



WITH
SERIES 1+2
UPDATES

SERIES 3

Wood finish THE RESULTS

The results are in! 18 months after its commencement Richard Hare reviews our Series 3 exterior wood finish test. Which passed, and which failed?



Summer 2010 was a mixed bag - a blisteringly sunny mid-summer that gave our 10 products a nasty shock, followed by the usual late summer collapse into a cold and rainy August which added insult to injury, salt into their wounds.

This is good news for us because it means that the samples were not let off lightly. It's good news for the test products themselves too - or their manufacturers, should I say - because all of them passed

our test - the first time this has happened. In fact there was one exception, but this was a home-brewed hybrid made up of two commercial products used in conjunction.

Benchmark pass

The benchmark for a CB product 'Pass' rating is 18 months' exposure without the integrity of the finish rupturing or eroding. This comfortably covers the usual 12-month maintenance cycle with a bit of leeway that

all of need from time to time. As before, the samples went up on the test rig in early May, 2009 in this case.

The rig faces southwest onto a Suffolk estuary and the back of each test piece (machined iroko donated by Robertsons Boatyard) was coated with flexible PU to ensure its water-tightness. Iroko has been selected throughout our tests as it is known to be a bit tricky for woodfinishing due to its oiliness, a feature it shares with teak.

10 BASIC PRODUCTS COMPARISON TABLE

PRODUCT	DESCRIPTION	COATS (1)	COVERAGE (2)	COST/LITRE (3)	COST m ² (4)	DAYS TO APPLY	RESULTS 18 MONTHS	
SINGLE-POT CONVENTIONAL VARNISH								
1 JOTUN PENGUIN RAVILAKK	Alkyd-based with Chinese wood oil, synthetic amber and 'other materials'	5	16	18.20	5.68	5	PASS	
2 SEAJET UV	Phenolic alkyd base with tung oil and traditional ingredients	5	12	18.37	7.65	5	PASS	
3 NAUTECO COMA BERNICE	Alkyd based	5*	10	28.96	14.45* (8.68)	5	PASS	
TWO-PACK VARNISH								
4 SEAJET POLYURETHANE GLOSS	Hard polyurethane	4	16	35.68	8.92	1	PASS	
FLEXIBLE POLYURETHANE								
5 UROXSYS PLUS PRIMER	Topcoat aliphatic flexible PU	5	12	30	13.70	2	PASS	
	Primer	1	15	18	(5)			
EXTERIOR WOODSTAIN (STANDARD SOLIDS)								
6 SIKKENS CETOL MARINE		3	16	25.20	4.73	3	PASS	
7 SIKKENS CETOL FILTER 7		3	16	17.50	3.28	3	PASS	
EXTERIOR WOODSTAIN (HIGH SOLIDS)								
8 SADOLIN ULTRA	Base coat	1	13.5	12.04	3.37	3	PASS	
	Ultra	2	13.5	16.71	(6)		PASS	
9 SADOLIN ULTRA	Ultra only	3	13.5	16.71	3.71	3	PASS	
EPOXY AND PU TWO-PACK COMBINATION								
10 WEST EPOXY AND SEAJET PU TWO PACK		EPOXY	3	9**	20.00	13.22	2	FAIL
		PU	3	16	35.68 (7)			

Table notes

- (1) Primer(s) included where applicable.
- (2) Claimed m²/lt on a single coat basis.
- (3) Cost per litre (£), 2009.
- (4) Based on the number of coats given in column 1.
- (5) Based on £12.50 (aliphatic) and £1.20 (primer).
- (6) Based on £0.89 (base coat) and £2.48 (Ultra).

(7) Based on £6.66 (epoxy) and £6.56 (2-pack).

(*) Manufacturers suggest that 3 to 4 coats are all that's needed. This would bring down the cost per m² covered to as low as £8.68 applied.

(**) Per kilogram as opposed to litre (minor difference)

1	2	3	4	5	6	7	8	9	10	
										<p>1 Jotun Penguin Ravilakk</p> <p>2 Seajet UV</p> <p>3 Nauteco Coma Bernice</p> <p>4 Seajet polyurethane gloss</p> <p>5 Uroxsys plus primer</p> <p>6 Sikkens Cetol Marine</p> <p>7 Sikkens Cetol Filter 7</p> <p>8 Sadolin Ultra two-pot</p> <p>9 Sadolin Ultra single tin</p> <p>10 Two-pack combo: West epoxy and Seajet PU</p>

The Products

Conventional single-pot varnishes

These products have all achieved a CB 'Pass' (one star after 18 months) but will need to notch up another season at least if they are to match or exceed their two-star counterparts from Series 1 and 2 (see page 46). One product from Series 2 has now notched up a three-star Pass, see the Series 2 review, page 44.

