

Theme 12: Energy, Ecology and Environment, Environmental Education

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INVESTIGATION ON ETHANOL DIESEL BLEND WITH VARYING INLET AIR TEMPERATURE

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Ethanol is a bio-based renewable and oxygenated fuel, thereby providing potential to reduce the PM emission in diesel engine and to provide reduction in life cycle of carbon di-oxide. So that reduces ozone layer depletion. There are several studies which reports improvement in the engine performance and emission by using ethanol blend fuels.

Many researches going on in the area of ethanol as alternate fuel, the commercialization of this fuel is not achieved in the Indian automobile scenario. It is mainly because of installation of refilling stations and the problems encountered in the engine while ethanol is used as a fuel. The problem such as starting trouble, cold starting problem, Aldehyde emission coming out from the engine and the stringent norms followed by the government for the use of ethanol.

The main objective of this project is to study the performance, and to control the emissions of the diesel engine using blended fuel by preheating the inlet air. The present work has been carried out using single cylinder, four stroke, water cooled diesel engine. In this phase, experiment investigations are conducted using five sets of blended fuels i.e 10%, 15%, 20%, 25%, 30% Ethanol – Diesel blend have been prepared and preheating the inlet air to 40°C, 50°C and 60°C. The performance and emission characteristics are studied and compared with the base fuel.

Keywords: *preheating, oxygenated fuel*