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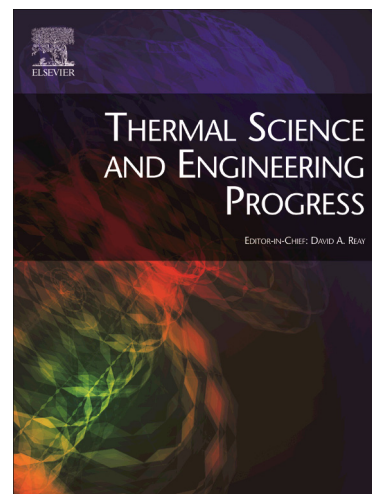
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Critical relationship between biodiesel fuel properties and degradation of fuel delivery materials of a diesel engine

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Abstract

This work aims to disseminate the critical relationship present between biodiesel fuel properties and the degradation of commonly present fuel delivery materials (FDM) of a diesel engine. This was achieved by quantifying the adverse effects of palm biodiesel fuel exposure towards aluminium, galvanized steel, stainless steel, fluoroelastomer, silicone rubber and nylon under novel immersion method. Under the novel immersion method which was designed to resemble the biodiesel fuel deterioration under diesel engine operation, fuel renewal was incorporated in the typical standard methods. The utilized fuel renewal durations were 108 h and 192 h for metal and elastomers, respectively. Through this, the resulting biodiesel fuel properties under diesel engine operation were primarily simulated under the immersion methods. The experimentations were carried out for 540 h and 960 h for metals and elastomers, respectively, at 100 °C. Based on the obtained results, as well as the comparisons made to an existing study, galvanized steel,

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