

A COMPREHENSIVE STUDY OF EXPERIMENTAL INVESTIGATION OF AN INTERNAL COMBUSTION ENGINE USING ALCOHOL AS FUEL

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Abstract

The concept of using alcohol fuels as alternative to diesel fuel in diesel engine is recent one. The scarcity of petroleum fuels due to the fast depletion of the petroleum deposits and frequent rise in their costs in the international market have spurred many efforts to find alternatives. Alcohols are quickly recognized as prime candidates to displace or replace high octane petroleum fuels. However, alternatives to the large demand for diesel fuel in many countries were not so evident. Innovative thinking led to find various techniques by which alcohol can be used as fuel in diesel Engine, amongst the fuels alternative proposed, the most favourest ones are methanol and ethanol. So far no established method is available to run a normal diesel engine with a compression ration from 14:1 to 20:1 by using alcohol as fuel. This is because, the properties of diesel engine fuels differs from the properties of diesel fuels. The specific tendency of alcohols to ignite easily from a hot surface makes it suitable to ignite in a diesel engine by different methods. The advantage of this property of alcohols enables to design and construct a new type of engine called surface ignition engine. In this paper, authors have made an attempt to bring out the previous studies on utilization of alcohols as diesel engine fuels. And also, to carry out the research work on enhancement of performance of diesel engines by using alcohols as fuels.

Keywords: Alcohol fuels, Surface ignition engine, Performance enhancement, Compression ratio