



Technical eNewsletter

New requirements from EU and California for low sulphur fuels

This first issue of the Technical Newsletter is intended to inform about the consequences of the new requirements for low sulphur fuels. Both IMO regulations, the EU Directive 2005/33/EC and new sections of the California Code of Regulation title 13/17 are referred to. These regulations set forth limitations on the sulphur content of marine fuels used in specified areas.

Fuel Standard

Marine Gas Oil (MGO), Marine Diesel Oil (MDO) and Heavy Fuel Oil (HFO), are not standardised fuel grades. However, they can be translated into DMA, DMB and RMx category fuels respectively as defined in ISO 8217:2005E standard for fuel quality. According to the standard, the upper sulphur content limit for these fuel grades are as follows:
Marine Gas Oil (DMA): 1.50% m/m*
Marine Diesel Oil (DMB): 2.00% m/m*
Heavy Fuel Oil (RMx): 3.50-4.50%
*)m/m: mass to mass percent.

Summary of regulations:

EU Community Ports, at berth

- less than 0.1% sulphur after 01-01-2010

California regulations

- MDO: less than 0.5% sulphur (0.1% after 01-01-2012)
- MGO: less than 1.5% sulphur (0.1% after 01-01-2012)

IMO: Emission Control Areas (ECAs)

- less than 1.50% sulphur prior to 01-07-2010
- less than 1.00% sulphur after 01-07-2010
- less than 0.10% sulphur after 01-01-2015.

It is important to note that fuels which are within the specifications of ISO 8217:2005 are not necessarily in compliance with the above regulations.



Challenges

Irrespective of the actual limit for the sulphur content, the potential challenges caused by fuels which have a sulphur content that is significantly lower than that specified in ISO 8217 are all related to the same issues:

Low viscosity

Low sulphur MGOs often have a viscosity that is lower than that of MGOs with "normal" sulphur levels,

- increased internal leakage in fuel pumps
- increased flowrates through nozzles, restrictors and injectors

As a consequence, operators may in fact have to cool their fuel as opposed to heating it as they are used to.

Lubricity

With decreasing viscosity, the lubricity of a liquid decreases and as a result components that depend on the pumped medium for lubrication, such as plunger pumps, can experience insufficient lubrication.

Acidity

With the decrease in a fuel's sulphur content, the acidity decreases as well. This may have an effect on the lubrication of the engines that needs to be addressed.

Flashpoint

This may even drop below the minimum allowable limit, 60°C, for fuels used on board ships (ref. SOLAS II-2 reg.15).

Ignition/combustion quality

The production characteristics of low sulphur fuels may also have an adverse effect on the ignition/combustion properties of low viscosity MGO/MDO. This in turn may cause a series of problems in diesel engines.

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