

ALFA 3000

Green wood stabilizer

08/2024

ALFA 3000 a green wood stabilizing agent that greatly reduces the dimensional changes of green wood. ALFA 3000 a white, wax-like chemical that resembles paraffin, is solid at room temperature and dissolves readily in warm water.

ALFA 3000 is nontoxic, noncorrosive, odorless and colorless.

The ALFA 3000 treatment physically bulks the wood cell walls (fibers), preventing shrinkage and thus avoiding the development of destructive stresses.

Heavily treated green wood with ALFA 3000 retains its "green dimensions" indefinitely, effectively preventing shrinking, swelling, or warping regardless of humidity changes.

APPLICATION

Select a treating tank for soaking the wood disks or slabs. This tank can be made of glass or any nonmetallic material. A large plastic garbage can lined with a thick plastic bag can also serve as an effective soaking tank. Ensure the tank has a cover to conserve heat and water, as some water will evaporate, altering the concentration of the ALFA 3000 solution. This change will balance as the ALFA 3000 is absorbed by the wood. Additionally, insulating the sides, bottom, and especially the top with fiberglass insulation is recommended to maintain heat.

Preparing ALFA 3000 solutions: Wood can be soaked in either a 30% or a 50% ALFA 3000 solution, with longer soaking times required for the 30% solution. To prepare approximately 6,6 liters of a 30% solution, dissolve 2 kilograms of ALFA 3000 in 4,7 liters of water. The specific gravity of the solution at 20°C will be 1,05. Use a hydrometer, similar to those used for checking the concentration of antifreeze in car radiators, to verify the specific gravity. These solutions are reusable; store them in glass containers between uses. Adding 2-3% borax to the solution will prevent the growth of some bacteria and fungi, although it will not prevent mildew and mold.

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Place fresh wood disks in solution: Stack the wood disks with thin slats separating each piece to ensure complete circulation of the solution. Weigh down the wood with a rock to ensure full immersion. Only green wood, with a moisture content above the fiber saturation point (approximately 30%), can be effectively treated using the ALFA 3000 method.

For faster results use treating tanks with electric heating elements with built-in thermostats, similar to those used in water heaters. A small pump can be used periodically to circulate the ALFA 3000 solution. Hand-stirring can substitute for the pump, but it must be done regularly to ensure effectiveness.

Soaking time: The soaking time depends on the solution strength and temperature, wood species, and wood thickness. Table 1 indicates the required treatment time for walnut disks to achieve the desired 25% to 30% concentration of ALFA 3000 in the finished product.

Soaking time for different wood densities: Woods with lower density, such as soft maple, cottonwood, willow, and pine, require only one-half to two-thirds the soaking time recommended for walnut. Dense woods, such as hard maple, oak, apple, beech, and birch, need two to three times the soaking time of walnut. Extremely hard woods, like mesquite and burls of all species, require treatment at higher temperatures for extended periods.

Table 1: **Solution concentration and soaking time for wood**

Solution concentration % (Temperature °C)	Soaking time for wood up to 25 cm in diameter and 2-4 cm thick (days)	Soaking time for wood more than 25 cm in Diameter and 5-8 cm thick (days)
30% (21°C)	20	60
30% (60°C)	7	30
50% (21°C)	15	45
50% (60°C)	3	14

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Wood knots, cherry wood, and the heartwood of some species resist absorption of ALFA 3000 and require special attention. For example, soaking cherry at a temperature above 43°C can cause heart-checking or honeycombing. For treating 2,5 cm thick cherry disks, allow at least 45 days in a 50% solution at or below 43°C.

Soaking schedules for other types of wood can be developed through experimentation. Initially, soak the wood for the time recommended for walnut. Then, dry the wood in an oven at approximately 93°C. If no defects develop, the soaking time is likely sufficient.

Drying: Pile the treated wood using dry stickers. The pile should be covered and kept in a well-ventilated room, preferably a heated area. ALFA 3000-treated wood cross-sections up to 10 cm thick and 100 cm in diameter will dry in six to eight weeks if kept in a heated room with low humidity. Treated wood kept outside must be completely protected from water, and drying will take somewhat longer than indoors. Since treated wood shrinks very little during drying, it is not necessary for the wood to be completely dry before working with it. It is only necessary that the top 0,6 cm of the surface be dry enough to sand well.

Gluing: White glue or polyvinyl acetate does not work well on ALFA 3000-treated wood. Only urea resins, polyurethanes, epoxies, and resorcinol glues are satisfactory. For joints that require strength, a solvent should be used to cut through the wax and expose the wood fibers. The wood surface should be scrubbed and washed with alcohol.

Finishing: ALFA 3000-treated wood can be finished after the surface has been sanded and shaped. Common single-component polyurethane varnishes give satisfactory results, while conventional wood finishes do not work well on ALFA 3000-treated wood. If high moisture content creates problems, apply a base of four to five coats of moisture-resistant polyurethane resin varnish. Revivo Danish oil finish works well on ALFA 3000-treated wood, although many other oil-type clear finishes cannot be used. The Danish oil finish is also suitable for ALFA 3000-treated bark.

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