عنوان مقاله:

Detailed Investigations on Utilization of Ethanol by Blending and Fumigation Techniques in Diesel Engines as Supplementary fuel

محل انتشار:

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خلاصه مقاله:

In this investigation, the effect of using ethanol as supplementary oxygenated fuel by two techniques, namely, blending and fumigation, has been studied in a DI diesel engine. The amount of ethanol addition by blending technique are 5, 10 and 15 % on a volume basis and by fumigation technique are 0.33 and 0.05 kg/hr. Tests were carried out at constant speed and different loads on a single cylinder high speed diesel engine. The purpose of this study is to find out the optimum amount of supplementary ethanol by blending and fumigation methods with the aim to lower the emissions and obtain better performance without any major modifications to the engine or the need to add an emulsifier or a stabilizer to the fuel. The results show that the fumigation is more effective in controlling NOx significantly and the best amount of ethanol inducted is 0.05 kg/hr when considering the emissions and performance. Meanwhile improvements in thermal efficiency, BSFC and soot emissions by the blending method are a little better in comparison to the fumigation technique and in the results, it is shown that the best amount of ethanol addition is 10% on a volume basis.

کلمات کلیدی: