

Tanker Aframax TCO Report

An assessment of the benefits,
cost and savings of a hull
coating upgrade.



Content of this report

1. Methodology and executive summary
2. Economical potential
3. Regulatory compliance





“ We guide the maritime industry as a trusted advisor, enabling customers to achieve sustainability and operational excellence through responsible hull performance management ”

Alexander Enstrom

EVP Hempel Marine

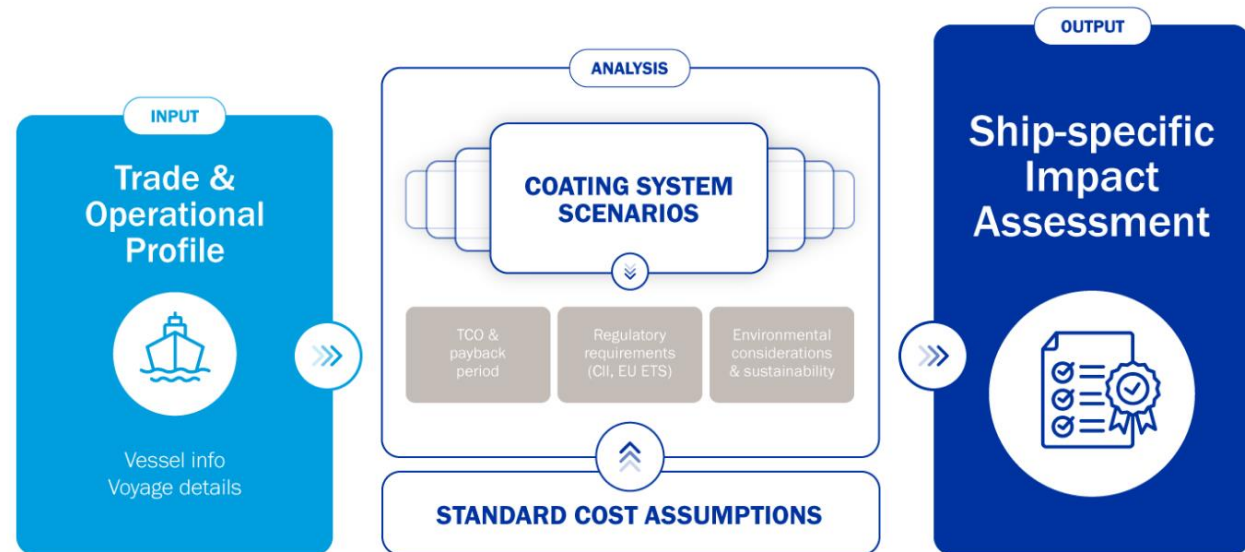
Methodology and executive summary

Impact of a hull coating upgrade



Ship Specific Assessment

A fact-based approach for selecting the optimal solution for your vessel



Comparison of three scenarios

Hull performance scenarios are based on 3 coating solutions
(Premium Silicone, Silicone, SPCs)

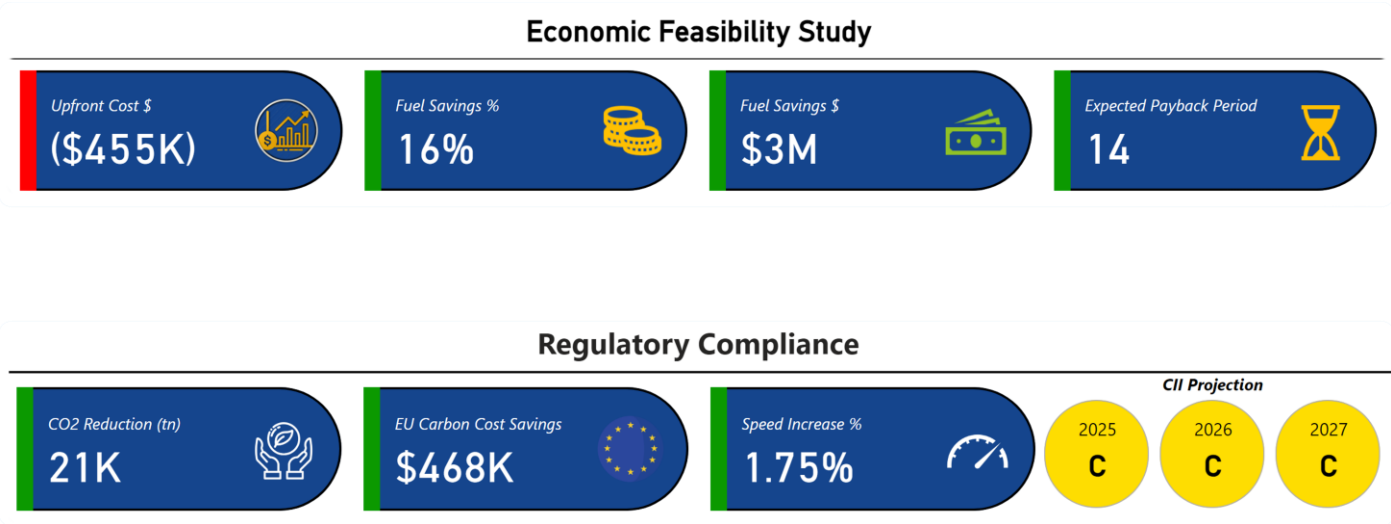
Hempaguard X7+/ Globic 9500 Top Performance System		
BootTop	Globic 9500	Full blast
Vertical	Hempaguard X7+	Full blast
Flat Bottom	Hempaguard X7+	Full blast

