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GENERAL CIRCULAR Tech – 4/2019

TO: The Fleet

Subject: LS Fuel Oil - Information regarding Mechanical Problems and Loss of Vessel power, from the incorrect handling of LS Fuels.

Given the new MARPOL Annex VI &Regulation 14, which has come into effect from the 1st of January 2015 wherein it has become mandatory to use in ECA &SECA areas, Fuel with a sulphur content not exceeding 0.1%, there are certain factors which you must be made aware of.

Mechanical Problems Arising from Fuel Switching

The variation in sulfur content has a significant impact on the fuel properties. Unless systems are carefully maintained and prepared, problems may arise when utilizing the same systems with different fuels.

- Distillates do not require heating like HFO. If the temperature of distillates is too high, the viscosity will be greatly reduced below the point at which the system can function correctly

- Pump failure can occur from increased wear due to the lower hydrodynamic lubricating fuel oil film, driven by the low viscosity.

- Distillate fuels can ‘gas up’ at too high temperatures leading to vapour locks and fuel starvations

- There can be difficulties during start and low load operations due to leaking pumps from low fuel viscosity.

- Blocked fuel filters can result from incompatible fuels mixing, leading to formation of heavy sludge and potential filter clogging. Improper engine function and shutdown are the result

- Pump malfunction can occur where the changeover takes place too quickly. This may lead to a total pump seizure and an eventual engine shut down may result.

- Fuels of unduly low viscosity will flow through the fine clearances previously ‘sealed’ by fuel at higher viscosity resulting in fuel leakage and reduced power.

There are just some of the issues that can arise. However, all of these can be avoided by careful preparation and handling of these fuels.

Loss of Vessel Power

- Switching and changing of the lubricant supply to the main engine at the same time is complex and can results in the ship’s loss of power and in the worst case scenario an engine room fire.

- Lack of training and ability for crew to safely operate the fuel switchover process enhances risk

Lubricating Compliance

Until recently, choosing a lubricant was a simple choice as per fuel type. The rule of the thumb being that BN 70 lubricants should be used for HFO, where if the ship uses low- sulfur fuel oil, for a period of more than 2 weeks, a change to a lower BN 40 or BN 50 was recommended.

This simple matching the lubricant to the fuel type was based on the principle that a lubricant’s BN indicates the oil’s ability to neutralize such acids. Meaning that higher the BN of the lubricant, the more acid in the fuel it will be able to neutralize. The lower the fuel’s sulfur content, the less acidic sulfur it produces and hence the lower the lubricant BN has to be to avoid abnormal engine wear or prevent damage.

However for the choice of the BN Lubricant to be used must be guided by the Engine Manufacturer.

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