

Understanding Wipe-on Finishes

The moment of truth for many projects comes long after the shop is cleaned, the tools are put away and the work is sanded. Applying a finish stops many woodworkers dead in their tracks.

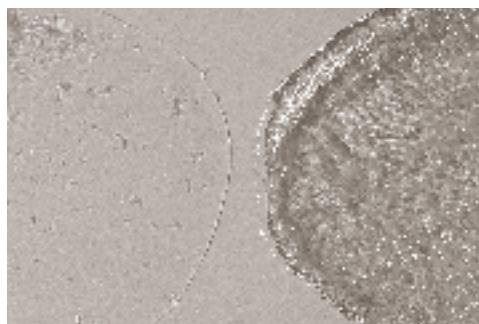
Finishing is the chore almost all woodworkers fear most because it has the greatest potential for spoiling the project. So it's only natural that woodworkers would seek a risk-free finish. For this reason, many choose a finish that's wiped on. Finishing manufacturers have capitalized on this fear and have developed rag-on finishes – that's the good news about many products today.

The bad news is that the finishes you find on the shelves at your home centers have similar names but aren't alike – and you can't figure out what each one does by simply reading the can.

This is what they all have in common: You wipe them on, allow them to dry and then add more coats for additional protection.

But the real questions for us are: Just how many coats do you need? And how much protection can you expect? To get these answers you first have to have some knowledge of the finishing product's contents. Because the actual contents aren't listed on most products and the names can't always be trusted, you can do a simple test at home to get some answers.

With the exception of pure oil finishes (such as boiled linseed oil) most wiping finishes are either a varnish that's thinned with a reducer (like paint thinner or mineral spirits) or a combination of oil and varnish. To see which one you have, pour a small amount on a hard surface like glass or metal to form a small puddle. Let the puddle dry for a couple of days. If the puddle dries hard



When a thinned or wiping varnish dries on a non-porous substance, such as this piece of glass, it is smooth and hard (left). Oil/varnish blends, on the other hand, will cure soft and wrinkly on a non-porous surface (right).

and smooth, you have a thinned, or true, wiping varnish. If the puddle dries wrinkled and soft, it's an oil/varnish blend.

Why is it important to know what kind of wiping finish you have? When it comes to protecting the wood, varnish wins because it dries hard.

The reason has to do with the way the products are manufactured. A typical oil-based varnish is made by cooking alkyd resins with an oil (usually modified soybean oil). To make a wiping varnish, the finish is simply thinned with paint thinner or mineral spirits. Oil/varnish blends go further, adding more oil and thereby further reducing the quantity of varnish in the finish.

Still confused about what to do? Well, the sure-fire way to get what you want is to make your own wiping varnish. It's easy. Buy a can of oil-based varnish and thin it with paint thinner or mineral spirits. Add either one part thinner to four parts varnish or, for a slightly thinner mix, one part thinner to three parts varnish. If you make your own, select varnish with the sheen you prefer. Usually a mid-level sheen such as semi-gloss or satin is best for furniture finishing.

With your finish mixed, actually applying it is mostly foolproof. First, make sure you have adequately sanded the project. I prefer to use a random-orbit sander for flat surfaces. Start with #120-grit sandpaper. Sand out all the imperfections: scratches and marks left by your tools and glue. Then move progressively through finer sandpaper grits: #150, #180 and #220. Brush or blow off the dust between each grit. Remove as much dust as possible before applying the finish.

To apply the wiping varnish, use a clean cloth rag. T-shirt material works well, rivaling cotton cheesecloth, which is touted as being especially lint-free. You can purchase cotton cheesecloth at most home centers or paint stores.

Wipe on the finish equally on all surfaces. The surface should look wet but it should not pool. This is especially true for the first coat, which soaks into the wood. The subsequent coats don't penetrate and will look wetter.

After the first coat has dried, lightly sand using either #320- or #360-grit coated sandpaper. The coating helps prevent the finish dust from clogging the sandpaper. Norton Abrasive's 3X brand and 3M's Tri-M-Ite are good options. This light sanding should substantially smooth the finish surface. Wipe clean all the dust and recoat. In all, three to four coats should be enough.

