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Whitepaper

The need for speed in scrape down oil analysis.

Energy lives here™

The marine industry faces a variety of substantial challenges. Capacity oversupply continues to supress freight rates, squeezing margins and damaging bottom line performance, while the International Maritime Organization's **(IMO) imminent change to emission regulations threatens to increase the financial burden**. Vessel operators need to sharpen their focus on costs to ensure that they are quickly and efficiently minimised whenever possible.

Managing the cost of engine maintenance

A key area of concern is engine operation as any damage to components is potentially very costly to rectify. Taking a proactive approach to maintenance, rather than responding to an issue when it arises, is therefore crucial. This preemptive tactic is supported by leading marine insurer, The Swedish Club, which singles out scrape down oil analysis as a highly cost effective preventative maintenance tool.

The Swedish Club's "Main Engine Damage 2018" report states, "Lubrication failure is still the most expensive and frequent cause of damage." The organisation looked at more than 200 claims for the period of 2015 to 2017 and found that those related to lubrication error cost an average of $763,320 to repair.

Based on this high cost, The Swedish Club recommends that vessel operators implement robust on-board systems, including regular scrape down oil analysis, which has a proven track record of helping identify engine issues before they escalate.

The role of used oil analysis is about to become even more valuable as a result of the IMO's 0.50 per cent sulphur cap, which comes into force on 1 January 2020. This will lead to the development of new fuel formulations that possess significantly different properties to conventional residual grades. It will necessitate changes to bunkering practises, on-board fuel storage and handling and engine management. It will also affect cylinder oil selection.

The combination of these factors means vessel operators face new variables where miscalculations could be costly, especially concerning cylinder oil and engine performance. Knowing what is happening inside an engine has never been more important than it is now.

Lubrication failure is the most expensive and frequent cause of damage, costing an average of $763,320 to repair.[1]

Next generation scrape down oil analysis

ExxonMobil has drawn on its extensive experience of used oil analysis to develop a next-generation service, Mobil Serv℠ Cylinder Condition Monitoring, the ideal tool to help on-board engineers rapidly understand and react to their engine's performance and lubrication needs. The service can deliver significant cost savings by enabling vessel operators to quickly and efficiently identify issues, such as cold corrosion, cat fine damage and under- and over-lubrication, before they cause extensive damage.

For example, Mobil Serv Cylinder Condition Monitoring can deliver actionable recommendations and guidance within minutes of completing a test, ensuring issues are identified and can be proactively addressed before they take hold.

Conventional scrape down analysis can take 48 hours, or more, to yield on-board results, while laboratory analysis can take 20 days to return used oil results, by which time developing problems can cause serious damage.

The service also dispenses the use of wet chemistry, which not only safeguards on-board engineering crew, but also removes the risk of human error, ensuring consistency.

Mobil Serv℠ Cylinder Condition Monitoring is a next generation service.

"Our service is the ideal tool to help on-board engineers rapidly understand and react to their engine's performance and lubrication needs."

...of vessels were on incorrect feed rate.

...of vessels had system oil leakage into stuffing box.

...of samples had cat fines present.

...of results indicated water washing.

...of engines were suffering from cold corrosion.


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Staying ahead of the game

With operating conditions changing so drastically, proactively staying informed of what is happening in an engine is fundamentally important. The speed at which engine issues can take hold requires an even faster response, which Mobil Serv℠ Cylinder Condition Monitoring can deliver.

Depending on severity, cold corrosion can create conspicuous damage within 15-20 days, potentially while a vessel awaits laboratory results. During this time, liners could be severely corroded, causing damage that could run into thousands of dollars.

