

Performance Analysis Of Diesel Multi Cylinder 4 Steps With Fish Oil Waste Biodiesel Fuel Variations Using Initial Gas Heater In Exhaust Manifold

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ABSTRACT

Fossil fuels are not a sustainable source of energy, so their availability is limited. To reduce dependence on fossil fuels and reduce the negative impact on the environment, it is necessary to conduct research on energy sources. Biodiesel is an alternative fuel as a substitute for diesel oil, which is environmentally friendly and renewable. One of the main obstacles in using Biodiesel fuel is its higher viscosity compared to diesel. This causes a decrease in power and a decrease in the efficiency of diesel engines that use biodiesel as fuel. This study aims to determine the effect of using heating fuel by utilizing waste heat before entering the combustion chamber and using variations of biodiesel fuel as an alternative to fossil fuels on the performance of diesel engines. This type of research uses experimental research. The object of this research is the performance of the diesel engine. The research results obtained by researchers produce data that can be applied to diesel motors. The torque produced by B10 has a value of 8.23 kg.m at 2000 rpm which is higher than the B20 and the engine power in B10 fuel has a value of 22.99 PS higher than B20 fuel. Whereas the smallest fuel consumption rate of all fuels is poly fuel B10 which is 2.99 kg/hour at 2500 rpm rotation and for certain fuel consumption also has the most effective fuel consumption of all poly fuels, namely 0.2282 kg / PS. at 1500 rpm.

Keyword: *biodiesel, viscosity, specific fuel consumption, torque, diesel power*