



## Significant fuel savings achieved for Caroil Transport Marine with Hempaguard®

Caroil Transport Marine Ltd operates a fleet of oil tankers in the Caribbean to move crude-oil and other heavy-fuel products. The operating pattern of its vessels involves short sailings with frequent stops for loading and unloading cargo. This pattern, in combination with the warm waters of the Caribbean, make the ships highly susceptible to fouling. As a consequence, Caroil took up the search for an efficient solution to improve operational efficiency.

In 2013, we released Hempaguard, our most advanced coating to date, and when Caroil was renewing and upgrading its fleet, the company was eager to try it out. Caroil needed a product that would improve its antifouling performance and, as a result, its operational efficiency. Hempaguard is the only hull coating to combine the low surface friction of silicone with efficient fouling-preventing biocides in a single coat, thanks to its unique Actiguard technology. This is proven to deliver a significant six per cent fuel saving when compared with best-in-class antifoulings.

Hempaguard has the added advantage of retaining its effectiveness during idle periods (of up to 120 days), as well as when switching between slow and normal steaming which gave unrivalled flexibility to Caroil's fleet.

Caroil applied Hempaguard to its oil tanker M/T Petion in April 2016. Following just over a year in operation the vessel's hull remained fouling free and the ship achieved an impressive six per cent in fuel savings. According to Caroil, additional savings might have been possible if the operating distances had been longer. As a result, Caroil has increased its productivity by fulfilling contracts with reduced operating costs.

"The results achieved with Hempaguard have exceeded our expectations. After only 14 months of sailing, the ship's slip coefficient and, as a result, the vessel's speed, has increased significantly to improve our efficiency. Significantly, following a diving inspection, we found that Hempaguard on the vertical bottom, flat bottom and keel is still intact without any sign of damage, saving us further costs in reduced maintenance requirements."

Luis Diaz, General Manager, Caroil Marine Transport Ltd.

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### The challenge

Improving efficiency and reducing emissions sit towards the top of every ship operator’s agenda. Aside from the environmental benefits, an efficient and well-maintained ship will enjoy lower operating costs and retain its market value.

Caroil Transport Marine manages a fleet of oil tankers running regularly between the Caribbean islands of Bonaire, Curaçao and the Bahamas. Distances between ports are short and cargo operations are frequent. This type of operating pattern, combined with the warm waters of the Caribbean Sea, tend to encourage fouling making it a challenge to maintain a smooth and clean hull.

Fouling organisms and aquatic invasive species will attach to the vessel’s hull and the extra drag they create means more fuel is needed to move the ship. A clean and smooth hull reduces friction between the ship and streamlines the movement of the ship through the water. The right underwater coating will significantly improve a vessel’s efficiency and reduce fuel consumption – this is good for the operator and good for the environment.

### The solution

For Caroil, there was only one solution that could deliver on all its expectations, and that was Hempaguard. Combining two proven technologies in one coating, Hempaguard delivers six per cent fuel savings compared with best-in-class antifouling over the entire docking interval (up to 60 months). And this holds true even if the vessel is idle for extended periods of time, sails slowly or changes its trading pattern. The performance satisfaction guarantee which comes with Hempaguard, provided added peace of mind for Caroil.

Hempaguard was applied to Caroil’s oil tanker M/T Petion in April 2016 and has reported significant results. Approximately six per cent in fuel savings has been recorded at manoeuvring speeds of between 11.5 knots and 14 knots, and passage speeds between 15 knots to 17 knots. This increase in operational efficiency is directly attributable to Hempaguard and has saved Caroil significant costs.

Caroil has been so impressed with the results that it has coated a further vessel, M/T Carolita, with Hempaguard X7 and intends to apply the hull coating to a further two vessels, M/T Sandino and M/T Gloria, at their next scheduled dry dockings in 2019 and 2020.



At a glance	
Vessel owner:	Caroil Marine Transport
Location:	Astilleros de Curaçao
Vessel IMO Number:	M/T Petion (IMO: 9295098)
Date of application:	April 2016
Vessel areas:	Vertical Sides and Flat Bottom

### Hempaguard X7

- Six per cent fuel savings compared with best-in-class antifouling over the entire docking interval
- Excellent fouling resistance for idle periods of up to 120 days
- 95 per cent less biocide than traditional antifouling
- Vessels complying with a full Hempaguard X7 specification are offered a performance satisfaction guarantee

### The Hempel Group Head Office

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