

ABSTRAK

Penggunaan bahan bakar yang terjadi belakangan ini sangat meningkat, mengingat penggunaan bahan bakar sangat berpengaruh ke berbagai sektor kehidupan. Sektor yang paling cepat terkena adalah sektor transportasi. Meningkatnya penggunaan alat transportasi menyebabkan ketersediaan bahan bakar semakin menipis dan berdampak negative ke kualitas udara. Penambahan *ethanol* pada bahan bakar dapat menghasilkan pembakaran yang lebih sempurna sehingga dapat mengurangi penggunaan bahan bakar murni.

Tujuan penelitian ini untuk mengetahui karakteristik performa *gasoline engine* dengan menggunakan campuran bahan bakar pertalite dan *ethanol*. Pengujian dilakukan dengan memvariasikan pembebanan 25%, 50%, 75%, 100%, dengan menggunakan variasi pertalite 95% dan ethanol 5%, pertalite 90% dan ethanol 10%, pertalite 85% dan ethanol 15%, dengan variasi putaran mesin 2000 rpm, 3000 rpm, 4000 rpm, 5000 rpm, 6000 rpm.

Hasil penelitian menunjukkan bahwa nilai *brake torque* tertinggi 2,184 N.m pada *mixing* pertalite 10%, nilai *brake power* tertinggi 0,456 kW pada *mixing* pertalite 10%, nilai *brake specific fuel consumption* terendah 0,204 kg/kW.h pada *mixing* pertalite 10%, nilai *brake thermal efficiency* tertinggi 56% pada *mixing* pertalite 10%.

ABSTRACT

The use of fuel that has occurred recently has greatly increased, considering that the use of fuel is very influential in various sectors of life. The sector most affected is the transportation sector. The increasing use of transportation equipment causes the availability of fuel to be depleted and has a negative impact on air quality. The addition of ethanol to fuel can produce a more complete combustion so that it can reduce the use of pure fuel.

The purpose of this study was to determine the performance characteristics of a gasoline engine using a mixture of pertalite and ethanol fuel. The test was carried out by varying the loading of 25%, 50%, 75%, 100%, using variations of 95% pertalite and 5% ethanol, 90% pertalite and 10% ethanol, 85% pertalite and 15% ethanol, and with variations engine speed of 2000 rpm, 3000rpm, 4000rpm, 5000rpm, 6000rpm.

The results showed that the highest *brake torque* value is 2.184 Nm at 10% pertalite mixing, the highest *brake power* value is 0.456 kW at 10% pertalite mixing, the lowest *brake specific fuel consumption* value is 0.204 kg/kW.h at 10% pertalite mixing, the *brake thermal efficiency* value is the lowest. the highest 56% at 10% pertalite mixing.