

Title of Article:Effects of Used Lubricating Oil on the Properties of Low Pour Fuel Oil

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Outlet:Global Journal of Environmental Sciences. 2007, 6 (2), 117-119.

Abstract:Effects of used lubricating oil on selected properties of low pour fuel oil (L.P.F.O) have been evaluated. The fuel oil was blended with used automotive crankcase oil at sample to used oil ratios of 9:1, 8:2, 7:3, 6:4 and 5:5. L.P.F.O analysis resulted in the following physicochemical properties: heat content (42.87 MJ/kg), kinematic viscosity at 70 °C (20.50 cSt), density at 15 °C (0.9601 kg/l), sulphur content (0.3295 wt%), water content (1.80 vol%) and ash content (0.073 wt%). The values obtained for used oil were lower than those of the blend. The physicochemical profile of L.P.F.O with increasing used oil blends indicated the following ranges: heat content (43.20 - 51.17 MJ/kg), kinematic viscosity at 70 °C (19.89 - 15.57 cSt), density at 15 °C (0.9430 - 0.10106 kg/l), sulphur content (0.3297 - 0.4821 wt%), water content (1.70 - 0.80 vol%) and ash content (0.069 - 0.055 wt%). Physicochemical profile of fuel oil blends showed the desirability of the blending as a positive influence on the heat content of fuel oil. Considering the need to utilize the observed positive effect of used oil additions on the heat content of fuel oil without seriously altering its physicochemical properties, a fuel oil to used oil ratio of 7:3 is recommended as an appropriate blend that could serve as a cost effective method of achieving the desired used oil properties and thus serve as an appropriate method for used oil disposal.