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VEGETABLE OILS AS BIO-FUELS FOR AUTOMOTIVE APPLICATIONS

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Abstract

This paper discusses the existing situation regarding biofuels in Europe, and Greece in particular, and examines the potential application of cottonseed oil as automotive fuel in blends with regular diesel. Biofuels can play an important role towards the transition to a lower carbon economy by offering solutions that are both energy efficient and cost effective. Amongst biofuels, pure vegetable oils present special interest for markets such as Greece's that have an important agricultural sector. A Euro 2 compliant diesel passenger car was operated on cottonseed oil blends with regular diesel fuel, the performance of which was closely monitored and its emissions were measured on a regular basis over a 21000 km period. The results show that the overall operation of the vehicle was not affected by the application of the test fuels and that gaseous emissions remained within vehicle emission standards. In addition optical inspection of the engine revealed no side-effects or mechanical failures. It is concluded that cottonseed oil-diesel blends bare great potential as fuels for diesel vehicles, but further studies should be performed in order to completely ensure their quality and compatibility with the diesel fuel.

Key words: Biofuels, cottonseed oil, vegetable oil blends, CO₂ emissions