1 JOTUN PENGUIN RAVILAKK



Application notes

Five coats were applied, the first thinned about 30% with white spirit. The second coat was given a light de-nibbing with 400-grade paper. The five-coat application spanned five days.

Condition after 18 months

Totally intact on surface and all four edges. It retains a high gloss.

PASS

2 SEAJET UV



Application notes

Five coats were applied, the first thinned about 30% with white spirit. The second coat was given a light de-nibbing with 400-grade paper. The five-coat application spanned five days.

Condition after 18 months

Totally intact on surface and all four edges. It retains a high gloss.

PASS

3 NAUTECO COMA BERNICE



Application notes

Five coats were applied, the first thinned about 30% with white spirit. The second coat was given a light de-nibbing with 400-grade paper. The five-coat application spanned five days.

Condition after 18 months

Totally intact on surface and all four edges. It retains a high gloss.

PASS

Two-pack varnish

4 SEAJET POLYURETHANE TWO-PACK



This has achieved the same level as the two-pack from Series 1, although we have yet to see whether it will exceed this and/or achieve the distinction star (see p46).

PASS

Application notes

Since no evaporation is involved, this application will have a significantly higher build than solvent or water-based finishes. Coats were applied at 20-minute intervals, wet on wet (see CB263 for more detail). The six-coat system spanned two days.

Performance after 18 months

Totally intact on surface and all four edges. It retains a high gloss.

Flexible polyurethane

5 UROXSYS FLEXIBLE PU



As a flexible PU, this may have the potential to be similar to the 4-Star CB 'Pass', Coelan from Series 1.

PASS

Application notes

The primer was applied liberally in warm conditions and then allowed to cure overnight. Five coats of Marine Aliphatic (top coat) were applied at roughly 2-hour intervals, de-nibbing just the third coat to level it. The six-coat application took two days, but might have been achieved in one.



Performance after 18 months

Totally intact on surface and all four edges. It retains a high gloss.



Weathering well: Coelan (flexible PU) on test boat Keppel

GRAHAM FORD

Exterior woodstain

Products 6 and 7 are normal 50% solids formulations whereas product 8/9 is a high-solids (75%) exterior woodstain potentially similar to the 4-Star Sikkens Novatech, from Series 1. With exterior woodstains it's particularly important to degrease oily species like teak and iroko with an abrasive solvent like cellulose spirit or acetone. **A caution:** As reputable woodstains can provide two or more years maintenance freedom, annual re-application can lead to excessive build because the film will be being added quicker than it erodes and brightwork can end up looking like a Mars bar. Vapour permeability - its key feature - becomes impaired too.

6

STANDARD SOLIDS SIKKENS CETOL MARINE



Application notes

We applied the 'natural' tint. Three coats were applied, the second being de-nibbed lightly in preparation for the third coat. The three-coat system spanned three days. It is a shade lighter than Sadolin Ultra and it resembles varnish in colour and tone but not in gloss.

Performance after 18 months

Totally intact on surface and all four edges. It retains a reasonable level of sheen. This is not comparable to the level of gloss retained on the varnished test pieces but it is fractionally superior to Filter 7, the builder's merchant product, see below.

7

STANDARD SOLIDS SIKKENS CETOL FILTER 7



Application notes

We applied 'pine' tint (ref 077) as it corresponded well with Cetol Marine's 'natural'. Three coats were applied, the second being de-nibbed lightly in preparation for the third coat. The three-coat system spanned three days.

Performance after 18 months

Totally intact on surface and all four edges. It retains a reasonable level of sheen, but not comparable to the level of gloss retained on varnished test pieces and its sheen did appear fractionally inferior to its marine market counterpart, Cetol Marine.

PASS

PASS

8 HIGH-SOLIDS SADOLIN ULTRA TWO-TIN



Application notes

We applied 'Heritage Oak' tint. Three coats were applied, the first being Ultra 'base coat', the second and third being Ultra top coat. The second coat was de-nibbed lightly in preparation for the third coat. The three-coat system spanned three days. This is Sadolin's officially recommended procedure. In the early months it had superior sheen when compared against the other two. It could almost be termed 'low gloss'.

Performance after 18 months

Totally intact on surface and all four edges. It retains a high level of sheen, fractionally superior to the 50% solids products.

