



customer benefit study

chevron marine lubricants | sealink navigation ltd

The right oil and the right practice: ensuring trouble-free sailing on VLSFO

Sealink Navigation worked with Chevron Marine Lubricants to prepare its fleet for IMO 2020 sulphur regulations. By following engine designer recommendations, selecting an appropriate cylinder oil and introducing an effective inspection and analysis regime, Sealink was able to safely navigate the challenge.

Situation

Sealink Navigation Ltd operates a fleet of bulkers with MAN B&W electronically controlled Mk 8 & 9 engines, lubricated by Chevron Marine Lubricants. In preparing for the IMO's global sulphur cap introduced on 1 January 2020, the company had decided to comply with the new regulation by switching to very low sulphur fuel oil (VLSFO).

Sealink's fleet includes four vessels with MAN B&W MK 9 engines. The combination of a new, low-sulphur fuel with big, modern engines meant that the lubrication protocol and set-up needed to be considered very carefully. Corrosion in such engines — which operate under very high combustion pressures and temperatures — has been controlled by cylinder oil with a high base number (BN) when using high-sulphur fuel. But the use of low-sulphur fuel changes these conditions; a high BN is no longer appropriate, but engines still require protection from corrosion.

The challenge for Sealink was how to comply with the new environmental regulation and establish a new cylinder lubrication regime while ensuring that its engines would be protected.

“With DOT.FAST drip oil analysis, we can assess what’s happening in the engine and adapt oil feedrate to protect the condition of the cylinder.”

Evangelos Chalikias, Technical Director,
Sealink Navigation Ltd

The Solution

Chevron Marine Lubricants has always maintained a very close contact with Sealink's technical department. This relationship became closer still during the transition to the low-sulphur fuel, with Chevron maintaining regular dialogue with Sealink's technical manager. In the run-up to 2020, the two companies cooperated closely to prepare the vessels and engines for the new legislation, electing to lubricate the engines with Taro® Ultra 40.

As well as choosing the appropriate cylinder oil, Sealink also implemented a new lubrication program based on advice from both Chevron and the engine manufacturer. On its MAN B&W Mk 8 & 9 engines, Sealink installed cermet-coated piston rings that help prevent scuffing while operating on low-sulphur fuels. Extra filters were fitted to prevent fuel cat fines from reaching the engines. Both measures help to prevent wear and deposits.





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Georgia Chaloulou, Technical Specialist, Chevron Marine Lubricants

A more rigorous cylinder inspection and oil analysis regime was also introduced to catch potential problems early.

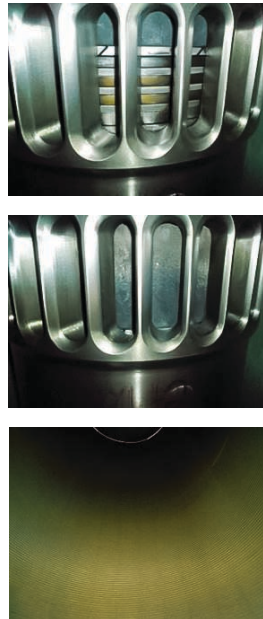
This includes visual inspection of the cylinders every 150–250 hours; drip oil analysis with Chevron Marine Lubricants’ DOT.FAST® and FAST™ OnBoard kits after every fuel change; laboratory analysis every three months using Chevron’s DOT.FAST service to detect both abrasive and corrosive wear; and compatibility analysis of fuels in a laboratory before any new fuel is bunkered.

Based on this inspection program, Sealink has opted to intermittently use a lubricant with a higher base number. There have been cases where scavenge port inspection results have shown a build-up of deposits on the first piston ring land, which indicates the engine needs a bespoke solution.

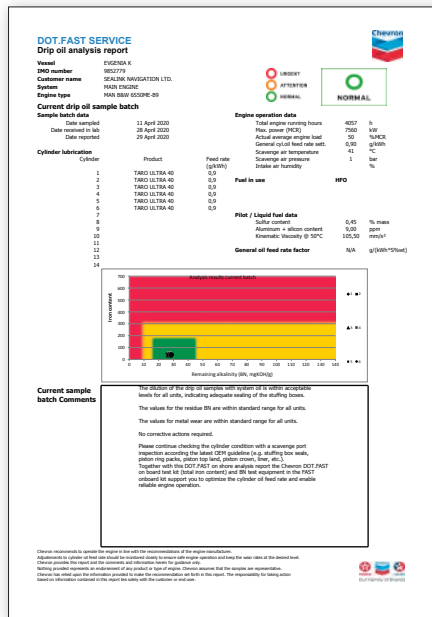
Sealink technical director Evangelos Chalikias explains the process. “Once the higher BN oil is in use, we run the engine for about four days before another visual inspection is done. If the results are satisfactory, we ask the crew to change back to the original Taro Ultra 40 BN oil. If not, we run the engine for another 3–4 days before performing another inspection. With DOT.FAST drip oil analysis, we can assess what’s happening in the engine and adapt oil feedrate to protect the condition of the cylinder.”

The Result

Sealink shared photos from scavenge port inspections as well as data from liner measurements during online meetings



Left: Piston rings from the Evgenia K show good cleanliness and overall condition. Right: DOT.FAST report from the Evgenia K indicating ‘normal’ and that no corrective action is required.



with Chevron Marine Lubricants. These show that the vessels are operating very smoothly and without problems using Taro Ultra 40. Normal wear rates were confirmed by the DOT.FAST laboratory reports. Sealink also observed good control of piston ring land cleanliness, even when applying relatively low feed rates.

Sealink’s experience highlights that protecting high-horsepower modern engines in the low-

sulphur regime requires more than changing cylinder oil. By following the advice of Chevron and MAN B&W, Sealink has been able to run its vessels using VLSFO without any sign of problems.

Crucial steps included the installation of cermet-coated piston rings and filters as specified by the engine designer as well as the introduction of a structured inspection and drip oil analysis routine.

Chevron Marine Technical Specialist Georgia Chaloulou says: “Running engines well with VLSFO is not just about choosing the right cylinder oil. With the right practices and procedures — including a regime of DOT.FAST drip oil analysis to catch concerns early — all two-stroke marine engine designs can be operated on VLSFO trouble-free. For Sealink, this translates into low operating costs and simplified operation, thus improving safety, reliability and peace of mind for their charterers.”