

Lubricant savings and a cleaner engine with Mobilgard™ 5100

Customer reduced impact of cold corrosion while reducing cylinder oil feed rates by 25 per cent by switching to Mobilgard 5100.

Customer:	Peter Döhle Schiffahrts-KG
Vessel:	Container vessel M/V Tabea
Product:	Mobilgard 5100
Engine:	Wärtsilä 10 RTflex 96 C-B
Date:	June 2015

Benefits summary

As ship manager of M/V Tabea, Peter Döhle Schiffahrts-KG identified the piston rings and cylinder liners of its engine were showing signs of cold corrosion and increased levels of deposits on the piston ring lands.

ExxonMobil engineers assisted the operator of M/V Tabea to begin a series of trials using Mobilgard™ 5100, a 100 Base Number (BN) oil specially formulated to tackle cold corrosion in two-stroke engines. Trial results indicate Mobilgard 5100 was able to adequately inhibit the negative effects of cold corrosion while reducing the cylinder oil feed rate by around 25 per cent.

Situation

Concerned about the potential impact of cold corrosion on the vessel's Wärtsilä 10 RTflex 96 C-B engine, the operators contacted ExxonMobil to help address the issue. ExxonMobil's Field Engineering Services team set up a series of field trials to monitor the performance of an industry standard 60 BN cylinder oil and Mobilgard 5100. The focus of the trial was on piston crown, piston land and cylinder liner deposit formations and overall engine cleanliness.

Hard deposits on the piston crown and crown land are a sign of excess lubrication, whereas poor



piston cleanliness can be a sign of exhausted additives in the cylinder oil, especially the BN and detergent components. The concern with deposits in the ring grooves is that they build up and can lead to restricted piston ring movement and increased ring and liner wear. It is important in the field trials to identify the cause of the problem and determine the correct product choice and feed rates to address the symptoms.

Solution

During the test cylinders one to five were lubricated with Mobilgard 5100 while cylinders six to 10 used a 60 BN oil. The engine operated on heavy fuel oil (HFO) with an average sulphur content of 2.12%.

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The testing regime featured five scavenge inspections conducted over 6,500 hours of engine operation. The findings highlighted a discernable difference between the Mobilgard 5100 and the 60BN lubricated units, especially with regards to piston deposits and overall engine cleanliness. Throughout the trials the Mobilgard 5100 units were running cleaner with fewer deposits on all areas of the pistons. Also, Mobilgard 5100 provided effective protection at reduced feeds rates, down to 0.8 g/kWh while the 60BN oil required a feed rate of 1.1 g/kWh to achieve a similar performance.

Impact

The results of the field trial on the Tabea's Wärtsilä 10 RTflex 96 C-B engine confirmed the potential for Mobilgard 5100 to counteract cold corrosion. The data also demonstrated the product's cleaning abilities, with improved cleanliness observed across the pistons and cylinder liners, helping to reduce maintenance and downtime. Moreover, the oil offered this protection at lower feed rates, which helped reduce overall spend on cylinder lubrication.

For more information about Mobilgard 5100, please contact your ExxonMobil Marine Fuels & Lubricants representative or visit www.exxonmobil.com/marine