



Finishes for Woodturners

What's the best finish to apply to your turnings?
Ern Reeders tests oil, wax and shellac and blended finishes.

Like many turners I've got comfortable with a few finishes for regular use but this review has given me the opportunity to explore other products on the market and to do some comparisons in the workshop. The results surprised me.

Luckily we've got well beyond the old burden: 'Apply this oil each day for a week, each week for a month and each month for a year'. We don't have the leisure for that any more.

The purpose of finishing turnings is to protect the timber and enhance the grain. This review covers a selection of finishes that are ready to use, can be applied by hand and do the job in a day or three. There are many finishes now available; some are designed for turnings and others will work with

the right technique. I've selected a sample. Some brands are well known; others less so. I haven't included a glossy plastic finish as in my view it just produces reflections and not a true view of the wood.

Finish types

Finishes can be divided roughly into those that penetrate the timber and those that form a film on top of it. Some do both with

enough applications. Film finishes are prone to scratching but may be the best option with something like a fruit bowl where leaks might soak into the wood and spoil the look. Penetrating finishes are easier to repair. A finish advertised as 'oil-based' can mean various things: usually a nut or seed oil along with a solvent. Then there might be a resin (alkyd or polyurethane) to add body and there may be non-lead metallic driers. Wax finishes usually include several wax types including



hard ones like carnauba and soft ones like beeswax.

Testing

For the purpose of the review I tested four types: oil-based, wax, shellac and shellac blends and others. Given concerns about solvent toxicity, there is one water-based product, a Minwax Wipe-On poly.

The tests required good lengths of readily available and often-used timber. I opted for one softwood (radiata pine) and one hardwood (blackwood). Ten centimetre square spindle pieces were trued and sanded to 1200 grit. Finishes were applied in strips; the gaps between them provided a raw timber benchmark to judge the effect. Oil finishes were applied by flooding at low speed on the lathe with heavy paper towel, with the excess wiped off before becoming tacky with new washed cotton flannelette (called 'rag' from now on). Waxes were applied with a rag at low speed and then buffed with a fresh rag after about five minutes (and 25 minutes for the Howard product). The Waxtik was applied direct and buffed as per instructions. Shellawaxes were also applied as recommended by the manufacturer. Oil-based products were given three coats, wax two coats and others were given three. All were allowed to dry for two days after the last coat before a final buff with a rag with the test piece turning.

In judging test criteria other than odour the product name was not

used; just a number on the strip that corresponded with the number applied to the product label. This provided some degree of impartiality when judging colouration, shine and grain effect.

The first test of the paste waxes was with two coats of sanding sealer (1:1 diluted nitrocellulose lacquer). That approach was chosen as waxes are mostly used to enhance or restore an existing coating. The surprise here was that all except one case out of ten looked almost indistinguishable. In fact the sealer on pine provided as much if not more grain enhancement than any of the waxes. Having expected to see more variation I did a quick test on bare pine and some minor differences appeared. I then did a second test on both timbers with just one coat of more dilute sealer (1:2) in order to allow the waxes to penetrate further.

Test results

Overall there's little difference in shine and colouration among the wax products; there's more among the oils.

There was negligible difference in appearance between the two varieties of Minwax WOP and not much between those and most of the oils. The only short section of striking 'cat's-eye' figure in the blackwood got treated by chance with three finish types (due to the re-turning needed for the Mark II wax tests) and the Waxtik (without sealer) popped the grain in a spectacular manner. Sanding sealer alone and solvent-based WOP substantially reduced the contrast.

Test Criteria

Judgements shown on the table overleaf were comparative and necessarily subjective.

Colouration: includes degree and tint. Finishes may darken timber little more than water would or more. The right choice is important. With pale timbers like Huon pine, an amber oil added to the effects of ageing will produce a final result that would make a piece hard to recognise as Huon. The sanding sealer used here produced colouration on par with water so has deepened the colour of the paste waxes slightly.

Grain effect: a finish may hide or highlight timber figure. The bare pine was quite flat; finishes resulted in a degree of iridescence or cat's-eye effect to it.

Odour: a judgement of strength and astringency (a catch in the throat effect). For this test I closed the workshop blind so as to preserve my reputation among the neighbours. I found that I've worked with solvents over so many years I may have developed a taste for them and so also got my partner's opinion.

Shine: degree of reflectance of light. Matt, satin or gloss with satin falling roughly between the extremes. The blackwood showed a slight sheen when bare.

Main image: Finishes were applied on the lathe to sections marked off and numbered according to the product used.

