



Meta Modeling Of Emission Parameters Of Refined Corn Methy Esters In 4s Diesel Engine Using Response Surface Methodology

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Abstract: This paper presents the mathematical modeling for the design parameters of Injection timing (Ti), Injection pressure (Pi), and blend ratio of the Kirloskar, single cylinder, 4.3 kW, 4S , direct ignition, air cooled, vertical, constant speed, stationary engine, for the compression ratio 17.5:1, at full load condition. The transesterified, refined corn oil methyl esters were used as the fuel and compared with petro diesel. The fatty acid methyl esters of refined corn oil were blended with diesel in different proportions and used as the fuel. The injection pressure, injection timing, and blend ratio were considered as input parameters and CO and HC were the output parameters. The Analysis of Variance (ANOVA) and regression analysis were used to predict the response parameters. The mathematical model to predict the responses of CO and HC was developed. The models were developed and compared with R-squared value.

Keywords: Refined Corn oil methyl esters, 4S – Diesel Engine, Emissions, L_{27} model, Response Surface Methodology.

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