

# VLSFA Management

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The below narrative is a summation drawn from various public articles and is looked from a point of view of loss prevention, taking into account practical issues already being experienced in the management of low Sulphur fuel, and this organizations experiences based on cases that have already occurred in the short period since the implementation of the IMO 2020 Fuel Oil Sulphur cap.

Irrespective of the objectives intended to be achieved through the implementation of the IMO 2020 Sulphur Cap, there is no denying that this regulation has caused considerable issues arising out of potential responsibilities and liabilities between the Ship-owners and its charterers.

There are basically two methods of compliance with Sulphur Cap – the use of compliant fuel, LSFO with a Sulphur content which does not exceed 0.50% m/m, or an alternative exhaust cleaning method such as a scrubber.

Irrespective of the chosen method for compliance there still exists lacuna with charter parties, with special reference to those that were in force prior and will be carried over post low Sulphur cap compliance date.

In the context of the concerns about the impact of new blends and hybrid compliant fuels on the vessel's main engine, it is still unclear whether the charterers would be directly responsible if the vessel suffers engine damage, and this is many times construed as a “comfort blanket” by the owners.

In a recent case handled by Constellation Marine Services Engineer surveyors, it was found that owners had put the blame on the vessel’s extensive engine damage, loss of time and slow steaming squarely on the charterers supplied VLSO.

This was particularly tricky in view that both the parcels of VLSO supplied to the vessel were seen compliant in all aspects when tested. It was thus left to our attending surveyor to carry out a factual and technical investigation into whether the vessel's main engine and its fuel system was in a satisfactory condition to be operated for that fuel.

Notwithstanding the outcome of this investigation, it is important to highlight that technical issues relating to certain characteristics of the new fuel oil are likely to be more frequent and contribute to an adverse impact.

It is therefore of utmost importance for ship owners (and to an extent charterers) to be able to identify the issues related with LSFO and have technical capabilities of the vessels systems verified prior to the use of this fuel.

The below is intended to serve as a recommendation extracted from our technical experience in investigating fuel management issues that have occurred so far:

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## PURIFIERS

Purifiers primary purpose is to separate contaminants from the fuel oil. It is therefore thought prudent to consider evaluating the condition of the onboard purifiers more thoroughly and a good practice to have them inspected by their maker.

Also portable cat fine testers may be considered placed on board enable crew keeping a closer eye on this element, in addition to purifier samples normally tested in the laboratory. Installation of an in-line monitoring system for cat fines may be another option worth exploring.

## FILTERING EQUIPMENT

Strainers, filters and other similar equipment installed on board may require extra attention in case of issues related to compatibility.

The use of a 10  $\mu\text{m}$  filter elements serving auxiliary engines as well as the main engine should be considered. Installation of a finer than standard 10  $\mu\text{m}$  filter mesh may be considered after consultation with engine maker.

## ENGINES

It is known that the performance of the main engine depends largely on the quality of the fuel fed into it.

While the properties of the fuel oil cannot be changed by on board, crew should nevertheless observe closely and record any adverse effect on engine operation, e.g. knocking, increased smoke emission, starting problems, unstable shaft revolutions and the like.

Lubricity of low Sulphur fuel may also be considered as another potential issue. Sulphur is known to contribute to lubricity, lack of which especially in VLSFO may lead to increased wear and tear of the main engine moving parts. Therefore greater emphasis and frequency of used lube oil testing should be considered, in addition to exploring use of suitable lube oil specially formulated for use with VLSFO.

It is worth considering a one off service to the fuel heaters and viscosity controllers especially in view of the properties of VLSFO that is known to cause fluctuations in the fuel supply.

## FUEL SULPHUR CONTENT ISSUES

Taking on board fuel that later is found to have a Sulphur content greater than the IMO cap may also in addition to technical problems lead to port state fines especially within Northern Europe coastal states.

Therefore, it is worth considering the use of a portable fuel Sulphur content measurement kit to be able to quickly check Sulphur content prior to the bunkering.

## TANK AND SLUDGE PRODUCTION

Since IMO 2020 compliant fuel contains considerably less Sulphur than residual fuels, it can easily be contaminated if it is taken into tanks where there are remnants of high Sulphur fuel, especially when these tanks are not cleaned to proper levels

Apart from this issue, loading low Sulphur fuel into uncleaned tanks may also cause technical difficulties, and as per IMO MEPC.1/Circ.878., If such fuels are loaded into HSFO fuel tanks that have not been cleaned, there is a possibility that they could dissolve and dislodge sediments and asphaltic sludge in storage tanks, settling tanks and pipelines, potentially leading to purifier and filter operational issues and in extreme cases fuel starvation resulting in loss of power.

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It should also be noted that irrespective of how well the FO tanks are cleaned (for change over to VLSFO) other elements such as exchangers, piping arrangements, filters etc. may be required to be flushed.

In the case of manual tank cleaning it may be worthwhile to consider an external surveyor to verify cleanliness.

Contrary to common perception, given the various blends used to produce VLSFO, an increased sludge production has to be considered to be part of the vessels operation.

The importance of documenting all aspects of cleaning process cannot be overemphasized; logs and other evidence may be required to protect ship owner's position in case the preparatory method for use of compliant fuel is questioned.

## ENFORCEMENT

Generally speaking signatory countries to MARPOL annex VI are independently deciding on how to enforce compliance.

This is tricky, since how non-compliance is treated depends on the state at which this noncompliance is discovered.

The usual methods observed are detention, bans and (financial) penalties.

The monetary fines are likely to vary across the world and may increase with repeated noncompliance.

It should also be borne in mind that traditional fuel sampling methods must now be in compliance with the new 2019 Guidelines for on board sampling for the verification of the Sulphur content of the fuel oil used on board ships (MEPC.1/Circ.864/Rev.1). In essence there will now be 3 samples to consider:

- The MARPOL delivered sample taken at time of bunkering (recommended to be drawn from the receiving vessel's manifold).

- The in-use sample which is drawn as close as possible to the engine inlet.

- The not in-use onboard sample which is representative of the contents of a vessel's storage tank.

It is also understood that for port state control requirements, guidelines for drawing representative samples for the actual fuel in use has yet to be developed by the IMO. While not easy and generally to be avoided, ship Masters and crew will now be placed in a precarious position where they may have to challenge PSC officers if they feel the sampling method used isn't representative of the fuel on board or in use

However it is of paramount importance that documentation relating to LSFO be recorded and maintained to the highest level; if the Port state control officers have "clear grounds", they will then carry out further documentation checks, maintenance verification and fuel sampling/analysis, as well as assessing crew familiarity.

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