Make your own Wood Bleach – effective, cheap, and easy

I contented myself for years with the joys of presenting and emphasizing the natural colors and grain properties of the woods I turned. But, as with many turners, I have become interested in taking the next step into augmentation. While attending a demonstration by Betty Scarpino, I was inspired to experiment with bleaching.

Two-part wood bleach (*Klean-Strip* and other brands) used to be readily available in small quantities for a reasonable price. I quickly learned that this is no longer the case, and purchasing large volumes is unnecessarily expensive. I did a little research and found that making your own wood bleach is easy and economical.

Wood bleach is not the sort of "bleach" many of us know. The kind used for lightening wood has nothing to do with chlorine. It is also not oxalic acid (which is sometimes labeled as "wood bleach," but is actually only a spot or stain remover). The two components of wood bleach are (A) a weak lye solution, and (B) moderately-strong hydrogen peroxide. These can be obtained, respectively, at a hardware store and at a pool-supplies store.

Ingredients

A quick search with a computer can easily find the MSDS sheets for the two components.

Part A is 3-7% by weight NaOH (sodium hydroxide = lye). The concentration is not really important. A cheap and easy source is *Rooto 100% Drain Opener Crystals* from Ace Hardware. Do *not* use *Drano*, which has aluminum chips and other stuff in it that you don't want! The *Rooto* is about $8 for a lifetime supply (get the crystals, not the liquid).

Part B is 25-30% hydrogen peroxide. The simple, cheap way to go is *Baquacil Step-2 Oxidizer*, a modern swimming-pool chemical (27% peroxide) used instead of chlorine and readily available at pool stores. Over-the-counter hydrogen peroxide from a drug store is not strong enough. Do not be fooled by the "volume" numbers on hair bleach products – those are not percent; the real concentration is actually much weaker (by a factor of 3.33, to be precise). I tried a 60-volume cream developer without much success; plus, it was a gooey mess. A gallon of *Baquacil* is about $18. I don't think it comes in a smaller quantity, but at that price, who cares? You can go out of your way to buy stronger (~50%) peroxide, but don't bother – it doesn't work any better, and at that concentration, it starts to be dangerous.

The lye

Be very careful with the lye. It can be dangerous stuff. It is extremely hygroscopic (it attracts water) and very exothermic when mixed into water (that means it gets hot). Do *not* add water to the lye crystals! (It could spit back at you.) Measure out the crystals, cap the source container immediately (humidity is not your friend – it will quickly cause clumping), and add the crystals slowly to water. I advise against using a small metal measuring spoon (rather, use plastic), but if you do, wash it immediately and thoroughly.

I use an 8% lye solution. For you chemists, note that 8% = 2 molar, because the atomic weight (or molar mass, if you prefer) of NaOH is 40, and 80g/L = 8g/100cc = 8%. The lye solution could be significantly stronger, but this serves no useful purpose (it doesn't bleach any better) and may require safer handling of the residue, and later neutralization (which is undesirable).

Fill a *one-half* Cup measuring cup (125 mL) with cold water and pour it into a larger, one-Cup-size glass container. Put *one and one-half level teaspoons* of the sodium hydroxide crystals into the water. (This amount accounts for the difference between specific gravity and the bulk density of the small crystals.) Stir thoroughly to dissolve the solids (being aware of the tendency for the crystals to clump and stick to the bottom of the container), and then rinse the spoon with water. Pour the 125 mL of lye solution carefully into a clean glass or plastic storage jar or bottle with a glass stopper or plastic cap (no metal contact —that includes the lid!). Wipe up spills immediately. Clearly label the container: "*8% sodium hydroxide solution – caustic!"* so there's no confusion in the future about its contents.

Using wood bleach

The bleach should be applied to raw wood. Because the wood-bleach solution is water based, application to dry wood could cause some turned wood items to crack. If water will damage your turning, then don't plan to bleach it.

Bear in mind that not all woods bleach successfully. Species with a lot of natural tannins work best. I have used my shop-made version with success on red oak and walnut. Ash, box elder, and maple also bleach nicely. I have been told that osage orange requires ten or more applications, but that the effort is worth it, as the resulting whitish-gray result is lovely. Experiment with samples of these and other species to learn what to expect.

