World Academy of Science, Engineering and Technology
International Journal of Chemical and Materials Engineering
Vol:12, No:01, 2018

Biodiesel Production from Palm Oil Using an Oscillatory Baffled Reactor

Authors : Malee Santikunaporn, Tattep Techopittayakul, Channarong Asavatesanupap

Abstract : Biofuel production especially that of biodiesel has gained tremendous attention during the last decade due to environmental concerns and shortage in petroleum oil reservoir. This research aims to investigate the influences of operating parameters, such as the alcohol-to-oil molar ratio (4:1, 6:1, and 9:1) and the amount of catalyst (1, 1.5, and 2 wt.%) on the trans esterification of refined palm oil (RPO) in a medium-scale oscillatory baffle reactor. It has been shown that an increase in the methanol-to-oil ratio resulted in an increase in fatty acid methyl esters (FAMEs) content. The amount of catalyst has an insignificant effect on the FAMEs content. Engine testing was performed on B0 (100 v/v% diesel) and blended fuel or B50 (50 v/v% diesel). Combustion of B50 was found to give lower torque compared to pure diesel. Exhaust gas from B50 was found to contain lower concentration of CO and CO₂.

Keywords : biodiesel, palm oil, transesterification, oscillatory baffled reactor
Conference Title : ICCBME 2018 : International Conference on Chemical, Biochemical and Materials Engineering
Conference Location : Singapore, Singapore
Conference Dates : January 08-09, 2018