Seal First for a Better

Choose wisely for best results

BY PETER GEDRYS

One aspect of finishing that causes great confusion is sealers and their use. Part of the problem stems from thinking that sealers are to clear coats what primer is to paint and that all bare wood should be sealed first. In fact, the first coat of *any* finish acts as a sealer.

But using the first coat as a sealer isn't always the best choice—if that were the case, this would be a very short article! Clear finishes vary greatly in how effective they are as sealers, and there are many times when you should go with something else. However, a product sold as a "sanding sealer" may or may not be the solution. Now that I've got you confused, let's delve into the world of sealers. I'll make the choice for your next project easy, and your final finish will be better than ever.

When to seal bare wood

The first coat of any finish on any wood penetrates the fibers and leaves the surface feeling rough and uneven after it dries.

Shellac is the wonder-product

There are many types of sealer, but if you could use only one it would be dewaxed shellac, either from a can (left) or flakes. It is readily available, cheap, has no strong fumes, goes on easily, and sands well. It is compatible with any finish and wood. Use it on all interior projects except those that will be subject to substantial heat or humidity.

Photos: Mark Schofield

Finish

This coat needs to be sanded smooth, to provide a good foundation for subsequent coats to build on.

Varnish doesn't sand well, so seal first—Not all types of finish sand easily, especially when applied to bare wood. Varnish tends to gum up the sandpaper and takes a long time to dry. You can overcome these problems by sealing with a coat of dewaxed shellac. However, I never use shellac with exterior varnishes. Because of shellac's brittle nature, temperature fluctuations can weaken its bond to the substrate and cause the finish to fail. In this case you have a couple of options. You can thin the varnish by 50% with mineral spirits and apply it to the bare wood. It takes longer to dry and is harder to sand than shellac, but you get a durable exterior finish. A more expensive option is a marine-grade sealer that is stearate-free, such as Interlux's Interprime Wood Sealer (jamestowndistributors.com), suitable for interior or exterior work. (For more on stearates, see "Why to avoid some sealers," p. 51.)

For oil-based finishes, seal to avoid blotching—With oil or oil-and-varnish finishes, the problem is not poor sanding, but rather excessive or uneven penetration. Porous woods such as butternut seem to drink this type of finish and never create an even sheen. Others such as pine and cherry can end up blotchy. And on almost all woods, the end grain turns darker than the other surfaces. Thinning the first coat

What can a sealer do for you?

A sealer can save you time and money, help you avoid disasters, and result in a better-looking finish.

SAVE TIME AND FINISH ON POROUS WOODS

After three coats of wipe-on poly, the side of this butternut board sealed with a 2-lb. cut of dewaxed shellac has good build and an even sheen. The unsealed side absorbed the poly unevenly.

CONTROL BLOTCHING

Many cherry boards will absorb an oil-based finish unevenly, leaving a blotchy appearance. A 1-lb. cut of dewaxed shellac limits absorption in the more porous areas for an even look.

SMOOTH SANDING

The advantage to applying a 2-lb. cut of shellac rather than a thin coat of varnish as a sealer coat is that shellac powders when sanded (left) but varnish gums up the sandpaper (right).

TAME OILY WOODS

The oils in some tropical woods can delay or even prevent an oil-based finish from curing, leaving it sticky. The right side of the board was sealed with shellac, which prevents this problem.

Why seal? (continued)

ADD WARMTH

Waterborne finishes can leave some woods, such as cherry, looking gray. The right-hand side of the sample was sealed with dewaxed garnet shellac for a warmer look.

SEAL BETWEEN OIL AND WATER

Applying a waterborne topcoat over an oil-based pigment stain is asking for trouble. Dewaxed shellac seals in the stain and gives a good base for the topcoat.

PROTECT DYE

After the board was colored with a water-based dye, the near side was sealed with dewaxed shellac. When a waterborne topcoat was brushed on, it removed some of the dye on the far side, but not in the sealed area.

Special products for special situations

Vinyl sealer for kitchens and bathrooms

The pros spray this for most of their sealing. It has all the advantages of shellac but also stands up to high heat and humidity, making it a good choice for kitchen cabinets, tabletops, and bathrooms. You can apply it by hand but only to small areas because it dries very fast.

Pad on small surfaces or spray like a pro. *Although vinyl sealer is designed to be sprayed (left), you can pad it on if you work quickly and in small areas (above). Vinyl sealer is ideal under solvent lacquer and two-part catalyzed finishes. The main drawback is the fumes, so wear a respirator when spraying or working with poor ventilation.*

only makes these problems worse. Again, shellac comes to the rescue. Instead of sealing, the aim is to let absorbent areas of the wood soak up the washcoat while the rest of the surface is minimally changed. To do this, apply only a thin, 1-lb. cut of dewaxed shellac and when dry, lightly sand it with 220-grit paper. You will see slightly less shimmer from figured woods but the overall tone will be more even.