Depending on the desired effect, you will probably want to sand the raw wood to 320 or 400 before bleaching. Bleaching does not hide technical defects – scratches and tear out will still show, and may even be accentuated. You may possibly wish to texture an area to be bleached to achieve a "white on white" effect. Bear in mind that bleach, like dyes, will seep through end grain and change the color of the opposite side. This may not be a desirable effect. If you want bleached areas adjacent to unbleached areas, a physical divider of some kind is needed. The bleach will easily flow where it is not wanted if it is not constrained by beads, coves, or edges. In such cases, apply sparely and with care for best results.

You *must* keep each of the two bleach components separate until immediately before use, just like two-part epoxy. I make up a bottle of 8% NaOH in advance. That has indefinite shelf life. With that and the Bacquacil, I have two liquids ready to go when I need them.

For use, the two parts (both of which are just like water) can be mixed together in equal volumes, in a glass or plastic container, and applied, as one, with a sacrificial synthetic bristle brush, sponge brush, cotton swab, paper towel, or whatever. Alternatively, you could brush on the lye first and then the peroxide, but I can't think of any reason to waste time doing it that way – it's no more effective. It's a good idea to wear nitrile gloves, safety glasses, and old clothes. Do not get it in your eyes, or on skin or clothing. Clean off drips and runs from your pouring vessels with a disposable paper towel. It's not really bad stuff, but this is just good practice and common sense, because the solution can burn your skin and bleach your clothes. Should you get either of these chemicals on your skin or in your eyes, flush with large amounts of water. To be safe, treat it like it's more dangerous than it really is; then you can't go wrong.

The original *Klean-Strip* instructions call for a post-application neutralization step with a weak acid (white vinegar). I have never found anyone who considers this step necessary.

The unused mixture will lose potency. It is fully potent (uncovered) for about 12 hours. I found my mixture, when stored open, to be less effective after 24 hours. I'm told that covering small leftover quantities tightly may extend its effective lifetime. Mix only small amounts – not much is needed, even to bleach an entire bowl. Discard safely -- dump the residual down a drain (and get a little free drain cleaning action, but flush with clean water afterwards) and make more when you need it.

Shortly after being applied, it will fizz up on the wood. Just set it aside and leave it alone to work and dry completely between coats. Do not expect to see the color change immediately. One coat is not enough for most applications. Three coats will give about 90-95% of the possible bleaching effect. After that, the incremental gain is small.

When the wood is dry, the resulting finish will be matte and perhaps powdery or even gritty. This may be a desirable final effect – or not. If there is excess powder, simply brush it off, but take care that this fine powder is swept into a safe place. As long as it's not neutralized, it's still caustic, and if the powder gets into your eyes, it could burn. (Flush with cool water if it does.)

Finishes

If the piece isn't going to be handled a lot, you may choose to leave the wood unfinished, but it could easily get fingerprinted or dirty. It could be very lightly sanded or just burnished with a paper towel. Applying a finish over the bleached wood will give it a different, darker appearance that you may not like, so experiment on scrap first. A few light coats of a Krylon fixative is, perhaps, the best compromise between appearance and touchability. You might try a light coat of clear or white wax. Oils or oil-based varnishes will darken and yellow bleached wood. This is not generally desirable, but these finishes, when used on darker woods such as walnut, will darken both the bleached and unbleached wood equally, leaving a contrast between light and dark wood. I have not tried water-based poly, but I suspect it might work reasonably well.

Conclusions

Take seriously the precautions outlined in this article to ensure your safety when working with any two-part bleach, either one you mix yourself or a commercial brand. Before applying wood bleach to a turned object, test the results on a scrap of similar wood to ensure desirable performance. Bleaching wood, either totally or differentially, can yield striking results. The information provided in this article will give you a cost-effective capability to play with it. With a bit of experimenting, I think you will be pleased with your results.

It was interesting to find that Dick Veitch, Past President of the South Auckland Woodturners Guild (of New Zealand), has written a very similar article to this. I have taken the opportunity to include a couple of his thoughts herein, with thanks.

Here's what got me started: a bleached red-oak, side-grain egg I modeled after one I saw made by Betty Scarpino:

*Always use common sense. Things that work in one situation may not work in another. Follow all Safety Rules. If it feels wrong, it probably is; stop and rethink. **Y**our **M**ileage **M**ay **V**ary*