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Biodiesel for Diesel Engines

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Abstract

Biodiesel fuels are attracting increasing attention worldwide as a blending component or a direct replacement for diesel fuel in vehicle engines. The purpose of the transesterification process is to lower the viscosity of the oil. The most important variables affecting the methyl ester yield during the transesterification reaction are the molar ratio of alcohol to vegetable oil and the reaction temperature. Methanol is the commonly used alcohol in this process, due in part to its low cost. Methyl esters of vegetable oils have several outstanding advantages among other new-renewable and clean engine fuel alternatives. Biodiesel fuel is a renewable substitute fuel for petroleum diesel or petrodiesel fuel made from vegetable or animal fats. Biodiesel can be used in any mixture with petrodiesel as it has very similar characteristics but it has lower exhaust emissions. Biodiesel fuel has better properties than that of petrodiesel fuel such as renewable, biodegradable, non-toxic, and essentially free of sulfur and aromatics. Biodiesel has become more attractive recently because of its environmental benefits.