



# Ultraseal America Inc.

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## ULTRASEAL WOOD STABILISER

### Prior to Stabilizing

Ultraseal Wood Stabiliser is precatalyzed. Prior to each use, gently stir the stabilizer to ensure even distribution of the catalyst. For new containers, it is strongly recommended to perform a de-gas operation to remove excess air that may have been absorbed by the stabilizer due to shaking during shipment. De-gassing the stabilizer will shorten the cure time and will reduce the risk that bubbles will be generated during the cure process. To de-gas the stabilizer, simply fill a container with stabilizer, place it in the vacuum chamber, and apply full vacuum for 30 minutes.



A gel test may be performed at any time. The gel time is the time it takes for the stabilizer to begin to “set” once it is exposed to approximately 90°C (194°F). Knowing the gel time helps you to guarantee that your wood is fully cured without an unnecessarily lengthy bake time. To perform a gel test, form a flat-bottomed thimble from aluminum foil and add 1-2 cc’s of stabilizer. Then place the thimble in either a 225°F oven or a pan of simmering water (just short of boiling). Place a paper clip or similar item in the stabilizer and periodically check to see when the stabilizer starts to harden. Once the process starts, it occurs very quickly (about 60 seconds). De-gassed Ultraseal Wood Stabiliser is catalyzed to gel between 3 and 6 minutes. Therefore, when curing wood, it is necessary to ensure the sample is heated **through** to at least 194°F for a minimum of about 10 minutes.

### Using Ultraseal Wood Stabiliser

Ultraseal Wood Stabiliser is designed to work in vacuum systems. Ultraseal Wood Stabiliser has a vapor pressure of less than 1.0 mBar (29.9 inches of mercury) so it will stand up the most aggressive vacuum systems without boiling. Our experience in other industries is that if you pull a good vacuum, pressure is not required. That being said, there is no reason pressure is harmful so if you feel you obtain a better result by adding a pressure cycle, by all means do it.



Place your wood pieces in a container and weight them down to prevent floating. The container should be tall enough to prevent foaming over the sides during stabilization.

Pour in Ultraseal Wood Stabiliser until the wood is fully submerged. Ensure the level of the stabilizer is high enough to prevent the wood from becoming exposed to air as the stabilizer is absorbed into the wood. This is particularly important for punky or heavily spalted wood.



Apply the maximum vacuum to the chamber that your system will permit. The length of time required at vacuum will vary depending on the system and the type/size of wood and will require some experimentation. A high vacuum ( $<10$  mBar) high flow system ( $>27$  cfm) running continuously can fully evacuate spalted pen blanks in about 20 minutes. Other systems may require hours or even days at vacuum.



Once the vacuum stage is completed, release the vacuum to permit the wood to absorb the stabilizer. With the lid removed, you should check to ensure the level of the stabilizer is still above the wood. If not, add more stabilizer and repeat the vacuum process. The wood should be permitted to soak in the stabilizer for at least 20 minutes. More time may be required for dense woods.

Without removing the wood from the container, an optional pressure cycle may be performed to try to improve the penetration of the resin.

Upon completion of soaking, two methods of curing are possible. First, the wood may be placed in a 225° F oven until it has been heated through for at least 10 minutes. For pen blanks, this means an oven time of about 30 minutes. Alternately, the wood can be placed in a Ziploc vacuum bag. Use the hand vacuum pump to remove the excess air and place the bag in a pot of water just on the verge of boiling until it has been heated through for at least 10 minutes. As with the oven, pen blanks should properly cure in 30 minutes. Note: you aren't trying to pull a vacuum in the bag, you are just trying to get the surface of the bag to contact the wood surface in order to maximize heat transfer into the wood.



Upon completion of curing, permit the wood to air-cool to room temperature. Trying to cool the wood rapidly will adversely affect the hardness of the cured stabilizer.

Immediately after curing, the stabilizer will be hard but you will be able to mark it with your thumbnail. After a few hours, it should be brittle and able to be sanded and polished. The stabilizer will continue to become more brittle over 1-2 days. If the wood comes out of the oven and after an hour is still slimy or gummy, it is unlikely the wood will cure properly if at all. This could be due to:

- oven/water temperature too low
- bake/boil duration too short
- incompatibility with wood species (e.g. too oily)
- incompatibility with dyes/stains (either with dyed wood or through adding dye to stabilizer)

### **Storing Ultraseal Wood Stabiliser**

Ultraseal Wood Stabiliser should be stored below 68° F for maximum shelf life. Prolonged exposure to heat will cause the stabilizer to begin polymerizing. If using after extended storage, gently stir to ensure thorough mixing, then check the viscosity by pouring the contents into a separate container. At room temperature it should have the consistency of hot vegetable oil – smooth and slightly thicker than water. If it is syrupy or has lumps of polymerized material, the entire contents should be discarded. Because polymerization is a one-way street, under no circumstances should you mix questionable stabilizer with fresh stabilizer. It will initiate polymerization of the fresh material and ruin it as well.