

## Mobilgard™ 540 provides excellent protection for WinGD dual-fuel engine



Swedish tanker operator, Tärntank, trialled Mobilgard™ 540 aboard its vessel, Ternfjord, which is fitted with a WinGD RT-Flex50DF two-stroke, low-pressure, dual-fuel engine. The cylinder oil was implemented in combination with Mobil Serv<sup>SM</sup> Cylinder Condition Monitoring.



Inspections carried out at 1,000 hours, 2,000 hours and end of test.

### Background

A field trial of Mobilgard™ 540 was initiated by Tärntank aboard one of its tankers, Ternfjord, which is fitted with a Winterthur Gas & Diesel (WinGD) 5RT-Flex50DF two-stroke, low-pressure, dual-fuel engine. The vessel ran for 2,500 hours on marine gas oil (MGO). Two test cylinders (numbers 4 and 5) were inspected to assess the cylinder oil's effectiveness over time.

The pair of cylinders were monitored throughout the trial by Mobil Serv<sup>SM</sup> Cylinder Condition Monitoring, ExxonMobil's next-generation onboard scrape down oil analysis service. Cylinder 5 had been overhauled prior to the start of the trial, while cylinder 4 remained untouched.

## Original liner honing marks still visible after 2,500 hours running on MGO

### Results

Both BN and iron levels were plotted during the trial, while ring clearances were checked at 1,000 and 2,000 hours and compared with measurements taken at the start of the test, which ran from September 2021 to March 2022.

There was no change to cylinder 5's ring A clearance and only minor clearance changes were found in cylinder 4. There was also minimal wear to the liners – the original honing marks were still visible when the cylinders were examined at the end of the trial. The inspection also revealed only minor deposits on cylinder rings and grooves, which were at the same levels as observed at the start of the test.

In short, Mobilgard 540 had helped maintain very good piston deposit control after 2,500 hours of MGO operation, a finding confirmed by ExxonMobil's Mobil Serv™ Cylinder Condition Monitoring service.



Inspections carried out at 1,000 hours, 2,000 hours and end of test.

### Optimal protection

Mobilgard™ 540 is specifically formulated for use in slow-speed, two-stroke marine engines operating on 0.50% and 0.10% sulphur fuels that comply with the International Maritime Organization's (IMO) 2020 emission regulations. It can help:

- Combat deposits and scuffing-related engine wear associated with low-sulphur fuels
- Deliver excellent cleanliness with low-sulphur fuel due to high level of detergency
- Ensure performance even in severe operating conditions as a result of excellent thermal and oxidative stability



Inspections carried out at 1,000 hours, 2,000 hours and end of test.

*“Mobilgard™ 540 not only helped ensure high-performance under severe operating conditions, it also delivered excellent cleanliness. As a result, the engine has been protected throughout the trial where we could hardly see any damage.”*

*Östen Johnsson,  
Technical Manager,  
Tärntank*