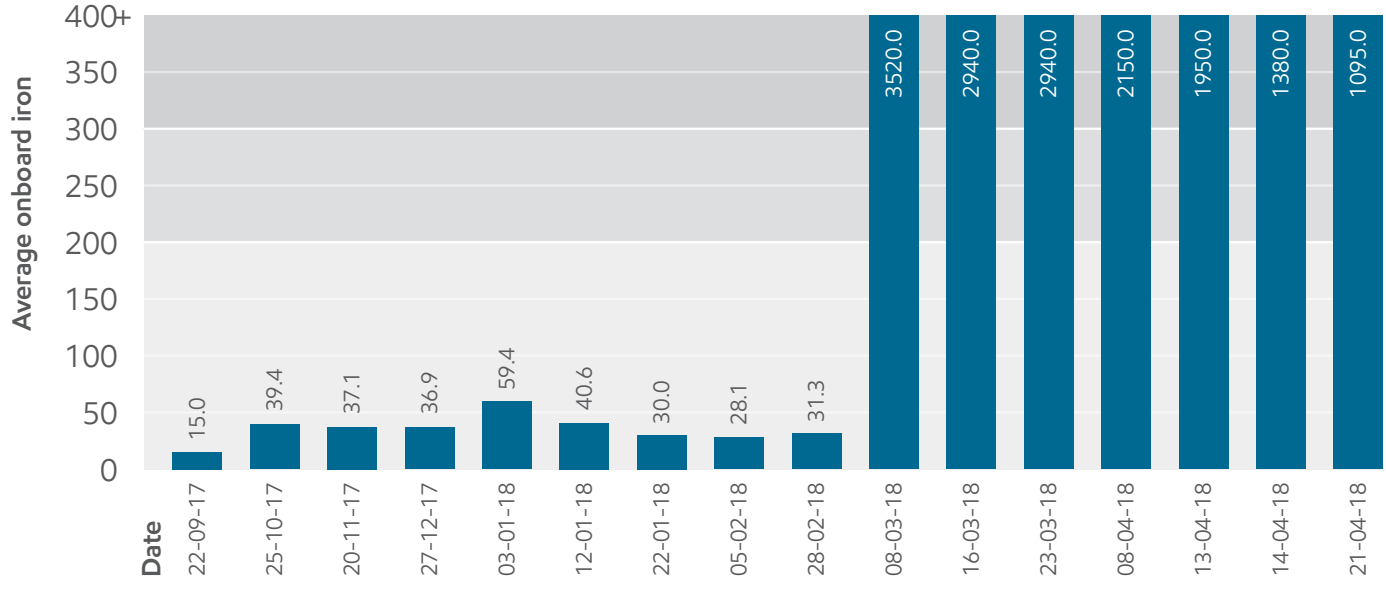
Cat fines can lead to significant issues and operational problems even more quickly than cold corrosion. In high concentrations, cat fines can cause catastrophic damage within just 24 hours – well before vessel operators receive traditional laboratory results and before on-board testing that uses conventional scrape down oil analysis.

Over-lubrication is less likely to trigger immediate problems, but it does result in significant levels of wasted oil, which increases running costs at a time when controlling finances should be tighter than ever. In worst case scenarios, over-lubrication can result in a build-up of hard deposits that can scuff components and increase piston and liner wear. Under-lubrication can contribute towards cold corrosion and trigger mechanical wear.

The Swedish Club's findings put these issues into perspective, especially as cylinder liners can last as little as 1,000 hours or up to 60,000-plus hours if properly lubricated. For vessel operators, reducing cylinder liner wear and extending the liner life offers a significant cost reduction.

ExxonMobil recommends that used oil analysis using Mobil Serv Cylinder Condition Monitoring is conducted at regular intervals, depending on findings. This frequency should be increased if there are changes to operating conditions such as alterations in fuel formulation or speed.

