

Dear Sirs,

27/01/2017

Further to our meeting in your premises regarding HFO to MGO and vice versa change over procedure prior to entering Emission Controlled Areas, we can summarize as follows, concerning topics of interest:

1. MAN Diesel & Turbo considers compatibility test as a main precaution to M/E operation regarding HFO & MGO change over. We have seen from our research that in rare cases HFO can be deeply unstable, acceleration of asphaltenes precipitation and resulting into heavy sludge depositing and blocking fuel equipment in general (tanks, separators, filters).
2. Furthermore, we do not think that a use of a 2nd automatic back-flashing filter will give any advantage to fuel system's cleaning. We strongly believe that fuel cleaning is performed by the separators. So, keeping separators in proper functional condition is considered as the most critical, provided that operating temperature & volume flow are according recommendations. Change over procedure can be done on the back-up filter and when line runs only on distillate to switch back to automatic filter's operation, in order to avoid filter's clogging.
3. When changing from HFO to Distillate (MGO particularly)
 - i. During normal operation, a small amount of fuel leaks through the main engine fuel pumps. This is clean fuel which, traditionally, is lead back to the HFO settling tank. As the new SECA rules will enforce more operation time on distillates or ULSFO, we recommend that the drain system is updated to either of the options below.
 - a. Two overflow tanks. One tank with piping leading to the HFO settling tank and one tank with piping leading to the distillate or ULSFO tank.
 - b. Installing an extra line from the overflow tank. The overflow tank will have piping both to the HFO settling tank and to the distillate or ULSFO tank. The overflow tank has to be emptied before switching to a different fuel.
 - ii. Prior to change over procedure there are specific thermal & flow rules in order to prevent thermal shock of fuel equipment (fuel pump, suction v/v, fuel valve) & piping. Distillate fuel (MGO) must not be on a viscosity less than 2cSt. Residual fuel (HFO) must not be on a viscosity higher than 20cSt (temperature reduction prior to change over to be based on viscosity max 20cSt). This (20cSt) is to prevent excess load (even for short periods) to the fuel roller guides & cams. Temperature reduction shall be under the rule of thumb of 2°C/min. MAN Diesel & Turbo considers viscosity limits as the primary rule during change over. There is no limitation regarding the temperature difference between HFO & MGO at the time of change over. This will be compensated by the 25-40% load during change over. This load limitation is in order fuel consumption of the main engine to be rather low, meaning that fuel will keep recirculating in the FO system and only a small amount of MGO is going to be added.
4. MAN Diesel & Turbo follows the ISO-8217 Micro Carbons Residues limits, without having experienced any need for updated limits concerning especially the changing over procedure.

Yours Sincerely,

MAN Diesel & Turbo Hellas Ltd.