PASS

9 HIGH-SOLIDS SADOLIN ULTRA SINGLE-TIN



Application notes

Three coats only of Sadolin Ultra topcoat (Heritage Oak) to correspond with how we tested Sikkens Novatech on the rig in Series 1 and on our two test boats, *Nereis* and *Keppel*, also for the benefit of those who like to keep things simple. The second was de-nibbed lightly in preparation for the third. The three-coat system spanned three days. A shade darker than Cetol Marine but lighter than Novatech, it appears glossier than both. As to compatibility with the other high-solids exterior woodstain, Novatech, we found no problem. Novatech can be refreshed with Ultra.

Performance after 18 months

Totally intact on surface and all four edges. It retains a high level of sheen, fractionally superior to the 50% solids products. At this stage it cannot be told apart from the two-tin test piece (above).

PASS

Epoxy/two-pack

10 WEST/SEAJET FAIL

The DIY combination of epoxy and two-pack - typically three coats of clear epoxy over-coated with three of two-pack varnish - is intended to provide the UV protection that epoxy by itself lacks. However, both products have very limited elasticity, thus delivering the worst rather than the best of both worlds. Applied here in combination, performance is not an indication of either product in isolation - the two-pack we used is now a CB 'Pass' product (see 4, above).



Application notes

Three coats of epoxy were applied, wet-on-wet, followed by three coats of Seajet polyurethane two-pack. The six-coat application took two days and delivered the highest build system in the series.

Condition after 18 months

A split opened along the top edge of the test piece, sufficient to allow water ingress. Discolouration was showing in the vicinity of the crack. Given its inflexibility, this result doesn't come as a surprise.



**42
MONTH
TEST**

SERIES 2 Results after 3½ years

**ON
GOING
UP
KEEP**



Conventional varnishes

An annual light sanding with a medium-grade abrasive, followed by the cleansing of sander dust and then degreasing with white spirit, which must be completely evaporated before proceeding further. Given a five-coat initial application, two fresh coats are advised after the first year, with any bare wood given at least a holding coat before she's tucked up for the winter. A single fresh coat thereafter each year (more often in high UV areas) should be fine. Damaged areas that have been stripped back to bare wood need to be reconstructed with at least five coats.

Two-packs

Where abrasions and ruptures appear these should be sanded back to clean non-weathered wood and a patch made by applying six coats. This can be achieved within a day or two. Periodically, the entire surface should be sanded and cleansed followed by a single fresh topcoat.

Flexible PUs

Flexible PU commonly fails by peeling away from its substrate, be it varnish or wood. It is usually a few years before this happens. Consequently, to repair patches the wood must be abraded back to fresh material, cleansed, dried, and a new six-coat system rebuilt from scratch.

Exterior woodstains

Annual maintenance is seldom necessary. High salinity adversely affects exterior woodstain, though, so it follows that a yacht in the Baltic will require significantly less maintenance than the same boat if kept in the Eastern Med.

Maintain by very lightly sanding to remove old 'chalked' top surface, cleansing with slightly warmed soapy water, then rinse, dry, and refinish with a single coat.

Where it has been ruptured or abraded, take the damaged area back to bare clean wood and make a patch with two fresh coats plus an optional bandage coat over the entire area.

PRODUCT	DESCRIPTION	COATS (1)	AREA (2)	COST (3)	COST m ² (4)	APPLY DAYS	RESULTS 42 MTHS
TWO-POT VARNISH							
UV-tech (see note 4)	Alkyd-based+ tung oil & others	Evo:15 Var 19	19 15	18 24	14.20 9.90	10	**PASS
SINGLE-POT VARNISH							
Hempel (Blakes) classic	Oil-based alkyd varnish	5	19	21	5.53	5	***PASS

Table notes

- 1) Primer(s) included where applicable.
- 2) Claimed m²/lt on a single-coat basis, with the exception of UV-tech.
- 3) Cost per litre (£), 2007.
- 4) We used the same application schedule as applied to a 2-pot product in our Series 1 test. For more detailed information see CB 238.

Withdrawn products

Three products have been withdrawn for the following reasons:
Teak oil (test piece 'e') failed within 6 months, as

indeed have all other similar products. More details in CB 238. Oil needs to be frequently refreshed and is therefore unable to meet our 18-month benchmark. This doesn't mean that it doesn't have a useful role on board.

Uroxsys (test piece 'b') was an early formulation that has since been superseded. The revised formulation is being tested in the current Series 3. It has achieved a CB 'Pass' and the test is ongoing.
Hempel Seatech was unsuccessful in passing the initial 18-month threshold.

