



Performance and Emission Characteristics of Nano Additive Ceric Oxide- Di Ethyl Ether-Ethanol Blend on Single Cylinder Four Stroke Diesel Engine.

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Abstract : Diesel engines are widely used for their low fuel consumption and better efficiency. An experimental investigation carried out to establish the performance and emission characteristics of single cylinder diesel engine by using ethanol-ceric oxide blend. At initially first phase a series of experiments have to be done by using ethanol-ceric oxide blend with various ratios in diesel engine the performance characteristics have to be studied. For preparation of ethanol and cerium oxide, Continuous magnetic stirring have to be done but the blend should not diluted completely. So by another method sonication (ultrasonic bath) used to reduce the separation of fuels. At second phase Ethanol-cericoxide-Diethyl ether prepared by using additive to reduce the separation of fuels and the performance and emission characteristics have to be done. By this investigation the ceric oxide acts as oxygen donating catalyst and provides oxygen for the oxidation of CO or absorbs oxygen for the reduction of NO_x. The activation energy of cerium oxide acts to burn off carbon deposits within the engine cylinder at the wall temperature and prevents the deposition of non-polar compounds on the cylinder wall results reduction in HC emissions. The Diethyl ether which improves the cetane number of fuel molecules.

Key Word : Ethanol, Ceric Oxide, Di ethyl ether, Nox, CO, HC.

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