Oils and oil blends opposite page left to right: Sceney's Boiled Linseed, Organoil Danish Oil, Constantia Chinese Wood Oil, Rustins Danish Oil, Livos Kunos Natural Oil Sealer, Feast Watson Scandinavian Teak Oil, Howard Orange Tung Oil, MinWax Wipe-On Poly

Waxes and other blends this page left to right: Constantia Seedlac, Howard Feed-N-Wax, Ubeaut Shellawax Glow, Shellawax Cream, Shellawax Traditional Wax, Shellawax Waxtik, Gilly Stephenson's Clear Restoring & New Timber Polish, Constantia Lincoln Wax



Product	Odour	Colouration	Shine	Grain effect	Cost: cents per ml (or as otherwise specified)	Durability	Contents	Reviewer's Notes
	Strength/ character	Pine/ blackwood	Pine/ blackwood	Pine/ blackwood		As claimed by manufacturer	As stated by manufacturer	
Waxes & wax blends								
Howard Feed-N-Wax	Mild/pleasant	2 / 4	3 / 1	1 / 1	6		Petroleum distillate, mineral spirits, beeswax, carnauba wax and orange oil	Amber tint can be useful to spark up otherwise boring timber.
Ubeaut Shithot Waxtik	Negligible	1 / 0	4 / 1	1 / 0	15.40 for 130 x 23mm	Hard water-resistant finish	Blend of waxes: carnauba, ozocerite, ceresin, microcrystalline and beeswax	Used without a sealer; this is a hard wax that takes and repays some effort.
Gilly Stephenson Restoring & New Timber Polish	Weak/pleasant	1 / 1	4 / 3	1 / 1	13 per gram		Mineral turpentine, petroleum jelly, beeswax, paraffin and carnauba waxes	Manufacturer advises topping with at least two coats of their Cabinet Maker's Wax.
Constantia Lincoln Wax	Medium/pleasant	1 / 1	4 / 4	1 / 1	11 per gram	Hard wearing finish	Carnauba, bees and other waxes; gum turpentine	Easy to apply.
Ubeaut Traditional Wax (neutral)	Medium/pleasant	2 / 1	4 / 4	1 / 1	6		Blend of waxes: carnauba, ozocerite, ceresin, microcrystalline and beeswax	Easy to apply.
Shellac & shellac mixes								
Ubeaut Shellawax Glow	Medium/ slightly astringent	3 (amber tint) / 1	4 / 4	1 / 1	8	Water heat and alcohol resistant	Shellac and waxes, mineral turpentine ethanol	Friction polish for spindle pieces and adaptable to bowl use. Lasts well after opening. The maker's website has a good problem solving page.
Ubeaut Shellawax Cream	Mild/ slightly astringent	0.5 / 0.5	4 / 4	1 / 1	11	Water heat and alcohol resistant	Hard shellac, mineral turpentine, ethanol	Friction polish.
Constantia Seedlac	Strong/ astringent	3 (amber tint) / 3	5 / 5	0.5 / 1	9	Water and heat resistant	Ethyl alcohol and seedlac	Used full strength in this case rather than diluted 1:1 as recommended. Seedlac is extracted from lac beetle droppings like shellac but manufacturer claims more durable finish.
Oil finishes								
Rustins Danish Oil	Mild/ slightly astringent	1 / 1	4 / 5	1 / 1	5	Water resistant	Tung oil and other ingredients	This has been my preferred oil finish for faceplate work on medium to dark timbers. There is now some competition.
Kunos Natural Oil Sealer-clear	Medium/pleasant	1 / 1	5 / 5	1 / 1	13	Produces a film; water resistant	Varies by colour: linseed oil, natural resin, wood oil, lead-free drying agents and other ingredients	Newish on the Australian market; finding favour among many turners.
Howard Orange Tung Natural Wood Oil-Burnishing Blend	Medium/pleasant	1 / 1	1 / 1	0.5 / 0.5	6	Waterproof, abrasion resistant	About 70% tung oil, 27% orange oil, 2% soybean oil and 1% beeswax	The natural ingredients content is impressive.
Feast Watson Scandinavian Oil	Medium/ astringent	1 / 1	6 / 6	1.5 / 1	6		Mineral turpentine, white spirits, synthetic polymer	Has a comparatively high resin content.
Constantia Chinese Wood oil	Medium/ astringent	1 / 1	3 . 3	1 / 0.5	8	Highly durable; heat and water resistant; craze free	Mainly tung oil, plant oils, gum turpentine, no metallic driers	Still damp after two days when test judgements were made; likely to lower shine and grain effect. Marine applicable.
Organoil Danish Oil	Strong/ pleasant	1 / 1	1 / 3	1 / 1	5		Natural plant oils (inc. dipentene and d-limonene); up to 65% of balance unlisted	Lasts well in the can after opening. Breathing protection claimed unnecessary.
Sceneys Boiled Linseed oil	Mild/ pleasant	4 / 4 (brown tint)	1 / 3	1 / 0.5	3	Excellent durability	Linseed oil; no solvent; non-lead metallic driers	Still sweating from blackwood pores after two days.
Other								
Minwax Wipe-On Poly Clear satin oil-based	Weak/ slightly astringent	1 / 1	3 / 4	1 / 1	5	"Its thin film offers moderate protection from abrasion."	Polyurethanes; aliphatic hydrocarbons	Flip-top can prone to becoming glued shut.
Minwax Wipe-On Poly Clear Satin, water-based	Weak/ pleasant	1 / 1	3 / 4	1 / 1	5		Polyurethanes; dimethylethanolamine, 1-methyl-2-pyrrolidone	Quick and easy to apply.
Nitrocellulose sanding sealer diluted 1:1 with MP thinner	Strong/ horrible	1 / 1	4 4	1 / 1	2		Diggers thinners: toluene, naphtha, acetone, ethanol	

