

Study of density and viscosity variation with temperature for fuels used for Diesel engine

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Abstract With the development of oil industry, diesel fuel resulted to be more appropriate as fuel for high-speed diesel engines, than vegetable oil, the first fuel used by Rudolf Diesel to test the diesel engine. Vegetable oils could represent an alternative to heavy fuel oil used in the low-speed marine diesel engines. Nowadays, diesel fuel is commercialized blended with up to 6% biodiesel. In the future, this percent is expected to increase. Taking into account these perspectives, it is necessary to know the behavior of the fuel components, when variations of temperature occur. Experimental densities and viscosities data for a vegetal oil, diesel fuel and biodiesel were reported here in the temperature range of 20°C to 60°C, and the accuracy of empirical models proposed to predict these properties at different temperatures was evaluated.

Keywords: Diesel oil, biodiesel, vegetable oil, density, viscosity
