



USE OF LDPE WASTE PLASTIC OIL FRACTIONS AS DI ENGINE FUEL

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ABSTRACT

Degradation of LDPE waste plastic by using fly ash as the catalyst with cat/pol ratio of 0.1 gives a 75.2 % of the plastic oil. The plastic oil obtained has been separated into four fractions with boiling range of less than 100 °C, 100 – 150 °C, 150 – 200 °C and above 200 °C. The yields of various fractions based on the weight of waste plastics are 8.2%, 32.5%, 29% and 3.5%. The properties of various fractions boiling above 100 °C are comparable to those of diesel and the fractions were tested on a diesel engine. The brake thermal efficiency is higher for two fractions. The smoke density and HC emissions are higher for all the fractions. Though NO_x is lower for all the fractions when compared to diesel they are within permissible limits. Hence, these can be used successfully as the substitute for diesel.

KEYWORDS: LDPE, Waste Plastic, Catalyst, Engine Pollution, Degradation Plant