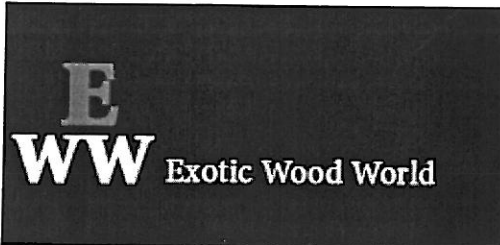


Eddie Castelin

From: Walter Martinez [wmartinez7@cox.net]
Sent: Tuesday, April 12, 2011 5:38 PM
To: Eddie Castelin; Rochon, Ralph
Subject: Emailing: Exotic Wood World Boiling Wood.htm



Boiling Wood Article 2 - Boiling For Dollars

Boiling your bowls for a better success rate –

Stephen D. Russell

Since I first published my original boiling protocol a few years ago, I have met hundreds of turners who are boiling at my weekly demonstrations around the United States. In addition, I have received hundreds more emails from turners around the world who are successfully using my boiling protocol, to reduce the checking from drying in their green wood bowl/platter etc, roughouts.

While many turners call me "Dr. Boil" these days and are thrilled with the successful drying characteristics of their boiled pieces, I have also met and received emails from turners who have not achieved the same high level of success.

In each of these instances, the turner had allowed an error, or multiple errors, to be introduced into the boiling protocol which resulted in their less than successful outcome. Through this posting, I hope to clarify some issues on boiling and to remove counter-productive practices from your boiling procedures.

You must think of the boiling protocol as a formula, not a recipe! Ingredients or procedures can be easily substituted in recipes, but not in formulas! If you change one thing in a formula, you will get another outcome most of the time. Therefore, you must follow the protocol EXACTLY, or you will not achieve the success the protocol is capable of delivering.

Please let me say up front that I'm not on a crusade to get every turner to boil their bowls... I simply wish to disseminate the information to those who may wish to try the protocol, or increase the efficiency of their existing boiling programme. If you do not wish to boil your bowls, by all means do not! You are the master of your corner of the universe, so your opinion is all that matters. If you think boiling is hogwash, that's ok by me.

For the rest of you who are now boiling, or might like to try it, I offer the following tips to insure boiling success in your studio.... As a current update: I have now boiled more than 4,200 bowls/platters, representing 46 different species. My success rate remains the same - 96% to 98.5% or better of all boiled pieces dry with no cracks whatsoever. This overall success rate has been achieved by hundreds and hundreds of turners around the world in 21 countries with their local timbers as well.

The protocol does indeed work, but you must follow it exactly... If you decide to change the protocol and fail, please tell your friends that YOUR version of the protocol failed, not that the boiling protocol itself does not work. Nothing is perfect on this side of heaven, so you will have some failures with boiling, even when done correctly. However, when done correctly, these failures will average only 1.5% to 4% or less, per one hundred pieces, depending on the specific species.

Tips for Better Boiling:

1.) My basic boiling protocol requires 1 hour (60 minutes) of active medium (not a simmer) boiling for every 1" of wall thickness. That means you MUST measure your pieces to insure you are boiling for the correct time. Ignore any tennon/spigot thickness less than 3/4" and measure the belly, or side-wall of the bowls, or platters to determine the correct boiling cycle time required.

2.) There can be no downward variance in the one hour per inch of wall thickness rule - NONE. If you boil for less than one hour per inch of wall thickness, you will not achieve the well-documented success rate of 96% or better of boiled pieces, drying with no checking.

3.) If a batch of bowls/platters to be boiled includes mixed thickness walls, you MUST set your boil cycle time for the thickest piece in the batch! For example: If you batch contains 1.0", 1.25" 1.5" and 2.0" inch thick walls, you must set your boil cycle for the 2.0" wall (i.e. the pot would boil for 2 hours).

4.) Boiling longer than the protocol requires will not compromise the protocol (it will not help either), but boiling less than the required time will insure failure. As a side note, I have over boiled one inch thick wall pieces for more than eight hours with no ill effects. Just make sure to not under boil!

5.) When placing bowls into the boiling water you MUST wait until the water returns to a boil, before starting your timing cycle. This is CRITICAL! The bowls/platters etc, MUST receive 60 minutes per inch of ACTIVE BOIL! Placing cold bowls into boiling water stops the boiling process. If you start your time cycle before the water returns to a boil, you will not be getting the required 60 minutes of active boil, per inch of wall thickness.

6.) All pieces to be boiled MUST be submerged in the boiling water for the protocol to work. You must prevent any timber with a specific gravity less than 1.0 from floating during the boiling cycle. This is easily accomplished by fashioning a concrete rebar, or equivalent wire grate inside the top of your boiling pot, which is slightly smaller than the diameter of the pot. By placing a sufficient weight on this grate, all pieces will be prevented from floating during the boiling cycle. If the pieces float during the boiling cycle, the protocol will not work!

7.) Whilst turning a batch of bowls for the boiling pot, insure that any turned pieces waiting their turn in the boil pot, do not dry in the open air prior to boiling. I use a plastic tarp to cover the pieces, or place them into a plastic trashcan with a tight fitting lid until there is enough to fill the pot. Boiling will NOT glue pre-existing cracks back together! If you place pieces into the boiling water that have pre-existing cracks, they will keep those cracks when dried. This is not a failure of the boiling protocol, as it will never glue preexisting cracks back together.

