

Analysis of Synthesized Biodiesel from Varying Organic Feedstocks

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Abstract

With the increase in concern of environmental factors, new forms of renewable fuels have been introduced. Among these is the production of biodiesel from both waste vegetable oil and canola feedstocks by means of base catalyzed transesterification. Biodiesel was synthesized from samples of waste vegetable oil, soybean oil, and rapeseed oil. Several tests were conducted to assess the quality of biodiesel in accordance with the American Society for Testing and Materials (ASTM). It was found that the biodiesel met all the standards except the minimum percent mass of total and free glycerin. Furthermore, analysis by GCMS was utilized to identify the methyl ester compositions of the differing biodiesel samples. Results showed that samples from waste vegetable oil contained higher levels of more saturated methyl esters than samples from soybean oil and rapeseed oil. With further research, this could potentially show a significant benefit to using organic oils over waste vegetable oil.