

Jens Byrgesen (Maersk Fluid Technology):
Blending-on-board can save fuel (credit: MFT)

BLENDING-ON-BOARD IS OK FOR NEWER ENGINES



MAN DIESEL & TURBO HAS CONFIRMED THAT BLENDING-ON-BOARD LUBRICATION IS ACCEPTABLE IN ITS CURRENT ENGINE MODELS IF THE VISCOSITY IS RIGHT

MAN Diesel & Turbo does not object to lube oil produced by Maersk Fluid Technology's blending-on-board (BOB) process being used in its newer Mark 8 and Mark 9 engine models, Henrik Rolsted, senior research engineer in MAN Diesel & Turbo's operations department for two-stroke engines, told a seminar last autumn organised by Chevron Marine Lubricants.

But he identified viscosity as a key parameter for that approval, telling sister magazine *Marine Propulsion* that the cylinder oil had to meet SAE50 requirements. *Marine Propulsion* had earlier reported (see the December/January issue) that the enginebuilder had concerns about BOB's use on its newer models, but Mr Rolsted explained the importance of meeting the viscosity requirement, saying that the company's designers calculate oil film thickness and piston ring dimensions to suit that specification. "If it is not SAE50, we get a different oil film thickness and increase the risk on modern engines," he said.

Maersk Line is the biggest user of BOB. For eight years, it has been using the technology across its fleet on ships powered by earlier models of MAN Diesel & Turbo engines and by engines supplied by Wärtsilä, which has already approved BOB across its engine range. But the ship operator also has a number of vessels fitted with more recent MAN Diesel & Turbo engine models, and this acknowledgement opens up the possibility of these vessels, too, benefitting from BOB use.

The lube oil is produced on board by blending recycled used system oil with a high base number (BN) cylinder oil to produce "fit for purpose" cylinder oil, Maersk Fluid Technology managing director Jens Byrgesen said in a presentation to *Marine Propulsion's* European Marine Engineering Conference (EMEC) in April.

This allows cylinder oil to be provided across a range of BNs, which offers an alternative approach to dealing with high sulphur fuel oils to the common approach of increasing the lube oil feed rate to match high-sulphur fuels.

Maersk Fluid Technology has found that – based on its experience with over 200 ships – increasing the feed rate does not increase its effectiveness proportionally, as much of the additional oil is immediately scraped off by the piston rings. When using BOB lubrication, the feed rate is kept constant but the oil's BN is controlled.

"We can blend any BN," Mr Byrgesen told *Marine Propulsion*, but for practical purposes would not blend to below 70BN to comply with SAE50, he added. Mr Rolsted had mentioned the same limitation, but said that lower BNs also decrease the oil's detergency.

In his EMEC presentation, Mr Byrgesen said that using BOB reduces system and cylinder lube oil consumption by up to 40 per cent, while its effect of reducing over-lubrication improved engine performance. There were "documented fuel savings of 0.5-1.5 per cent," stemming from the use of optimised system oil viscosity as a result of BOB, he told delegates. Mr Byrgesen highlighted other advantages, including enhanced system oil performance, engine cleanliness and reduced environmental footprint.

Mr Byrgesen had previously spoken about the impact of BOB on the amount of oil being discharged to the sludge tank. Running with cleaner oils when using BOB – due to the regular replenishment of system oil – reduces the amount of oil ending up in the sludge tank, he told *Marine Propulsion*. Sludge oil itself is not being recycled for blending because it contains a mix of different waste oils. **TST**