

**VARIATION OF SHIM INJECTOR THICKNESS OF DIESEL FUEL
MIXTURE WITH POLYPROPYLENE TOWARD PRESSURE
AND DEGREE OF ATOMIZING OF FUEL WITH
ANOVA ANALYSIS METHOD**

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ABSTRACT

This research aims to determine the value of the injection pressure and the degree of atomizing at the injector nozzle produced from a mixture of diesel fuel and polypropylene with variations in shim thickness. The design used in this research was to mix diesel fuel with polypropylene with a ratio of 75 ml diesel + 25 ml polypropylene (BBPP 25%), 50 ml diesel + 50 ml polypropylene (50% BBPP), 25 ml diesel + 75 ml polypropylene (BBPP 75%), by varying the thickness of the shim injector nozzle 0.05 mm, 0.10 mm, 0.15 mm, 0.20 mm, and 0.25 mm. The results of this study indicate that when testing the injection pressure and the degree of atomizing were using 25% BBPP fuel with variations in shim thickness of 0.05 mm, 0.10 mm, 0.15 mm, 0.20 mm, and 0.25 mm the resulting pressure injections were 1000.00 psi, 1083.33 psi, 1133.33 psi, 1216.67 psi, 1266.67 psi and the degree of atomizing were 13.67°, 16.33°, 17.00°, 22.33°, 30.33°. When using 50% BBPP fuel with variations in shim thickness of 0.05 mm, 0.10 mm, 0.15 mm, 0.20 mm, and 0.25 mm, it produces injection pressures of 1050.00 psi, 1100.00 psi, 1183.33 psi, 1250.00 psi, 1316.67 psi and the degree of atomizing were 13.33°, 14.67°, 15.00°, 21.00°, 21.33°. Meanwhile, when using BBPP 75 fuel % with variations in shim thickness of 0.05 mm, 0.10 mm, 0.15 mm, 0.20 mm, and 0.25 mm resulted in injection pressures of 1100.00 psi, 1150.00 psi, 1216.67 psi, 1316.67 psi, 1433.33 psi and degree of atomizing were 12.67°, 14.33°, 14.67°, 17.00°, 19.67°. So it can be ascertained that the thicker the shim and the more polypropylene fuel mixture used, the higher the injection pressure at the injector nozzle and the thicker the shim used, the greater the level of atomizing at the injector nozzle.

Keywords: Fuel, Diesel Motor, Polypropylene, Nozzle, Injection Pressure, Degree of Atomizing, Shim Nozzle.