

# **EFFECT OF VALVE GAP VARIATION WITH POLYPROPYLENE FUEL VARIATION ON TORQUE, FUEL CONSUMPTION POWER, AND EXHAUST EMISSIONS**

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## **ABSTRACT**

Vehicles are a fairly large contributor to pollution, but are widely used to support daily life because they are easier and more efficient. This study aims to determine torque, power, fuel consumption, and exhaust emissions from a mixture of pentalite and polypropylene fuel with variations in valve clearance. The results obtained from this test are the lowest average torque value is found at the valve gap of 0.05 mm with pentalite and polypropylene (90:10) fuel of 10.14 Nm and the highest is at 0.10 mm valve gap with fuel. pentalite and polypropylene (80:20) of 20.79 Nm. Then the lowest average power value is at 0.15mm valve gap with pentalite fuel of 5.4 Hp and the highest at 0.05mm valve gap with pentalite and polypropylene (100:0) fuel of 7.9 Hp. The largest fuel consumption was found in the use of pentalite and polypropylene (80:20) with a valve gap of 0.05 mm of 0.83833 Kg/hour, while the smallest fuel consumption was found in the use of pentalite fuel with a valve gap of 0.15mm of 0, 2852 Kg/hour. For the lowest CO exhaust emissions, there is a valve gap of 0.05 mm with pentalite and polypropylene (20:80) fuel of 1.15% vol. The lowest CO<sub>2</sub> is found in the valve gap of 0.05 mm with pentalite fuel of 1.9% vol. The lowest HC is found at 0.05mm valve gap with pentalite and polypropylene (80:20) fuel of 603 ppm vol. The lowest O<sub>2</sub> is found at 0.15mm valve gap with pentalite and polypropylene (80:20) fuel of 12.90% vol. And the lowest lamda is at 0.15mm valve gap with pentalite and polypropylene (80:20) fuel of 2.085.

**Keywords:** torque, power, fuel consumption, exhaust emissions, polypropylene