

PENGARUH CAMPURAN ETANOL DENGAN PERTALITE TERHADAP UNJUK KERJA MOTOR BENSIN 4 LANGKAH

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh performansi kendaraan berupa torsi, daya, dan emisi gas buang menggunakan bahan bakar pertalite dengan variasi campuran etanol 16%, variasi etanol 19% dan dibandingkan dengan pertalite murni. Metode yang digunakan dalam penelitian ini yaitu metode eksperimen. Pengambilan data menggunakan alat *Dynotest* dengan lima kali pengulangan. Pengujian dilakukan pada setiap putaran mesin dari 3000 sampai 8000 rpm, sedangkan pada emisi gas buang menggunakan alat pengujian gas *analyzer* dengan sepuluh kali pengulangan pengujian pada rpm konstan yaitu 4000 rpm. Berdasarkan hasil pengujian dapat diketahui terdapat peningkatan torsi dan daya, dimana torsi tertinggi yang dihasilkan pada variasi etanol 16% sebesar 10,61 N.m pada putaran mesin 4000 rpm. Hasil pengujian daya tertinggi pada variasi etanol 19% sebesar 6,50 HP pada putaran mesin 6000 rpm. Hasil pengujian emisi gas buang terdapat penurunan gas buang HC, CO, dan CO₂, dimana emisi HC terdapat penurunan terbesar pada variasi etanol 19% yaitu 33,6 ppm vol. Emisi CO terdapat penurunan terbesar pada variasi etanol 19% yaitu 0,941 % vol. Sedangkan pada emisi CO₂ terdapat penurunan terbesar pada variasi etanol 16% yaitu 4,64 % vol.

Kata kunci: Etanol, Torsi, Daya, dan Emisi Gas Buang

THE EFFECT OF MIXED ETHANOL WITH PERTALITE TOWARDS THE PERFORMANCE OF A 4 STROKE GASOLINE MOTOR

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ABSTRACT

This study aimed to determine the effect of vehicle performance in the form of torque, power, and exhaust emissions using 16% of pertalite fuel, 19% of ethanol mixture variation, 19% of ethanol variation and compared with pure pertalite. The method used in this research was the experimental method. Data were collected using the Dynotest tool with five repetitions. The test was carried out on each speed of an engine, from 3000 to 8000 rpm, while the rpm of exhaust emissions using a gas analyzer testing tool with ten repetitions at a constant rpm was 4000 rpm. Based on the test results, it can be seen that there is an improvement in torque and power, where the highest torque produced by 16% of ethanol variation is 10.61 N.m at 4000 rpm engine speed. The results of testing the highest power on 19% of ethanol variation is 6.50 HP at 6000 rpm engine speed. The results of the exhaust gas emission test shows a decrease in exhaust gas such as HC, CO, and CO₂, in which the HC emission has the largest decrease in the 19% of ethanol variation, which is 33.6 ppm vol. CO emissions encounters 0,941% vol decrease in 19% of ethanol variation and it becomes the biggest decrease. Meanwhile, in CO₂ emission, there is 4.64% vol. decrease in 16% of ethanol variation and it becomes the biggest decrease.

Keywords : Etanol, Torque, Power, and Exhaust emissions