

Notes from the Shopsmith Woodworking Academy

Finishing Touches — PART 4 — Applying a Synthetic Finish

In the strict sense of the word, all wood finishes are synthetics, since they are somehow manufactured from raw materials. But this term is usually applied to a broad group of plastic finishes, including polyurethanes, polyvinyls, acrylics and epoxies — all of which are synthesized from petroleum products and space-age chemicals.

The advantages of synthetic finishes are impressive: They're clearer, tougher and do less to change the color of the wood than natural finishes. As a group, they're much more versatile, though a few synthetics are manufactured for very specific purposes. Plywood sealer, for example, is made to harden the soft areas of the sliced fir. After it's dried, you can fine sand the plywood and get it to take an even stain.

Polyurethanes are the most widely used of all synthetic finishes. They're highly resistant to abrasion, chemicals and water and last 25% to 50% longer than the best natural varnishes. They're almost drip-free (when applied properly) and are typically available in a choice of gloss or satin finishes. An exterior version — Polyurethane UVA — won't break down in sunlight.

Shop Conditions

Synthetics aren't as finicky as other finishes and can be applied in a wider range of conditions. The temperature in your shop should ideally be between 60 degrees F and 90 degrees F. Humidity should be about normal (between 45 to 65 percent). Ventilation is also very important and a good quality, high volume exhaust fan is highly recommended.

Dust control is really more important than any other shop condition — since tacky synthetics are noted for attracting dust like a magnet. Though the shop should be well ventilated, open windows and doors should be avoided. Drafts from such openings can blow dust across the drying finish. Sweep the floors and machinery thoroughly and allow everything settle for a half hour or so before getting started. Sprinkle water on the floor to help keep the sawdust down, but be careful not to get and moisture on the project to be finished.

As for tools...like natural finishes, the appearance of a synthetic finish will improve dramatically if you use a good quality brush to apply it. However, you may be surprised to learn that you don't have to spend a lot of money to achieve a good synthetic finish. Many woodworkers have discovered that the disposable foam rubber brushes sold in most hardware stores and home centers for under a dollar work great with synthetic finishes.

Brushing

After you purchase a synthetic finish, let it sit on a shelf for a day or so before you open it. When you do open it, **don't stir or shake it**. Stirring or shaking will create bubbles that will detract from the final appearance of your finish.

Before using a sanding sealer, read the directions on the can. Many synthetics require their own sealer to ensure good adhesion or prevent a chemical reaction. Often, the best sealer for any

particular synthetic is one you make yourself by thinning the finish 1:1 with the appropriate solvent.

Sand your project down with 5/0 garnet sandpaper, then wipe it down thoroughly with a tack rag before applying the finish. It's important that you remove all dust and foreign materials before applying the finish to the wood. Grease can be dissolved and wiped away with denatured alcohol or naphtha. **CAUTION:** Do this in a well ventilated area and follow all the precautions on the label of the solvent you use.

Begin brushing on the finish at the corners of the project, working in toward the center. Go over the surface a second time, brushing against the grain...and a third time, working with the grain. On this last pass, lightly stroke the surface with the tip of the brush to smooth out any brush marks.

Allow the finish to dry for the amount of time indicated on the can — usually 2 to 4 hours — before applying a second coat. Test the surface of the finish with your thumbnail to see if it has hardened enough. If the thumbnail leaves an indentation, allow more drying time. When it's properly hardened, lightly scuff-sand with 6/0 garnet sandpaper, wipe down and recoat using the same procedure as before.

After the final coat, sand with 7/0 garnet paper and rub in a good quality carnauba paste wax with 3/0 steel wool for a satin finish. For a gloss finish, rub with pumice stone and oil, then rub in the wax with a soft cloth and buff.

Rubbing

Rubbing is the least common method of applying a synthetic finish because it's so messy...but when it's properly done, it will create the appearance of a hand-rubbed oil finish with half the work and twice the durability. It's especially useful in finishing small, hard-to-sand projects where you may not be able to smooth all the surfaces.

Begin by thoroughly coating the project with satin-finish synthetic and allow it to dry for at least a day. Then, coat it a second time and let it sit for 15-30 minutes...until the finish is tacky to the touch.

Saturate a lint-free cloth with the synthetic and begin to rub the project surface. When the rag itself gets tacky, sprinkle on more finish. Continue until the surface of the project takes on a warm glow and a smooth appearance. Let it dry for a day, then polish with a good wax.

Pouring

A few synthetic finishes — called *catalytic* finishes — are meant to be poured over a project, rather than brushed or rubbed on. These finishes come in two parts — a resin and a catalyst (or “hardener”) and must be mixed together in order for the finish to harden.

The advantage of these finishes is that they can be applied to any surface, no matter how rough, as long as that surface is dry and free of all grease or oil. You can even imbed objects in these finishes — coins — cards — documents — mementos — but once again, these objects must be dry and clean. As the catalytic finish is poured on, it will flow into all cracks and surface imperfections, surround and cover objects to be imbedded, then level itself out and dry to a crystal-clear, high-gloss, glass-like smoothness.

Use these catalytic finishes in a well ventilated room. Often, the fumes given off as they dry are highly toxic. Mix only as much as you need precisely according to the directions on the container and pour it over the project *immediately*. The surface to be covered should be level and facing up. If there are several surfaces to be covered, do just one at a time. Often, a project may have to be tilted this way and that to get the finish to spread out, but it should always be returned to level to allow it to dry.

From time-to-time, bubbles will appear in the finish as you pour. Before the finish hardens, lightly blow across the surface. This will cause the bubbles to rise to the surface.

Remember that catalytic finishes harden quickly and need no second coats or exhaustive rubbing after they set up. Rubbing or sanding will, in fact, cloud them. Wax may slightly improve their appearance, but this is seldom necessary.

Caring for a Synthetic Finish

Like natural finishes, most synthetics need a good coat of wax now and then to fill tiny scratches and preserve the lustre. Stains can be removed by rubbing with pumice stone and oil.

A badly scratched or damaged finish can be repaired by simply sanding down the scratch or blemish with 5/0 garnet sandpaper and applying a new coat on top of the old. Be careful to use the same type of finish you originally applied. If you want to switch finishes, it's advisable to take the project down to the raw wood and start over.

Coming up in the May/June issue — PART FIVE — *Refinishing*