International J. of Engg. Research & Indu. Appls. (IJERIA).
ISSN 0974-1518, Vol.2, No.V (2009), pp 365-375

PERFORMANCE EVALUATION OF COTTONSEED OIL BIODIESEL FUELLED D.I. COMPRESSION IGNITION ENGINE

M. V. NAGARHALLI, V. M. NANDEDKAR, K. C. MOHITE AND A. D. ADSOOL

Abstract

The fuel crisis due to increased vehicular population and environmental effects has forced the scientific community to think of alternatives to diesel fuel. The alternative fuel should be renewable and easily available. Vegetables oils, edible and non-edible, are potentially effective diesel substitutes after esterification. These oils have high energy content and have properties similar to that of diesel. The esterified oil is known as biodiesel. Much of the problems associated with use of plain vegetable oils in diesel engines are solved when biodiesel is used. In the current investigation the performance and emission characteristics of cottonseed biodiesel and baseline diesel are reported for a single cylinder, four stroke D.I (direct injection) diesel engine. The biodiesel was blended in different proportions, 20% to 60% in diesel and neat biodiesel was also used. The investigations show that the thermal efficiency, brake specific energy consumption (bsec) and exhaust gas temperature with biodiesel compared well with diesel. The exhaust smoke varied for different blends and was minimum for 20% blend of biodiesel.

Keywords : Engine emissions; chassis dynamometer; methyl ester; foreign exchange; employment generation.