HEMPEL
Trust is earned

Tanker

Quantifying the benefits of applying in erection stage

Tanker

Total cost of ownership and payback period

		Application scenarios				Comparing the scenarios		
		Hempaguard NB (Erection Stage)	Hempaguard X7 (Post-Delivery Docking)	Hempaguard X7 (Pre-Delivery Docking)	SPC***	Hempaguard NB vs SPC*** (Erection Stage)	Hempaguard X7 vs SPC*** (Post-Delivery Docking)	Hempaguard X7 vs SPC*** (Pre-Delivery Docking)
Paint	Paint Purchase Cost	$1,700,000	$1,700,000	$800,000	$700,000	$1,000,000	$1,000,000	$1,000,000
NB Yard Cost	Paint Application & Washing Cost	$400,000	$450,000	$185,000	$0	$400,000	$450,000	$420,000
	General S/Y Cost	$0	$70,000	$70,000	$0	$0	$70,000	$70,000
	Potential Mark-up Cost	$0	$30,000 - $60,000*	$500,000 - $1,000,000**	$0	$0	$30,000 - $60,000*	$500,000 - $1,000,000**
Cleanings	Diver Cost	$0	$0	$0	$30,000	($30,000)	($30,000)	($30,000)
	Extra Costs Next DD	$0	$0	$0	$49,000	($49,000)	($49,000)	($49,000)
Fuel	Additional Fuel Consumption	$0	$0	$0	$320,000	($320,000)	($320,000)	($320,000)
	Total Cost of Fuel	$59,500,000	$59,500,000	$59,500,000	$65,500,000	($6,000,000)	($6,000,000)	($6,000,000)
TCO	Total Cost of Ownership	$61,600,000	$61,750,000 - $61,780,000	$62,190,000 - $62,690,000	$66,599,000	($4,999,000)	$(4,849,000) - $(4,819,000)	$(4,409,000)- $(3,909,000)
	Total Savings $					**$4,999,000**	**$4,849,000- $4,819,000**	**$4,409,000- $3,909,000**
	Expected Payback Period (Months)					**19**	**21-24**	**27-34**

Assumptions: Tanker ~300,000 DWT, Consumption: 65t/day, Speed: 14 knots, Fuel Price: $650/t

- ** Sea Trial cost for 3rd party management and fuel consumption*
- *** Potential Mark–up S/Y Cost depends on the s/y location and has to do only for pre-delivery docking*
- **** SPC Product with 2.5% speed loss for 5-years*

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Tanker

Hull coating upgrade: Expected efficiency improvement

Assumptions

Out of dock savings are based on the absolute power gain from the smoothness of silicone compared to self-polishing antifouling.

Savings over time is based on speed loss difference of silicone compared to self-polishing antifouling translated to power saving.

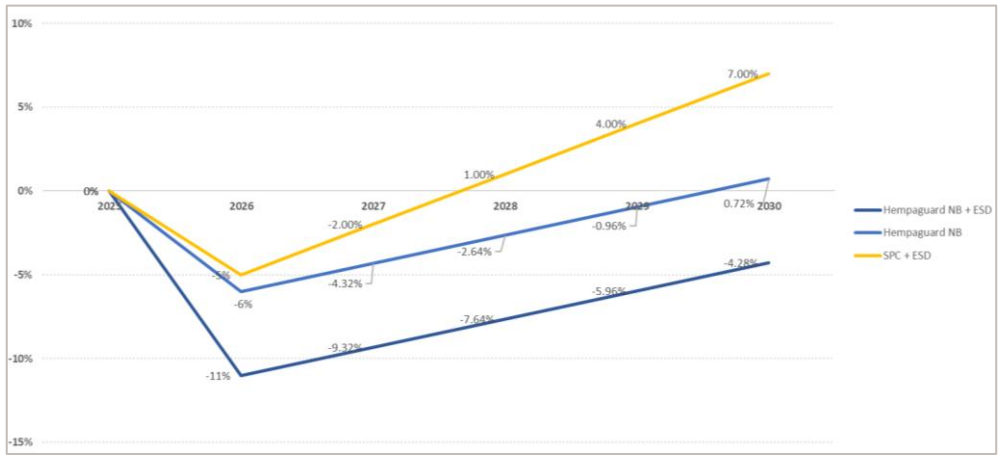
3:1 relationship between power increase and speed loss is assumed.

Paint System Description	Seamflow	Out of Dock Power Gain %	Surface Preparation %	Speed Loss %	Out of dock & Surface Preparation Diff%	Overtime Power Savings %	Total Fuel Savings %
Full • Hempaguard NB		6.00	0.00	1.40	6.00	3.30	9.30
Full • SPC		0.00	0.00	2.50	0.00	0.00	0.00

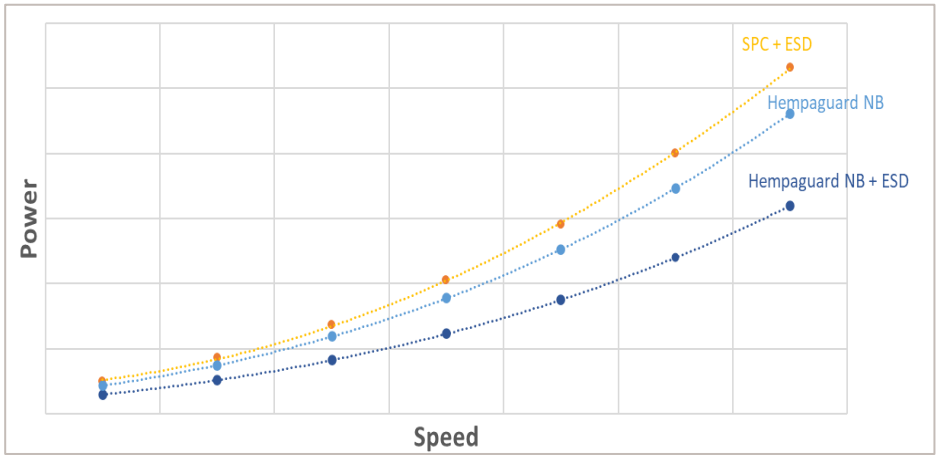
Tanker

Increase vessel performance according to CII/EEDI

CII difference from reference year



Impact on Vref for purpose of EEDI



Coating system	2025	2026	2027	2028	2029	2030
Hempaguard NB + ESD	2.2 (C)	1.96 (B)	1.99 (C)	2.03 (C)	2.07 (D)	2.11 (D)
Hempaguard NB	2.2 (C)	2.07 (C)	2.10 (C)	2.14 (D)	2.18 (D)	2.22 (D)
SPC + ESD	2.2 (C)	2.09 (C)	2.16 (D)	2.22 (D)	2.29 (D)	2.35 (E)

Assumptions: Energy Saving Device which gives 5% power savings on top of coating upgrade

Reducing emissions for your newbuild VLCC tanker

Comparing Hempaguard to traditional SPCs

9 Industry, Innovation and Infrastructure

Paint savings up to 11%, avoiding the supply of 6,072 litres of coating

37 t CO2e not emitted in the manufacturing and application of coatings

13 Climate action

Reduces CO2e emissions from fuel consumption by 12%, equivalent to 7,159 t of fuel over 5 years

22,294 t CO2e emissions avoided over 5 years

14 Life below water

Reduction of hazardous substances in the sea: no copper oxide and minimal use of co-biocides

14.4 tonnes of biocides not leached / released into (sea) water

Assumptions:
Vessel ID: VLCC Tanker 300k DWT
Flat bottom m2: 18,000 / Vertical bottom m2: 13,000

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