

feed rate optimization

Overview

In today's highly competitive global marketplace, many vessel owners are searching for ways to minimize operating expenses. For those operating slow-speed crosshead engines, the Feed Rate Optimization Program by ExxonMobil Marine Lubricants may help. The program has the potential to reduce your fleet's cylinder oil consumption and wear-related maintenance costs. It may help you find an acceptable balance between the cost of cylinder oil and expense of wear-related maintenance.

Description

Feed Rate Optimization (FRO) is the analysis of cylinder scrapedown oil collected from the scavenge space of slow-speed, two-cycle, crosshead engines. Our Feed Rate Optimization program is designed to help customers operating slow-speed crosshead engines reduce costs by safely optimizing their fleet's cylinder oil feed rates. Additionally, the program supplies the vessel with condition monitoring data to predict if unsatisfactory conditions are occurring and allows corrective action to be taken.

Scrapedown oil samples are collected from scavenge space (under the piston) through the drain line of each engine cylinder for analysis. Shipboard personnel can monitor the condition of an engine's cylinders and detect changes as they occur. The testing, analysis and expert interpretation of results provides information to adjust cylinder oil feed rates to optimized levels without risk to the engines.

Application

**Lab Testing**

Oil samples are sent from the vessel to an ExxonMobil laboratory. The program reports trends and compares variables such as iron, base number, load, fuel sulfur and humidity. Findings can help identify wear indicators before problems occur. And, they can be used to optimize cylinder oil feed rate, minimizing the overall cost of operations.

**Onboard Testing**

Onboard testing tools include the proprietary Mobilgard Scrapedown Analyzer (MSA), a portable unit that enables a ship's engineer to quickly analyze the current wear rate of each cylinder. The MSA quickly measures and displays the iron content of a used cylinder oil sample. A Signum



*The goal of ExxonMobil's Feed Rate Optimization program is to help customers operating slow-speed crosshead engines reduce costs by safely optimizing their fleet's cylinder oil feed rates.*

Onboard Test Kit monitors the alkalinity retention (TBN), water contamination and changes in viscosity of the used lubricant. The MSA Logbook enables shipboard personnel to store results, graph trends and analyze relationships between variables. The tools are easy to use.

The combination of lab and onboard testing allows you to understand the engine's condition and take the most appropriate actions to achieve optimum costs.

Deliverables

- Signum Oil Analysis (a fee-based service) registrations for applicable engines
- Sample frequency recommendation
- Basic training for your personnel in FRO program procedures and equipment operation
- General operational guidance and oversight for the program
- Review/endorse your feed rate adjustment decisions
- Consult with engine manufacturers as necessary
- Periodic FRO program reviews and documentation

## Potential Benefits

- Achieve the optimum cylinder oil consumption by safely adjusting the feed rate (once baseline data is collected)
- Extend time between overhaul for engine units, based on a reliable monitoring tool and physical inspection of data, to reduce potential off hire charges
- Improve main engine operational safety
- Reduce engine maintenance cost and monitor cylinder liner wear
- Detect Sudden Severe Wear periods during operation

**ExxonMobil Marine Limited**

An ExxonMobil Affiliate, ExxonMobil House, Mailpoint 29, Ermyn Way, Leatherhead KT22 8UX, United Kingdom

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