

## **ANALYSIS OF BIOETHANOL FUEL FROM CANE FUEL WITH PREMIUM FUEL TO CALOR VALUE AND PERFORMANCE OF 4 STROKE MACHINE**

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### **ABSTRACT**

*The need for fuel oil in Indonesia from every years has increased. The increase in petroleum fuel needs is not offset by an increase in fuel oil production, so the fuel demand is greater than the availability of fuel. Since 2000. The decline in the amount of petroleum reserves accompanied by a reduction in production has reached 10% per year.). As a consequence, it is imperative to look for other sources of oil. One alternative is the use of renewable energy and can be used to replace the use of fuel oil or natural gas (fossil fuels).*

*Based on the results of research conducted using a mixture of sugar cane juice ethanol and premium it is known that the average heating value of each variation is Premium at 6202,495 cal / gram, BP + 25% at 4777,129 cal / gram, BP + 50% is 3907,829 cal / gram, BP + 75% is 3586,777 cal / gram. As for the torque obtained sequentially at each variation is 5.20 Nm at 7000 rpm, 4.37 Nm at 7000 rpm, 5.27 Nm at 7000 rpm, and 4.23 at 8000 rpm and the maximum power values are 4.43 Hp at 8000 rpm, 4.61 Hp at 8000 rpm, 4.93 Hp at 8000 rpm, and 4.97 Hp at 9000 rpm*

**Key words:** *bioethanol, Premium, heat value, engine performance*