Shine: 1 = matt, 3 = satin, 6 = gloss Colouration: 0 = bare wood, 1 = effect of sanding sealer or water; >1 = darkening effect Grain effect: 0 = no highlighting; 1 = clear highlighting



Left: 100mm dia sections of radiata pine and blackwood were trued and sanded. Test strips were separated with turned 'gaps' which showed a bare wood contrast. Each section showed the number that denoted a certain product.

The major differences are in cost (but this may be reduced when larger cans are bought), ease of application and odour. The Ubeaut products take a little more skill to apply than others but produce a finish quickly.

Those sensitive to odour will enjoy the water-based WOP; it was mild and neutral. Those concerned about solvents should look at it as well and also the Howard and Sceney oils. The result obtained with the Waxtik on the blackwood doesn't reflect my other experience with it; it has performed well, and quickly, as a sole finish on elm bowls. For a bowl subject to fruit leakage or citrus vapour the Feast Watson would be my choice as the resin content produced more of a film finish.

While I did not set out to test nitrocellulose lacquer, the result with the Mark I paste wax tests have confirmed my practice of using this as a standard finish on faceplate turnings of pale timbers with a top coat or two of wax. It's cheap and quick but it stinks and is a health hazard while liquid. It also has been said to yellow with age.

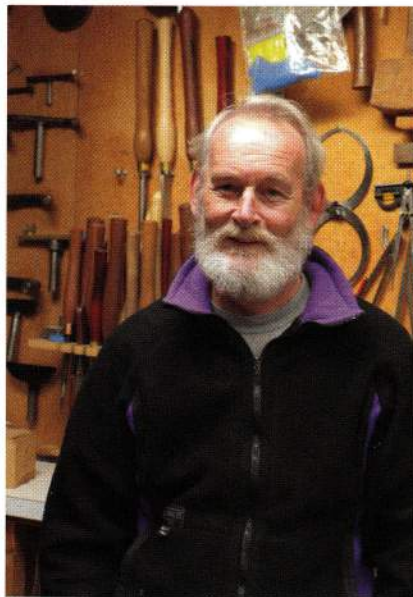
From general impressions while standing at the lathe I liked the Constantia Seedlac for its quick build and the Howard wax for its amber tint.

To conclude, I designed these tests to reveal differences but in their effects found relatively few. Other timbers and varying the application method will yield different results. There isn't a bad finish here; I'd be happy to have them all on my shelf.

Acknowledgements: thanks to the generous advice and support given by the product manufacturers and to Ian 'Robbo' Robertson and Linda Nathan for helping me think through the review design. The responsibility for the decisions I made is of course mine.

Photos: Ern Reeders

Ern Reeders is a turner and semi-retired academic with a research PhD.



Other Data and Issues

Cost: calculated according to the smallest quantity jar or can available.

Contents: as listed on the can, the manufacturer's website or the MSDS. In some cases I asked for further detail. There may be other non-hazardous components not listed being commercial-in-confidence.

Safety: this applies both during application and with respect to food in contact with the piece. Most manufacturers are now claiming their product as food safe and when properly dried this appears plausible. Bob Flexner writing in *American Woodturner* (2008) argues that in curing non-lead metallic driers bond with the wood to produce a safe result. Manufacturers say that air drying with sufficient time leads to polymerisation and finish stability. During application is another matter. Solvents typically pose a health risk and you should use skin, eye and airway protection especially with extended or repeated exposure.

Durability: makers' statements where available. Otherwise, with oil finishes hard burnishing appears to produce a surface that is immediately water and alcohol resistant according to tests reported on the Australian Woodwork forum. Air drying over 4–12 weeks appears to have the same result. Other finishes on the market such as Ubeaut Hard Shellac are designed to harden with air drying and in finishing salad bowls I've had good results with that product.