

# CASTROL CHALLENGES SCAVENGE DRAIN OIL ANALYSIS METHODOLOGY

## CONCERNS OVER CORROSIVE WEAR RISK IN CROSS-HEAD ENGINES HAVE LED CASTROL MARINE TO QUESTION THE RIGOUR OF SOME WIDELY USED SCAVENGE DRAIN OIL ANALYSIS (SDA) TECHNIQUES.

Factors influencing scavenge drain oil characteristics include fuel sulphur level, cylinder oil BN level, system oil contamination and operating profile. Accuracy is critical in SDA interpretation, not least because it supports feed-rate assumptions that are critical to cylinder oil performance, Castrol says.

"It is not possible to analyse results accurately without comprehensive knowledge of the fuel oil, the new and used system oil, feed rates and operational data collected from the engine at the time of sampling," says Paul Harrold, Castrol Marine Technology Manager. "Our view is that there are potential shortcomings in ship-based magnetic analyser type SDA approaches because they cannot identify corrosive wear."

Cylinder wear could be assumed to be under control due to a low response on ferro-magnetic analysers where, in fact, corrosion is taking place, Mr Harrold says. "This demands attention as evidence grows supporting our position that corrosive wear risk is going unacknowledged when cylinder oils of insufficient BN are used in slow steaming."

MAN Diesel revised guidance to customers on mid-range BN cylinder oils at the end of 2012, recommending "cylinder lube oil with 70BN or higher" to customers for its newest Series 9 engines when running on higher sulphur fuel (above 1.5%-2%). The OEM says it "cannot recommend" cylinder oils "with a BN level between 50 and 60" for its latest engines.

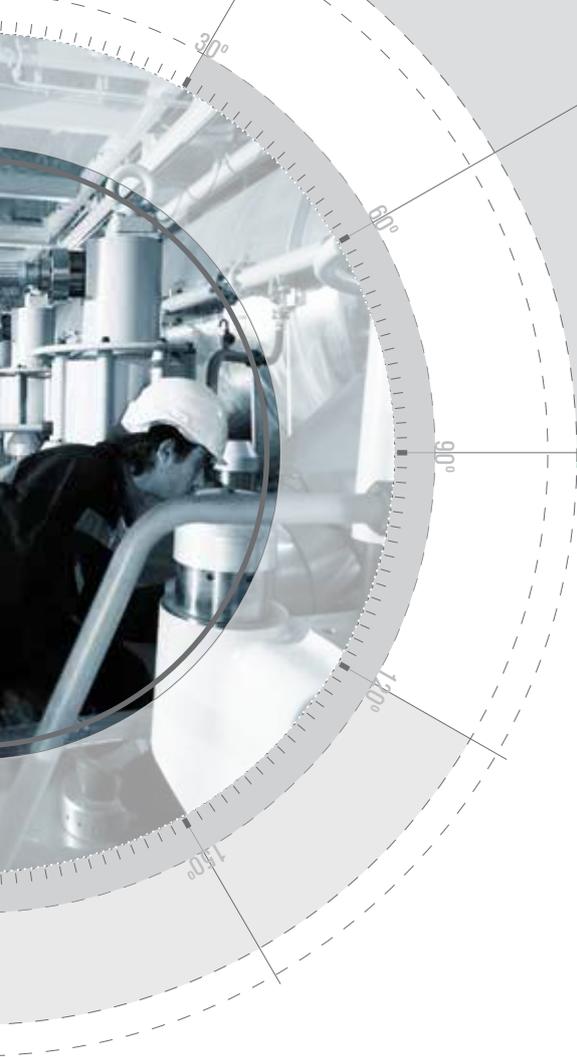
Suppliers promoting mid-range BNs for slow steaming have argued that Series 9 engines represent only a small part of the current fleet. However, Castrol notes that mid-range cylinder oils were initially claimed as a complete solution for all conditions.

"We make no apology for renewing counselling caution on SDA methodology as the full consequences of lubricant selection when slow steaming continue to emerge," says Mr Harrold. "Onboard SDA does not cover the full picture on cylinder oil feed rate optimisation. Normal corrosive wear patterns generate iron compounds which are predominantly non-magnetic and are thus not detected by onboard analysers."

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"We have seen cases where magnetic iron levels appeared satisfactory, but our inductively coupled plasma (ICP) laboratory results showed an increased iron content. Corrosive wear in excess of acceptable limits was present and required a lubricant change as well as optimised feed rates. Only the ICP methodology used by OEMs displays the full extent of corrosive wear present in installations."

"We want our customers to take well-informed decisions based on the predominant operating conditions their ships face and the accurate technical picture, rather than adopting cylinder lubrication choices for reasons driven by the commercial position of the supplier," says Mr Harrold.

In 2011, The International Council on Combustion Engines (CIMAC) Working Group Marine Lubricants confirmed that laboratory-based tests provided the most reliable sources for SDA. It warned that tests using onboard equipment could not be considered exhaustive.

Notes to Editors:

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