UV-TECH

***** PASS**

but failed at 42 months



Application notes

Fifteen dressings of Evo Basic Oil were applied at roughly two-hour intervals. The resultant film was allowed to cure completely over three days then de-nibbed with 120-grit paper. We then applied six coats of Evo Classic Varnish, one per day. The 21-coat application took 10 days.

Performance after 42 months

Totally intact on sides and lower surface, but the main surface and the upper surface had degraded in a display of heavy crazing and blistering. This has occurred where UV is most intense. At the upper edge a shard has broken away to reveal weathered wood.

HEMPEL (BLAKES) CLASSIC VARNISH

***** PASS**

and on-going at 42 months



The first conventional varnish to achieve a three-star CB Pass. All conventional varnishes tested to date made two stars.

Application notes

Five coats, the first thinned about 30% with white spirit. The second coat was given a light de-nibbing with 400-grade paper. The five-coat application spanned five days.

Performance after 42 months

Looks almost like new. Totally intact on surface and all four edges. It retains an impressive gloss; it darkened slightly to a rich nutty colour during the first six months and then stabilised.

Past passes

When the results of all three series are amalgamated we find we have a growing bank of CB 'Pass' products: here they are all together




SERIES 1 Update

In 2008 we announced joint winners from Series 1: Sikkens Novatech high-solids exterior woodstain and Coelan flexible polyurethane. Both achieved the highest result to date and notched up four stars.

Coelan had the edge on Novatech as it retained a good level of gloss and translucency, gaining a distinction star.

Both warhorses remain up on the rig because they both continue to perform well, despite the rupture along both of their top edges that caused them to be withdrawn from the test. Significantly, the defect at the sharp upper corners has not spread massively on the Coelan and it hasn't spread at all on the Novatech, in bold defiance of Ma Nature's worst efforts. Shown below is their condition after 7½ years' continuous exposure. They're battle-scarred, yes, but their blank refusal to cave in completely deserves high regard.

This, of course, is great news for us because all we need do is keep on top of the maintenance schedule - and it's very forgiving with both of these products - and we can keep Nature's talons at bay indefinitely. Novatech continues to be tested on *Keppel* and *Nereis*, and Coelan continues to deliver maintenance freedom on *Keppel* at 3½ years, one of which was in the Med.

For an in-depth review of these two products see our four-star focus features in CB244 (Novatech) and 245 (Coelan). 

CB 'PASS' PRODUCTS AND THEIR STAR RATINGS			
This isn't a list of all the candidates; only 'Pass' products are listed:			
Product	Stars (*)	Test ongoing?	Cost, applied (Z) (Group basis)
CONVENTIONAL VARNISHES			
Prima varnish	**		Low
Epifanes varnish	**		
Skippers Starwind UV varnish	**		
Hempel (Blakes) Classic varnish	*** to date	Yes (Series 2)	
Le Tonkinois organic varnish	**(*)		
Jotun Ravilakk	* to date	Yes (Series 3)	
Seajet UV	* to date	Yes (Series 3)	
Nauteco Coma Bernice	* to date	Yes (Series 3)	
TWO-TIN VARNISH			High
UV-Tech 2-tin varnish	**		
WATER-BASED WOODSEALER			Very low
Burgess Hydrosol water-based woodsealer	*		
EXTERIOR WOODSTAIN			Very low
Sikkens Novatech high solids ext' woodstain	****		
Sikkens Cetol Marine	* to date	Yes (Series 3)	
Sikkens Filter 7	* to date	Yes (Series 3)	
Sadolin Ultra (2-pot)	* to date	Yes (Series 3)	
Sadolin Ultra (single-pot)	* to date	Yes (Series 3)	
TWO-PACK (CATALYSED) VARNISH			Moderately low
Skippers Poliglass/Acriglass 2 pack varnish	**(*)		
Seajet Polyurethane Gloss	* to date	Yes (series 3)	
FLEXIBLE POLYURETHANE			Very high
Coelan flexible polyurethane	****(*)		
Uroxsys	* to date	Yes (Series 3)	

The Star rating
 The Star rating works as follows. By implication, all star-rated products are CB 'Pass' products.
 * Excess of 18 months ** Excess of 30 months *** Excess of 42 months
 **** Excess of 54 months (*) Distinction
 (Z): Based on coverage rate and number of coats required, not cost per litre.
 For more information on these products, see the relevant launch features in CB March 2004 (Series 1), CB April 2008 (Series 2) and CB May 2010 (Series 3)



Left: Novatech on test - on the boom galleys, washboard surrounds, coamings and strakes



Right: Sikkens Novatech (L) and Coelan (R) after 7½ years