If you colored your project beforehand with an



Story by Steve Shanesy, editor & publisher

oil-based pigmented stain, you need to be careful. The application of a wiping varnish using a rag could cause the stain to redissolve and smear. Instead, lightly brush on two coats and don't brush over areas with wet finish. After the second coat dries, sand the wood to smooth the surface. Be sure to sand lightly, however, especially near edges or on moulding details. These areas are susceptible to sanding through the finish and then through the stain color, which will expose the natural color of the wood. **WM**

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A Finishing Experiment

We conducted a couple of simple experiments with five wiping varnishes readily available from local home centers, plus our own homemade version and a full-strength varnish. Two products (Minwax and General Finishes Arm-R-Seal) are wiping polyurethanes, which technically are varnishes but use urethane resins instead of alkyd resins.

In the first experiment, we applied all the finishes to a walnut plank and compared the looks, as seen in the photo. We applied four coats, with light sanding after the first coat.

For the second experiment, we placed equal amounts of the finishes (measured to the thousandth of a pound) in identical open containers and allowed the finish to evaporate, leaving the dried resin on the bottom. We then weighed the dried material. The result told us how much of each finish was solids (which protect the wood) and how much was solvent (a carrier of resins that evaporates, leaving a dry, solid film finish on the wood). The dried samples also gave us a better understanding of the hardness, flexibility, clarity and color of each finish when cured.

As a reference, these characteristics can be viewed in a variety of ways. For example, an amber color in the dried film could be good if you want to add warmth to the look of your wood. But a finish with little color may be preferred if you're finishing a white wood such as maple or ash. Hardness is a good attribute but it's a trade-off with flexibility, an equally important attribute that allows the finish film to move with the wood during seasonal expansion/contraction cycles.

Of the seven samples tested, only one dried notably differently – Waterlox. All of the other products showed minor differences.

General Finishes Arm-R-Seal and Sealacell looked about the same. Both were among the



PHOTO BY AL PARRISH

We tested seven wiping varnishes to see how they performed when rubbed on a walnut plank, shown here. At the bottom are the dried films that remained when the liquid dried in the open containers.

clearest with a mild yellow color – Arm-R-Seal was a bit more orange. Arm-R-Seal's film was less flexible and harder. In measured characteristics, it had the highest percent of solids (34 percent) of all the commercial products except unthinned regular varnish. Arm-R-Seal is considered a sealing coat, with Sealacell used as a finishing top coat. Sealacell tied for the lowest percent of solids (29 percent).

The Minwax Wipe-On Poly sample dried to a tough, brittle, clear film that was amber in color. On the board, it produced an attractive protective film without appearing thick or plastic-looking. It was less clear than other products and had a 32 percent solids content.

Formby's Tung Oil produced one of the most pleasing-looking finishes of the group. While it tied with Sealacell for the lowest solids rating (29 percent), the film on the wood had a more natural look. The dried film was yellowish and flexible, yet tough. It was almost as clear as the two General Finishes products.

Waterlox, as previously noted, appeared as a dried film more orange and far less clear. The dried sample actually was translucent and had a solids content of 31.5 percent. On the board, it appeared duller and slightly less clear than any other product. The dried film was softer and more flexible than the other products, making us wonder about its suitability for use in demanding circumstances such as tabletops or countertops.

The unthinned varnish, a McCloskey product, and our home-brew wiping varnish made from it produced clear, flexible yellow-tinted films that were as tough as any in the group. As expected, the varnish directly from the can had the highest solids content at 39.5 percent. Our thinned wiping version equalled the highest of the commercially prepared products at 34.5 percent. On the wood, the straight-from-the-can varnish was too thick to produce a smooth finish by applying with a rag. The thinned version did not appear to produce a thick-looking finish. Rather it appeared clear and natural, but was a bit more dull than the others in the group. **WM**

— Steve Shanesy

Look through the shelves at your local home center and you'll see many products with similar names. But how do you know what the products really are? Our list will help.

Common Wiping Varnishes

- Daly's ProFin
- Formby's Tung Oil Finish
- General Finishes Arm-R-Seal
- General Finishes Sealacell
- Gillespie Tung Oil
- Hope's Tung Oil Varnish
- Jasco Tung Oil
- Minwax Wipe-On Poly
- Val-Oil
- Waterlox
- Zar Wipe-On Tung Oil

Common Oil/Varnish Blends

- Behlen Danish Oil
- Behlen Salad Bowl Finish
- Behlen Teak Oil
- Behr Scandinavian Tung Oil Finish
- Deft Danish Oil
- Maloof Finish
- Minwax Antique Oil Finish
- Velvet Oil
- Watco Danish Oil
- Watco Teak Oil