

Performance and emission characteristics of diesel engine running on blended palm oil

Abstract

Rapid increasing of industrialization and motorization has led arising of petroleum and energy demand. This pursue a new energy blends to cater the depletion of fossil fuel and the environmental degradation condition. Malaysia is blessed, which has suitable climate to plant alternative fuel (palm oil) and become one of the largest exporters to the world. Palm oil in its refined form as cooking oil has high energy content which can be adopted as an alternative to the petroleum based fuel. This paper evaluates the performance and emission characteristics of refined palm oil (RPO) as a fuel to the diesel engine. Palm oil and its blends composition with 20%, 40%, 60% as well as pure palm oil (100%) and diesel were tested separately under various engine loads. Five series of tests data on each type of fuel were analyzed and compared. Moreover, by increasing the percentage of RPO in blends would lead a character of higher percentage in density and viscosity. Studied revealed that the small percentage of RPO composition promises a good thermal efficiency together with the emission released.

Keywords

Bio-fuels; Palm Oil; Renewable Energy