

Unjuk Kerja Dan Emisi Gas Buang Motor Bakar Injeksi Bertransmisi Otomatis Berbahan Bakar Campuran Pertamax Dan Bioetanol 99,5%. (*The performance and exhaust emissions of automatic transmission injection engine with mixture fuel between pertamax and bioetanol 99.5%*).

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ABSTRACT

Biofuels are widely used in increasing the octane number and performance of vehicles, The most common biofuel is bioethanol. Bioethanol is alcohol which derived from plants such as sugar cane, corn, and wheat. Bioethanol also functions as a fuel extender, which can saves fossil fuels. the purpose of This study is to determine the effect of the addition 99.5% bioethanol as the Pertamax fuel mixture to the performance and emissions of the automatic transmission injection engine. The method of this research is a controlled experiment with bioethanol which is used as the Pertamax mixture with levels of 5%, 10%, 15%, and 20% of the volume of fuel. The average maximum torque of Pertamax is 21.75 Nm, 5% bioethanol mixture is 27.03 Nm, 10% bioethanol mixture is 27.46 Nm 15% bioethanol is 27.17 Nm, 20% bioethanol mixture is 26.98 Nm. The average maximum power of pure Pertamax is 11.17 HP, 5% bioethanol mixture is 11.1 HP, mixture with 10% bioethanol is 11.47 HP, 15% bioethanol mixture, 20% bioethanol mixture is 11.77HP. The average exhaust gas emission with the lowest CO level is a mixture of 10%, namely 0.30% vol, the highest CO level is 0.43 vol% at Pertamax. The lowest CO₂ was a mixture of 5% bioethanol, namely 5.43% vol, the highest CO₂ was a 10% bioethanol mixture, namely 5.76% vol. The lowest HC is 20% bioethanol mixture, namely 136.6 ppm vol. The highest HC was a mixture of 10% at 177.3 ppm vol. The best fuel mixture is a 10% bioethanol mixture because it produces the best performance and exhaust emissions with an average torque of 27.46 Nm, an average power of 11.47 HP, 0.30% CO emissions, 177.3 ppm vol and CO₂ emissions. by 5.76% vol.

Keyword : bioethanol, Pertamax, Power, Torque, Exhaust Gas Emission