Onboard Iron levels due to cat fines

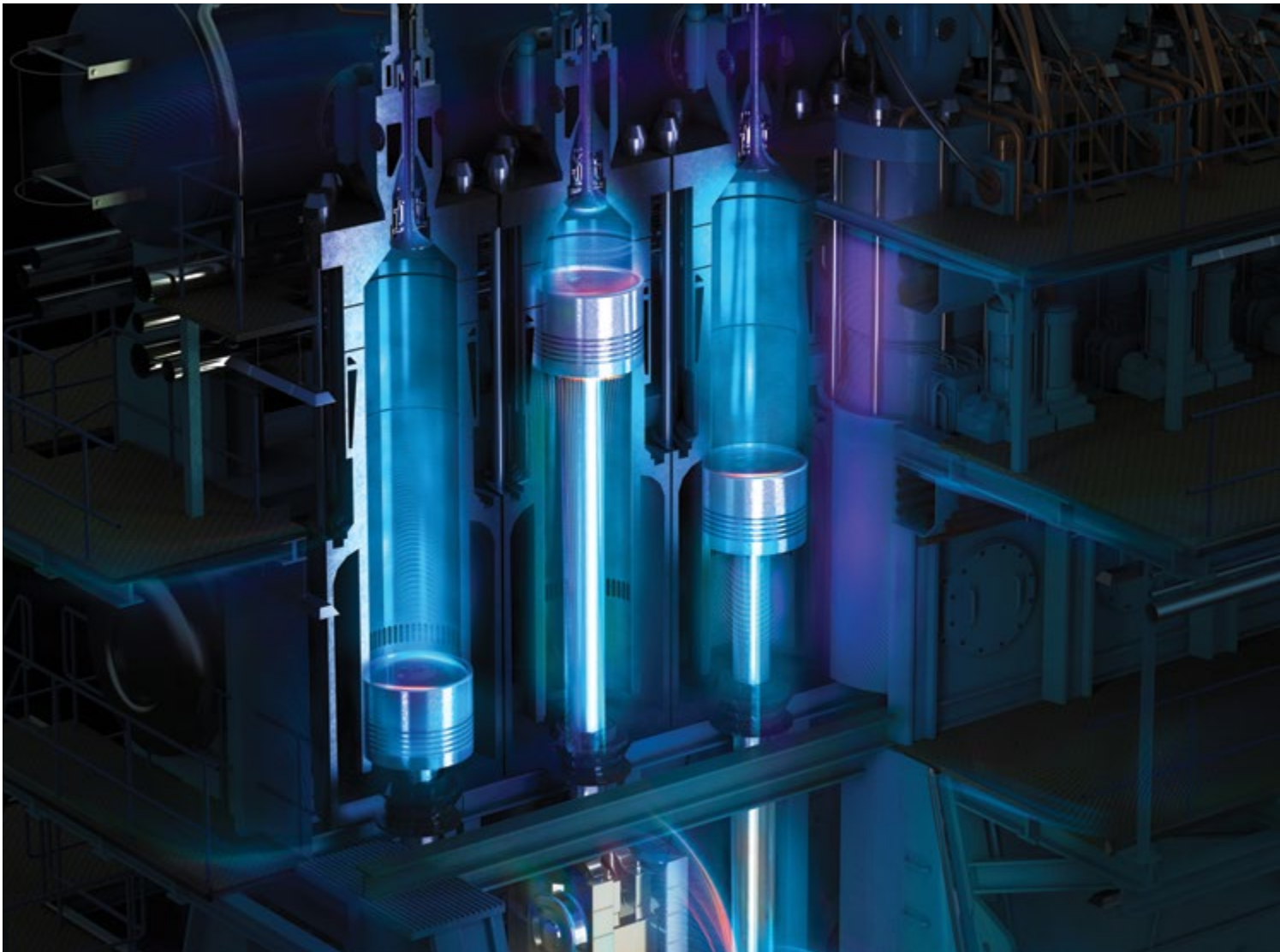


An investment, not a cost

Mobil Serv Cylinder Condition Monitoring is safe, accurate, fast and easy. When used appropriately, it can directly contribute to tangible cost savings for vessel operators and provide indispensable operational improvements, saving man hours and reducing downtime. This unique service provides customers with actionable insights that other scrape down analysis services cannot deliver, making it an investment in protecting vessel operators' assets, rather than simply bottom-line costs.

Learn more about how Mobil Serv Cylinder Condition Monitoring can enhance your vessel's health and performance **here**

A fleet operator implemented Mobil Serv Cylinder Condition Monitoring across all 11 of its vessels. The recommendations and guidance provided by the service enabled the operator to safely reduce cylinder oil consumption by a combined total of 105,767 litres – an overall saving on oil costs alone of over $140,000



References:

1 The Swedish Club, "Main Engine Damage 2018."

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