8.) When you remove the bowls from the boiling water, you MUST protect the bowls from rapid drying of the surface fibers. My preferred method is to place the pieces onto the floor (my studio has a concrete floor which is covered with epoxy) in a cone, or pyramid shape with alternating rims and tennons. This is then covered with a cloth canvass tarp, or old bath towels. The boiled bowls CANNOT be left in the open air! They cannot be covered with anything that does not allow the water vapour to escape. At this point we're trying to remove any excess water so we can bag the boiled pieces without soaking the paper bag. If you do not have a cloth tarp, you can purchase old bath towels at places like Goodwill, or other charity resale shops for a few cents per towel. DO NOT USE tarps, or towels with holes in them unless you want to become very proficient at inlay techniques!

9.) The bowls are allowed to air dry for three days under the fabric cover, with an inverting cycle every day (top up one day, then bottom up, then top up again) for three days. At the conclusion of the three flip-flops, the bowls are removed from underneath the fabric cover and are placed into paper grocery bags. The boiled pieces remain in the paper bags until they reach equilibrium moisture content. Paper bagging is the best environment to dry the post-boiled pieces in for most people.

10.) The bowls can also be waxed and then dried in the open air, but I prefer to place them into the paper bags. It takes less time and keeps the cost of using the wax emulsion down. (The two main types of wax emulsions available include Anchorseal and Mobil Cer-M. Anchorseal is paraffin based colloidal solution for logs and lumber. It contains paraffin, water and a surfactant and is milkywhite in appearance. Mobil-Cer M is a microcrystalline wax based coating. It contains microcrystalline wax, water and a surfactant and is also milky-white in appearance). I'm nearly through experimenting with using Tyvek bags in lieu of the paper bags. Initial results look VERY good, however, I will not be ready to publish the Tyvek results for another few months. (Tyvek is a specialty film developed by Dupont that only allows moisture vapour transmission in one direction only and is used extensively as a house wrap prior to adding brick or siding). Advantages of Bagging, Boiling and Summary Conclusions...

1.) The paper bag creates a microclimate inside the bag of higher moisture content than the outside ambient atmosphere. As the water vapour moves out of the bowl, it is prevented from rapid dissipation into the ambient atmosphere, because it must first pass through the Kraft paper bag barrier wall, which slows the process down a bit, vs. drying in the open air. In addition, the bag prevents any drafts from drying the exterior of the piece too quickly, preventing steep moisture gradients from forming.

2.) Why boil? On average, boiling will reduce checking in boiled pieces to 1.5% to 4.0% or less per hundred, depending on the species. This success rate is not only from my studio's efforts, but has also been achieved by hundreds and hundreds of turners around the world with their local species. At last count, more than 500 hundred turners in 21 countries are boiling their bowls using my

original protocol. There are no doubt many more, but this is the amount I'm aware of currently.

3.) Boiling will decrease drying time on average of up to 50%. For example, if a non-boiled piece takes 6 months to air dry, a boiled piece of the same timber will typically reach EMC (equilibrium moisture content) in three months or less. EMC is defined as the point at which the moisture content in the timber is at equilibrium with the ambient atmosphere. In the Houston, Texas area, that usually means bowls dried in unheated/non air-conditioned areas (such as the garage) will usually achieve a moisture content of 12%. If you wish it to dry lower than 12% in Houston, you will have to alter the drying environment, i.e. move the pieces into an area that is heated and/or air conditioned, or use another method. This will reduce the moisture content even further. You can find the average moisture content for your area on the Forest Products Laboratory website at <http://www.fpl.fs.fed.us/>

4.) Boiling will reduce warp on average 5%. Although this is not significant, the protocol does produce an average reduction in associated warp of 5%.

5.) Unwanted guests in the bowls, i.e. worms, bugs and other critters with a face only a mother could love (and I have my doubts if even a mother could love a Mesquite grub worms face) are usually taken care of. that is they become soup, if you can find any remains that is. Colour Loss in Boiled Pieces I'm frequently asked about colour loss in boiled pieces. Having boiled more than 4,200 pieces, from 46 different species, I can well attest to the fact that I see no difference in core colour loss in boiled pieces. There is in fact some leaching of the surface colour (about 1/16" of an inch), but below that the colour is normal. Remember we're boiling rough outs, usually with a wall thickness of at least 3/4" or 1" or more usually, so the trivial loss on the surface is irrelevant. Remember that you will have to true the dried blank up to finish turn it anyway, so the 1/16" of colour loss would have been turned away anyway during the truing/finish turning process. I have compared hundreds of pieces that were boiled vs. non-boiled pieces FROM THE SAME LOG and have found no colour loss in the core of the wood. I hope this helps you to achieve better success in your boiling programme. As always, I remain available to assist you if you would like to contact me. "Woodturning with Steven D. Russell" now available! More than 93,000 words, and 500+ photos in 21 articles, on CD-ROM \$19.99 + postage, email for details.

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