

Pengaruh Pemanfaatan Low-Grade Bioethanol dan Aditif Oxygenated Cyclooctanol Terhadap Daya, Torsi, dan Coefficient of Variation Pada Motor Honda Supra 125 cc = Indonesia's consumption of oil energy for transportation sector in in 2018 as much as 40% of total energy consumption in Indonesia, which is the largest energy consumption in Indonesia compared to other sectors. However, the high needs of oil energy in Indonesia is not balanced with it's production. For the last 10 years, the production of oil energy became decline. In 2009, Indonesia produced a total of 346 million barrels of oil, while in 2018 it fell to 283 million barrels of oil. So, to fulfill the needs of oil energy in Indonesia, the government have to import oil as much as 35% mainly from Middle Eastern countries. Therefore, the needs of alternative fuel energy as bioethanol and the addition of additives to make the property of fuel become better, so that the government can reduce imports of oil from other countries and the need of oil energy can be fulfilled. This research was conducted to analyze the effect of COV's value change from each fuel variable to the power and torque that produced from the engine. The fuel variable used is E10, E10 + 0.3% cyclooctanol, E10 + 0.5% cyclooctanol, and E10 + 1, 3% cyclooctanol. The results of this research are E10 with the addition of 1,3% concentration of oxygenated cyclooctanol additive resulted in the smallest value of COV is 5% at 8500 rpm and the largest value of COV is 10,1%, obtained by E10 fuel without additives at 4000 rpm. With the addition of the concentration of cyclooctanol additive to E10, it can make the value of COV become smaller, so the combustion process becomes better and more stable. This is proved by the increased power and torque that generated by the engine with the addition of the concentration of the oxygenated cyclooctanol additive to E10

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#### Abstrak

Konsumsi energi minyak bumi pada sektor transportasi di Indonesia pada tahun 2018 sebanyak 40% dari total keseluruhan konsumsi energi di Indonesia, dimana transportasi merupakan konsumsi energi minyak bumi terbesar di Indonesia dibandingkan dengan sektor – sektor lainnya. Akan tetapi, dengan banyaknya kebutuhan energi minyak bumi di Indonesia, produksi minyak bumi yang dihasilkan pada 10 tahun terakhir menjadi penurunan. Pada tahun 2009, Indonesia memproduksi minyak bumi sebanyak 346 juta barel, sedangkan pada tahun 2018 turun menjadi 283 juta barel minyak bumi. Sehingga, untuk memenuhi kebutuhan energi tersebut, Indonesia harus mengimpor minyak bumi sebanyak 35% terutama dari negara timur tengah. Oleh karena itu dibutuhkannya energi bahan bakar alternatif seperti bioetanol dan penambahan zat aditif untuk membuat properties dari bahan bakar menjadi lebih baik, sehingga pemerintah dapat mengurangi impor minyak bumi dari negara lain dan kebutuhan energi minyak bumi dapat dipenuhi dengan baik. Penelitian ini dilakukan untuk menganalisis pengaruh perubahan nilai COV dari masing – masing

variabel bahan bakar terhadap daya dan torsi yang dihasilkan. Variabel bahan bakar yang digunakan yaitu E10, E10+0,3% cyclooctanol, E10+0,5% cyclooctanol, dan E10+1,3% cyclooctanol. Hasil penilitan ini menunjukkan bahwa E10 dengan penambahan konsentrasi zat aditif sebanyak 1,3% menghasilkan nilai COV yang terkecil yaitu 5% pada putaran mesin 8500 rpm, sedangkan COV yang terbesar diperoleh pada bahan bakar E10 tanpa zat aditif sebesar 10,1% pada putaran 4000 rpm. Dengan adanya penambahan konsentrasi zat aditif cyclooctanol kepada E10, dapat memberikan nilai COV yang semakin kecil, sehingga proses pembakaran menjadi lebih baik dan lebih stabil. Hal ini dibuktikan dengan meningkatnya daya dan torsi yang dihasilkan dengan penambahan konsentrasi zat aditif oxygenated cyclooctanol kepada E10.

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