Hempaguard X7/ Globic 9500 Upgrade System		
BootTop	Globic 9500	Full blast
Vertical	Hempaguard X7	Full blast
Flat Bottom	Hempaguard X7	Full blast

Globic 8000 Baseline System		
BootTop	Globic 8000	Spot blast
Vertical	Globic 8000	Spot blast
Flat Bottom	Globic 8000	Spot blast

Executive summary

Economical benefits and regulatory compliance with premium silicone hull coating



Economical potential

Impact of a hull coating upgrade



Impact of a hull coating upgrade

Expected efficiency improvements

Added Power % per year



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 • Globic 9500 • Hempaguard X7+		5.25	0.00	1.40	7.75	7.80	15.55
Full • Globic 9500 • Hempaguard X7		5.25	0.00	1.50	7.75	7.50	15.25
Spot • Globic 8000		0.00	-2.50	4.00	0.00	0.00	0.00

**Expected
paypack period**

14

Months

Impact of a hull coating upgrade

TCO and expected payback period

	Elements of Cost	Full • Globic 9500 • Hempaguard X7+	Full • Globic 9500 • Hempaguard X7	Spot • Globic 8000	Top Upgrade VS Baseline System
Paint Repair Yard	Paint Purchasing Cost				
	Surface Preparation	\$99,696	\$99,696	\$39,878	\$59,818
	Washing	\$8,040	\$8,040	\$8,040	\$0
	Paint Application Cost	\$91,784	\$100,232	\$22,190	\$69,594
	Shipyards Rent	\$45,000	\$45,000	\$30,000	\$15,000
Cleanings TCO Fuel	Off Hire Cost	\$118,800	\$118,800	\$79,200	\$39,600
	Diver Cost	\$0	\$0	\$21,120	(\$21,120)
	Extra Costs Next DD	\$0	\$0	\$24,964	(\$24,964)
	Additional Fuel Consumption	\$0	\$0	\$157,333	(\$157,333)
	Off Hire Cost - Cleaning	\$0	\$0	\$19,800	(\$19,800)
	Total Cost of Fuel	\$17,714,884	\$17,777,817	\$20,977,699	(\$3,262,815)
	Total Cost of Ownership	\$18,617,204	\$18,628,585	\$21,648,224	(\$3,031,020)
Total Savings \$					\$3,031,020
Expected Payback Period (months)					14

Additional upfront cost for upgrade:

