

Evidence confirms Mobilgard™ 540 supports reliable performance for a wide range of engines using low sulphur fuel



ExxonMobil developed Mobilgard™ 540 to help ensure vessel operators have access to a cylinder oil that delivers continuity of performance and peace of mind

The International Maritime Organization's (IMO) 2020 emissions regulation radically changed the industry's fuels landscape, which in turn raised questions amongst vessel operators about cylinder oil selection.

Optimised performance

To allay these concerns, ExxonMobil developed Mobilgard™ 540, a cylinder oil specially formulated for use with 0.50% and 0.10% sulphur fuels. The aim was to offer an oil that maintained continuity of engine cleanliness, delivering peace of mind to vessel operators.

The 40BN oil was developed using ExxonMobil's balanced formulation approach, which helped to optimise its performance without compromising on features and benefits. As a result, a wide

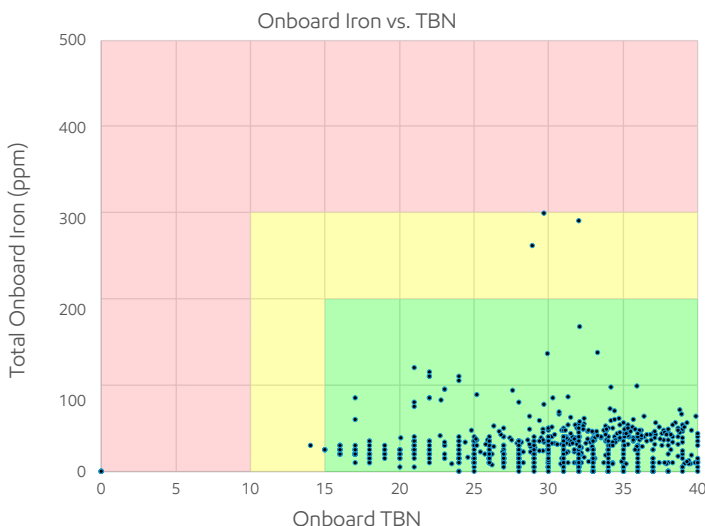
range of vessel types have successfully switched to Mobilgard 540 without experiencing any issues.

Continuity of operation

Mobilgard 540 has been in use for over a year on numerous vessels, of various types, in different operating conditions and from different engine manufacturers. Data from ExxonMobil's onboard Mobil ServSM Cylinder Condition Monitoring service revealed low levels of liner wear were maintained following the changeover to Mobilgard 540.

Vessels also reported:

- Piston cleanliness remained at levels seen prior to the switchover. This can be attributed to the oil's balanced formulation
- The opportunity to safely lower overall cylinder oil running costs by up to 15% in some cases



Mobilgard 540 cylinder has demonstrated that it helps to:

- Prevent deposit build-up and engine wear
- Ensure reliable engine performance in a wide range of operating conditions
- Maintain engine cleanliness and reduce component wear rates

The table below represents just a small cross-section of all vessels currently using Mobilgard 540:

Vessel type	Engine OEM	Engine model	Fuel type
Tanker	MAN ES	6G70ME-C 9.2	VLSFO/Distillate (ECA)
Container	WinGD	7RT-flex82C	VLSFO
Container	MAN ES	11S90ME-C 10.2	VLSFO/Distillate
Container	MAN ES	8K90MC-C	VLSFO/Distillate
Container	WinGD	8X92	VLSFO
Container	MAN ES	11S90ME-C 10.5	VLSFO
Container	MAN ES	9K98ME	VLSFO
Ro-ro cargo	Mitsubishi	7UEC60LSE	VLSFO
Dry bulk	MAN ES	6S50MC-C	VLSFO/Distillate
Container	MAN ES	12K98ME	VLSFO/Distillate
Container	MAN ES	7S60ME-C	VLSFO
Tanker	WinGD	6X62	VLSFO/Distillate

Streamlined inventory

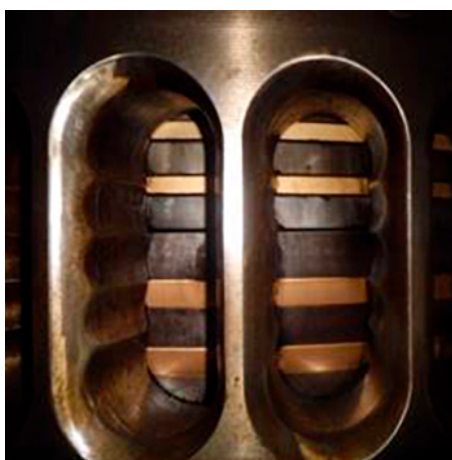
These benefits have the potential to reduce cylinder oil expenditure and lower cylinder liner-related maintenance costs. Furthermore, the use of Mobilgard 540 simplified operations by enabling vessels to use a single cylinder oil for both 0.50% sulphur fuels and distillates, removing the need for time-consuming cylinder oil switchovers.

“Our findings clearly demonstrate that Mobilgard 540’s balanced formulation has delivered benefits to a wide range of vessels running on low sulphur fuels,” said Frans Horjus, Global Marine

Lubricants Manager, ExxonMobil. “Visual inspections of the vessels’ engines showed consistent or improved piston cleanliness, while onboard scrapedown oil analysis revealed low levels of liner wear. Taken together, these benefits deliver the peace of mind operators want when running on low sulphur fuels.”

The cylinder oil has passed stringent fit-for-use testing and has undergone extensive field trials, meeting OEM requirements for WinGD and MAN ES.

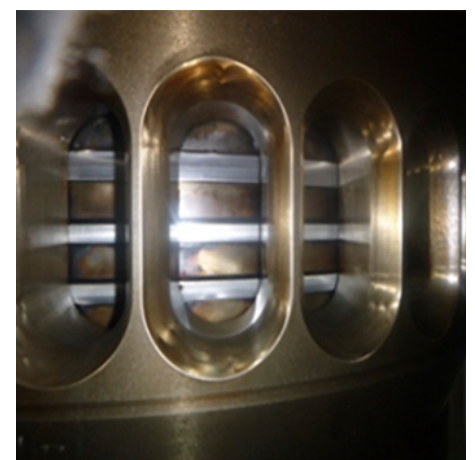
To find out more about Mobilgard 540 click [here](#).



Engine type: MAN ES 8K90MC-C



Engine type: MAN ES 11S90ME-C 10.2



Engine type: WinGD 7RT-flex 82C