APPROACH WITH CFD SPRAY PATTERN FOR SINGLE HOLE COMBUSTION WITH FORM D AND M DESIGN WITH BIODIESEL FUEL

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ABSTRACT

In the biodiesel has different properties with diesel fuel, which affects the nature of the combustion process. Form of the fuel mixture also affects the formation of fuel-air combustion process and combustion results caused by development of the fuel spray pattern after pounding the wall in the engine pistons. This study aims to show the pattern of spray Jatropha Curcas Biodiesel, Biodiesel oil and used cooking oil biodiesel is pounding the wall with the engine piston type D-System and M-Systems by using numerical simulation.

The numerical simulation was done using Fluent program, which at this stage beginning with a model and meshing the engine by using Gambit programs, and then after that use the program on the Fluent and end with a spray visualization postprocessing of biodiesel, with the engine type D and M type system, and the type of biodiesel used is the Jatropha Curcas, coconut and used cooking oil, injection pressure of 20 Mpa, with the pressure chamber 1, 3, 6 atm. In type M system in this study that varied the distance of injection 76 mm. In the type D system with a variety of collision distance 94 mm.

Keywords: biodiesel, the engine, injection pressure, chamber pressure, distance of injection.