

عنوان مقاله:

Modeling the effects of biodiesel–diesel fuel blends on CO<sub>2</sub> emission of a diesel engine by response surface methodology

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خلاصه مقاله:

Nowadays biodiesel is receiving more attention as a most important renewable energy for using in diesel engines. In this research, the application of Response Surface Methodology (RSM) was highlighted to investigate the effects of biodiesel–diesel blends (B<sub>0</sub>, B<sub>20</sub>, B<sub>50</sub> and B<sub>100</sub>), engine operating parameters (engine load and speed) on CO<sub>2</sub> emission of a diesel engine. The experiments were conducted on a four cylinder direct–injection diesel engine based on three–factor five–level central composite rotatable design. The developed mathematical models were helpful to predict the response parameters and further to identify the significant interactions between the input factors and the responses. The use of biodiesel resulted in higher emission of CO<sub>2</sub>. The results also showed that an increase in engine speed leads to an increase in the emission of CO<sub>2</sub>. On the other hand, CO<sub>2</sub> emission is higher at low engine loads, while is lower at high engine loads.

کلمات کلیدی:

Biodiesel, CO<sub>2</sub> Emission, RSM, Diesel Engine

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