- ⚡ Paint Cost:
- ⚡ Shipyards Cost: \$184K



Regulatory compliance

Impact of a hull coating upgrade

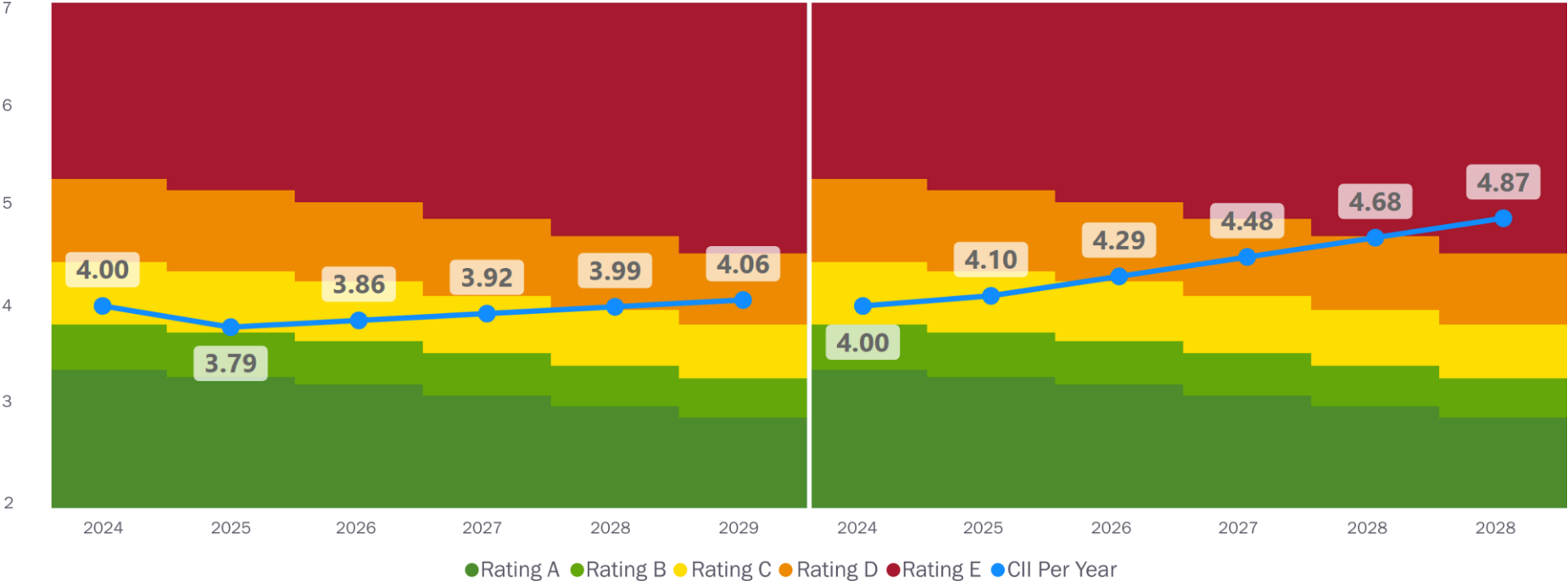


Impact of a hull coating upgrade

Impact on CII rating vs. existing coating system

New system

Existing system



Impact of a hull coating upgrade

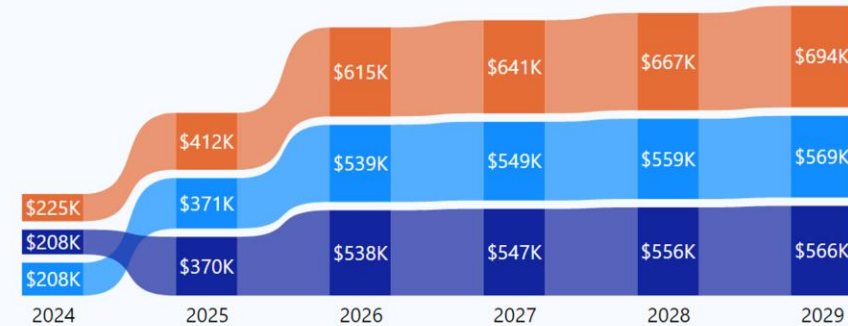
EU ETS carbon cost and savings

Added Power % and CO2 emissions

% eligible emissions to be taxed	40%	70%	100%			
Project Paint System Description	2024	2025	2026	2027	2028	2029
Full • Globic 9500 • Hempaguard X7						
Added Power %	-5.25%	-3.45%	-1.65%	0.15%	1.95%	3.75%
CO2 Emissions (tn)	24899	25372	25845	26318	26791	27265
Full • Globic 9500 • Hempaguard X7+						
Added Power %	-5.25%	-3.57%	-1.89%	-0.21%	1.47%	3.15%
CO2 Emissions (tn)	24899	25341	25782	26224	26665	27107
Spot • Globic 8000						
Added Power %	2.50%	7.30%	12.10%	16.90%	21.70%	26.50%
CO2 Emissions (tn)	26937	28198	29460	30721	31983	33244

Carbon Cost (\$)

● Full • Globic 9500 • Hempaguard X7 ● Full • Globic 9500 • Hempaguard ... ● Spot • Globic 8000



Top Performance VS Baseline System

	2024	2025	2026	2027	2028	2029
Added Power Difference %	0.00%	9.31%	10.87%	12.43%	13.99%	15.55%
CO2 Emissions Reduction (Tn)	2038	2858	3678	4497	5317	6137
Carbon Cost Savings (\$)	\$17,008	\$41,741	\$76,740	\$93,850	\$110,959	\$128,069

Get an **impact assessment** of a coating upgrade for **your vessel**

[Book a vessel specific assessment today >>](#)