak that has been stripped. Before applying the oxalic acid remove the finish first. Mix a saturated solution from dry crystals in hot water and apply to the entire surface, not just the stain. Several applications may be needed with overnight drying in between. Once dry, it's imperative that any residual oxalic acid be removed from the surface of the wood before sanding or finishing. Several rinses with distilled water will remove most of the oxalic acid crystals left on the wood surface. Neutralize the acidic wood surface with a solution made from one quart water with two heaping tablespoons of baking soda.

Stains that form on wood during the drying process are varied in their composition. Sticker stain, brown stain, streaking and light "ghost" stains are all common problems and some can be removed by bleach. The composition of the stain may be chemical or microbial, so trial and error is needed when attempting to remove these stains. I start with oxalic acid, then chlorine. Lastly A/B bleach can be tried, but since removal or acceptable lightening of the stain results in bleaching of the surrounding wood, this is a last resort. Remember that some stains do not react to use of a bleach, so if two applications of a bleach are ineffective, move on to another bleach. BE SURE TO NEUTRALIZE EACH BLEACH AFTER USING BY RINSING WITH PLENTY OF DISTILLED WATER--- RESIDUAL BLEACH CAN REACT WITH ANOTHER - GIVING OFF NASTY VAPORS. Stains from foods like grape juice, tea or fruits can be removed with a chlorine bleach. Wipe the whole surface so that you get an even effect. Some blue and black inks based upon iron can be removed with oxalic acid, but carbon based inks like India ink cannot be removed by any bleach.

CREATIVE USES FOR BLEACHES

Sometimes bleaching is the first step in certain finishing processes. In creating certain special effects like blond mahogany, pickling and pearlized finishes bleaching is done to establish a neutral or consistent undertone to the wood surface. Bleaching is also the first step in matching old wood that has changed color from exposure to light. A/B bleach is used in all the effects.

Blond Mahogany - Use A/B bleach to remove the natural red from the wood. When dry, sand lightly to knock down the grain then apply a dark mustard colored pigment stain (like nutmeg or fruitwood) and wipe all the excess off. This produces a light yellow-brown color that was a popular finish in the forties and early fifties.

Bone - Apply A/B bleach and when dry, lightly sand. Then apply a white pickling stain or you can make your own from thinned oil paint. A pure white stain will result in a bone white effect that is a little "antiseptic". Addition of a small amount of raw umber tint to the white stain adds a cool, "bone" effect.

Pearlized - Follow the directions for the Pickling above, but after one coat of clear finish, lay some rags lightly dampened with an extremely dilute purple alcohol or NGR dye on the surface momentarily. Crumple the rags so that a spotted effect is achieved. The dye may attack some finishes like lacquer so be careful. Seal this color in with another clear coat of finish then do the same procedure using an extremely dilute red dye. Seal this with clear finish. Water clear lacquers like acrylic or CAB lacquers work best for this effect. Avoid amber colored lacquers and varnishes.

Matching old wood - Apply A/B bleach and when dry scuff sand. Then apply a dye to establish the final color of the wood. For sun-faded walnut and mahogany, an amber/honey color dye will work. For woods that change to a very different color, like teak, use a light brown dye tinted with a bit of orange.

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