Sealers minimize raised grain—Some waterborne finishes are quite alkaline, which promotes grain raising when they are applied to bare wood. Manufacturers sell neutral-pH sealers, labeled sanding sealers, but you sacrifice some durability (see opposite page), so the better choice is once again shellac. As well as providing a smooth base for the waterborne finish, shellac can enhance and warm the overall tone of a finish, particularly if you use darker grades such as dewaxed garnet. This is beneficial with waterborne finishes, which can have a cold and somewhat lifeless appearance.

Use vinyl sealer in hot or moist areas—Vinyl-based sealer may be considered the modern shellac. It dries quickly, forms an excellent barrier, and bonds so well that vinyl resin is the base for many adhesives. Like shellac, it will also lock in contaminants and seal oily woods. Use it for interior projects only. However, it has far better heat and moisture resistance than shellac, so it is a good sealer for kitchens and bathrooms. Although sold to be used under solvent lacquers or two-part coat-

Marine-grade sealer for the great outdoors

Only the toughest finishes survive the sun, salt, and water experienced on a boat. You can either thin a high-quality marine varnish and use that as a sealer coat, or look for a marine sealer that doesn't contain stearates.

Avoid shellac. *Shellac is too brittle to use as an exterior sealer and will fail with severe wood movement, so you can either thin the varnish topcoat by 50% with mineral spirits, or use a marine-grade sealer that doesn't contain stearates.*

ings to which it is chemically related, it can be used under any type of finish.

The downside is that vinyl sealer is formulated to be sprayed, and is not the friendliest stuff. But you can pad it on after thinning it (with lacquer thinner), and protect yourself with gloves, a respirator, and good ventilation. If applying it by hand, it works best on small projects because it dries rapidly. It doesn't sand as well as shellac, so some sealers include stearates, but better ones use a modified nitrocellulose resin to help with sanding. Examples include Sherwin-Williams' High Solid Vinyl Sealer No. T67F5 and M.L. Campbell's C100 25. Both come in a minimum size of 1 gal., but Behlen's Vinyl Sealer comes in quarts (woodcraft.com).

Seal in the oils in problem woods— The oils in some tropical woods such as rosewood and cocobolo can prevent oil-based finishes from curing, leaving them sticky. The same is true of the chemicals in aromatic red cedar and the resin in pine. In all cases, applying a coat of dewaxed shellac to the bare wood isolates the oil-based finish and allows it to cure normally.

Finally, if you are refinishing an old piece of furniture, surface contamination, particularly silicone oil from furniture polish, can cause fisheye, where contamination repels the finish and leaves little craters. Again, an initial coat of shellac is the answer.

Sealers between finishes

When doing a multi-step finish, product compatibility is a big issue. We all know that oil and water don't mix, so it is good practice to apply shellac or a vinyl sealer between an oil-based stain, grain filler or glaze, and a waterborne clear coat. Otherwise you run the risk of poor adhesion.

Sometimes two similar products must be kept apart to avoid a fatal attraction. A water-based dye can bleed into a waterborne topcoat and leave a muddy, blurry appearance. A thin coat of sealer will lock in the dye or stain and allow you to topcoat with ease**.** If you plan to use an alcohol-based non-grain-raising dye, brushing shellac as a topcoat can be problematic because the alcohol in the shellac will reactivate the dye. Overcome this by spraying a very thin first coat of shellac. Trust me: Making the right choices will save headaches down the road. Guess how I know that! □

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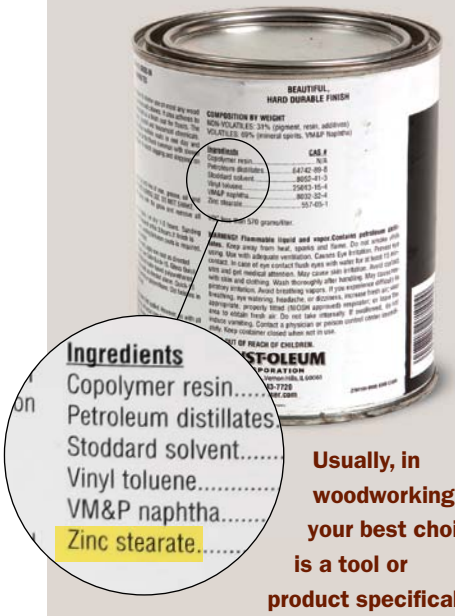
Why to avoid some sealers



Usually, in woodworking, your best choice is a tool or product specifically designed for the job. That's not the case with many products sold as "sanding sealers," whether waterborne or oil-based. The latter consist of a vinyl-alkyd resin that seals, a fast-drying solvent such as toluene that allows you to recoat in under an hour, and zinc stearates or metallic soaps to make sanding easier. These last components are the sealers' Achilles heel. They make the sealer soft and tend to produce a weak bond with the substrate and subsequent coatings.

Closely examine the description of the can's contents: Like the example shown above, if you see either stearates or soaps mentioned, then go with another type of sealer.

—P.G.

A flaky finish. *On this window seat, a waterborne topcoat was applied over a stearated sealer. The weak bond between the two types of finish caused the topcoat to delaminate after it was scratched.*