

Finishing Approaches for Woodturners

Wipe-on Vanishes and Oils

Wipe-on varnishes are easy to apply and provide are resistant to water and abrasion. For an excellent article on oils and varnishes – what they are, how they work and how to apply them, see: Steve Russell's Oil and Finish Roundup at www.woodturningvideoplus.com/oil-finish.html

There are four types of **varnish**:

- **Alkyds** are the traditional varnishes made from polyester resin. Although very slow drying (24hrs for recoating) they are durable, flexible, resistant to abrasion and resistant to UV discoloration. Good for floor finishing.
- **Polyurethane** resins dry and cure faster and are more water resistant than Alkyds, but they are not light and UV resistant and turn yellow quickly. Can have adhesion problems. (Do not use)
- **Spar varnish** is made of phenolic and alkyd resins and tung oil. It is relatively hard, has high water resistance, is flexible, and provides good resistance to light and UVs but is very slow drying and has a natural deep yellow colour. (Used by Russ because easier to find but he did not find it superior to Alkyd varnishes)
- **Fast drying or VT** varnishes are modified with styrene resins which sacrifices the protective properties found in other varnishes.

Gel Finishes

Are **polyurethane** varnish resins without liquid solvents. They provide a more uniform colouring because they do not penetrate as deeply as liquid varnishes. Same problem as polyurethane varnishes (do not use).

Wipe-On Varnish Finishes

Preference should be given to a varnish that can be applied with a rag or paper towel rather than brushing or spray. Any varnish can become a wipe-on finish by adding 50% thinners. The addition of thinners will help it flow into a uniform coat. The amount of oil will influence the flexibility and drying time of the finish. Commercial wipe-on varnishes are medium-oil finishes with 50% oil.

Commercial Oil/Varnishes

All contain varnish resins, some type of oil and thinner. Most do not contain tung oil regardless of labelling.

Danish Oil

These are oil-only finishes with a lot of thinners and no varnish resins. They do not build a surface film except with mixtures based on linseed oil. Although easy to apply, they are not a good final finish for turned wood as they are soft and not durable.

Russ's Home Brew

Equal parts 100% pure tung oil, varnish and turpentine. Pure Gum Spirits of turpentine are used for the thinner because the natural resins become part of the finish and enhance the qualities of the varnish. A 50/50 mixture of Tung Oil and Linseed Oil seem to better enhance the grain in highly figured wood.

Waterborne finishes

Russ did not use these finishes because he did not like the results. They had a bluish tint, poor reflective qualities and left the wood with a muddy appearance. They raise the grain. However, there have been major improvements in the formulations and manufacturing techniques in the last few years, overcoming most of his concerns.

The finishes penetrate the wood well and do not discolour it even over time. They also leave a durable surface film.

Wipe-On Application

Use a finishing ball (wrap a golf ball sized wad of cheese cloth in a 6" square cotton cloth – can substitute paper towel for the cheese cloth).

1. Apply a heavy coat of finish and keep it wet for several minutes. Sand first coat with 400-grit wet-dry, and second coat with 600-grit, to form a slurry that will act as a grain filler. Add more finish as it starts to dry. Sanding is omitted after the second coat.
2. Wait a few minutes until it becomes slightly tacky.
3. Remove all of the finish that has not been absorbed using a soft cloth or a paper towel.
4. Let dry overnight.
5. Buff it back with steel or bronze wool
6. Repeat steps 1 to 5 as many times as required to achieve the desired gloss finish, and add one more.

Wet Sanding Application (great if you don't want dust)

1. Dry-sand to 150-grit – can shear scrape to that level of smoothness
2. Wet-sand with the wipe-on varnish, starting at 180 grit and continue through 600-grit. Before moving to the next finer grade of sandpaper, remove the slurry from the wood surface. When you are done sanding, you are done finishing.
3. Let dry overnight and buff with steel wool.

Submarine Application

Works well for small articles

1. Submerge the piece in the finishing liquid for at least 1 hour or until saturated.
2. Allow it to drip dry.
3. Set it aside for at least several days until the finish is completely dry. If necessary wipe off the excess that refuses to dry.
4. Buff with a little Tripoli compound followed with wax buffing.

Suitable mixture for this application: **1 gallon boiled linseed oil, 2 gallons Turpentine or Paint Thinner and a quart of varnish.** If you want it to dry faster, add ½ cup of Japan Dryer

For larger pieces turned wet, soaking may take several days to several weeks until the water in the wood has been replaced by the mixture. When finish is dry put back on the lathe for final buffing.

Wipe-on varnish over Deft

Any commercial or home brew varnishes or oils can be used over DEFT semi-gloss lacquer (Clear Wood Finish). This not the case with all lacquers. Do not apply polyurethane varnishes over lacquer as they are not compatible. Russ preferred to use his home brew, described above, over the Deft. The DEFT sealer coat reduces the blotchy appearance, dark spots and yellowing. The approach in Section 3 above has been modified as follows:

1. Sand through 400-grit
2. Apply a thick sloppy coat of DEFT
3. Let sit for no more than 30 seconds (less if it dries faster)
4. Wipe off all excess finish. Change towels frequently.
5. Buff the surface with a paper towel until it is dry to the touch. Change towels frequently.
6. Cut back with 0000-steel wool if necessary.
7. Immediately apply a coat of wiping varnish.
8. Wipe it dry after the varnish becomes tacky

9. Wait until the next day.
10. Cut the surface with 0000-steel wool.
11. Repeat the steps 7, 8, 9, 10 several times until the surface develops a gloss.
12. Then repeat one more time but do not cut back with steel wool.

Products

Product	Supplier	Recommended by / Comments
Daly's Sea-Fin Teak Oil		Russ's comment: Tung oil finish, the best of the wipe-on products.
Waterlox	Mail order	Russ's comment: Tung oil product , similar to sea-Fin, but only available through mail order catalogues.
Gillespie's Tung Oil Finish		Russ's comment: Not as good as Sea-Fin or Waterlox
Behlen's Salad Bowl Finish	Lionel Bedard Richelieu Wholesale	Very similar to Russ' "Home Brew" but dries faster.
General Salad Bowl Finish	WoodChuckers Supply	Similar to Behlen's but thinner
McCloskey's "Man'O War" Gloss Spar Varnish		Russ's comment: Best varnish for turned wood because it is Tung Oil, phenolic and alkyd resins
Watco Teak Oil Finish		
Cheese Cloth		

Advice

By**Advice**

Bill Neddow

I use the water based finishes on light wood like Box Elder that I do not want to yellow with age. I prefer the Minwax Polycrylic, which I apply with a paper towel. It seems to gives less of a bluish tinge than the others and in the "cream" of the lighter woods, it does not show.

Malcolm Zander

Me too. But note that one has to be very gentle sanding this as it is essentially Plexiglas, and melts when hot from friction.