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Production of Fuel from Waste Engine oil and Study of performance and emission characteristics in a Diesel engine

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Abstract : The study presents the treatment of waste engine oil and studying the performance, combustion and emission characteristics of blends of recycled engine oil-diesel in a diesel engine. The recycled oil was prepared in two stages. First the waste engine oil was treated with acetic acid and with clay at 80°C-100°C. Recycled oil was blended with diesel at various proportions. Various properties like flash point, kinematic viscosity, calorific value, cetane number, cloud point, pour point and density were determined as per American Standards for Testing and Materials (ASTM). Blends were tested in a diesel engine and the results compared with diesel as a base fuel. The results indicate an increase of brake thermal efficiency, exhaust gas temperature when compared with that of diesel. Also there is a decrease of brake specific fuel consumption and emissions of NOx and HC. Hence the blend of recycled engine oil with diesel reduces the consumption of diesel and also minimizes the disposal problems of engine oil.

Keywords : Recycling of waste oil: acid-clay treatment: performance: emission.

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