Making Your Own Wood Bleach

Bill Boehme - Copied from the World of Woodturners discussion circa May, 2016

Since two part wood bleach seems to have all but disappears from the market, I did some internet searching and found on the Forest Products Laboratory website that sodium hydroxide (ordinary lye or drain cleaner) plus hydrogen peroxide is the only bleach that will remove the natural pigment in wood. Not all wood can be bleached, but it works well on many as has already been mentioned. I have also tested it on some very dark redwood and it bleached it to a very pale tan in the earlywood and a medium to dark tan in the latewood.

I use Chestnut dyes on figured maple primarily and my reason for bleaching as most of us already know is to minimize color shift. While we think of maple and ash as being white, but in reality they have a very strong yellow content. This means that if you apply blue to the wood you wind up with blue + yellow = green. Same thing when you apply red dye the result is more like orange. I have also bleached flame box elder and the result is really dramatic. By removing the yellow, the color of the red goes from orange-red to a brighter looking magenta-red. I have been extremely well pleased with the Chestnut dye on bleached maple. So far, the colors have stayed bright and true. Years ago, I used TransTint dyes and while the initial results looked good, they very quickly faded to pale drab colors even though indoors in low light.

The drain cleaner lye must be the really cheap stuff that consists only of sodium hydroxide crystals (which are pure white) If you use some of the more expensive fancier ones that claim "great foaming action" or other such stuff then that is the wrong product because they contain other metal like magnesium to make them fizz and foam. They will also have a light gray or blue color and may look more like flakes. A one-pound container is about $5 and if you mix 182 grams (6.4 oz.) in a gallon of distilled water it will produce the right concentration for part "A" of a two part bleach.

The hydrogen peroxide you need is not the stuff that you find at the pharmacy which is only 3%. What you need is the much stronger variety that is approximately ten times as strong. After doing a bunch of searching I found that there are two products that are commonly available, Baquacil Oxidizer and Aqua Silk Shock Oxidizer ... both are swimming pool chemicals. The cost is about $20 for a one-gallon jug. The concentration of hydrogen peroxide for both of these products is 27% which is just perfect for part "B". There are a number of different shock oxidizer chemicals on the market and most contain chlorine in one form or another and most definitely MUST NOT BE USED especially not mixed with a strong base like sodium hydroxide.

I bought the sodium hydroxide from my neighborhood Ace hardware store and then found the Aqua Silk Oxidizer at a pool store on the way back home. And, I then stopped at the Walmart Neighborhood Market to get a gallon of distilled water for less than a dollar. So, for $26 I was all set to have a gallon each of part A and B with enough sodium hydroxide left to make nearly two more gallons in the future. This appears to be roughly a tenth the cost of the Zinsser Wood Bleach. In later looking at the MSDS plus other searching I verified that what I made is the same concentrations that the Zinsser Wood Bleach product consists of. BTW, it is also useful to have

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either some white vinegar or a solution of oxalic acid on hand to neutralize the wood once done.

Dealing with strong caustic chemicals is very hazardous. If you are one of those who think that safety is for sissies then this procedure is definitely not something that you should try because you will suffer some very serious injuries. As a minimum wear goggles plus face shield, industrial long rubber gloves, long sleeved clothing, and a rubber lab apron is probably also a good idea. This applies to all phases of mixing up the sodium hydroxide solution and using the chemicals on wood. Also wear rubber boots and do all of your work outdoors in mild weather. Have a water hose with a spray nozzle handy because it will be needed even if it is only to wash down the wood after the bleaching is done. For storage, I recommend two five gallon plastic buckets ... the kind that you find at the big box stores or the used pickle buckets that you can get at Firehouse Subs (my favorite). Store each gallon jug in a separate bucket and keep them in a cool place (a hot garage or shop doesn't qualify as a cool location). The purpose of the bucket is to catch the spill if the container ruptures -- this safety tip comes to you courtesy of my own personal experience of not using a bucket. Sodium hydroxide will do a number on a concrete floor.

There is only one right way to mix sodium hydroxide with water ... all of the other ways are very-very wrong and dangerous. NEVER EVER ADD WATER TO THE SODIUM HYDROXIDE OR ELSE IT WILL EXPLODE INTO YOUR FACE. Start with the full volume of water and very slowly add small amounts of sodium hydroxide to the water while gently stirring. Add only a tiny amount and allow enough time for the solution to cool down before adding another tiny amount. Doing this over a 30 minute period for a one gallon solution should keep it from getting too warm. A lot of thermal energy is released in the process. Do not use a metal container and many types of plastic such as PET or PETE are softened or partially dissolved. A glass container is ideal. I have a gallon jug that I use.

Now that you are ready to start, put on your safety gear and set up everything outdoors. I get two measuring cups (plastic or glass will do, but not metal) and pour a little of part A into one and part B into the other. Then I carefully pour part A (hydrogen peroxide) all over the wood and if necessary use a small plastic paint brush to quickly spread it around. Work fast because it will start foaming as soon as it hits the wood. Then I very quickly pour part B (hydrogen peroxide) on the wood and use the brush if necessary. I let it sit for a few minutes, but I don't let it sit long enough to start drying out. I usually give it about three or four minutes before I get the sprayer and hose it down. If you wish, you can use vinegar or oxalic acid to help neutralize the surface at this point. Then do a final rinse and quickly dry with a towel and sit it in the sun to dry for a few hours. Once the wood is completely dry you can do the final touch-up sanding to remove raised grain. If you don't already know this, the wood needs to be completely finished turning and sanded before bleaching because the bleaching only takes place on the surface and anything more than light sanding will set you all the way back to square one.