

Reduction of Nitrous Oxide in Diesel Engine using Metal Salt Macro-Emulsion

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Abstract

In this paper four new emulsions were prepared by mixing 0.5% tween 85 and 0.5% span 80 with diesel fuel using 10% aqueous metal salt solution with concentration of 0.4 mol/dm³. The performance and emission tests were carried out by using these fuels in single cylinder water cooled diesel engine. The results were compared with that of diesel and comparison graphs were plotted to analyze the advantages and disadvantages of using the new emulsions over diesel. This report analyze on the effect of new emulsion fuels combustion on brake thermal efficiency, brake specific fuel consumption, oxides of nitrogen and hydrocarbon emissions. The emulsions used for analysis achieved reasonable reductions in the NO_x emission from diesel engines without requiring any retrofitting of the engines and also there was no notable increase in emission of other pollutants.

Keywords: Aqueous Metal Salts, Engine Emission Control, Macro-Emulsions, Span 80, Tween 85