

DETECTION OF COLD FLOW PROPERTIES OF DIESEL AND BIODIESEL FUEL USING OPTICAL SENSOR

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ABSTRACT

Identification of cloud point for biodiesel fuel can be used to optimize the performance of biodiesel fueled vehicles in cold weather. Cloud point is the temperature at which the smallest cluster of wax crystal is observed upon cooling under prescribed conditions. Cloud point is determined by inspecting for a haze in the normally clear liquid fuel. This research assesses the optical properties of biodiesel at cold temperatures to develop a reliable, robust and compact sensor that can detect the transmittance of light through biodiesel fuel. Results showed that the experimental optical sensor cannot detect the cloud point of the biodiesel fuel but can be useful in finding the cold flow properties of biodiesel fuel. It showed that lowest value of transmittance for all blends of biodiesel is 0.3 or lower.