ABSTRACT

A hydrogen reactor is a tool that can be an alternative technology in producing vehicle exhaust emissions to be cleaner, because the hydrogen produced from the reactor can help the fuel combustion process in the vehicle become more perfect. In this study a test of the performance of a hydrogen reactor will be compared to the value of exhaust emissions with a vehicle machine without using a hydrogen reactor. There are three variations on the testing of hydrogen reactor performance, there are engine rotation speed, reactor volume, and reactor temperature. The value of the resulting exhaust emissions is displayed using Gas Analyzer. From the results of testing and retrieval of data that has been done, it was found that the biggest reduction in HC gas emissions occurred in the reactor 40.8 cm^3 at a temperature of 130 ° C at the engine rotation speed of 3000 rpm which was equal to 27%. The biggest decrease in CO gas emissions occurred at 56.5 cm^3 reactor at a temperature of 100 ° C at 4000 rpm engine rotation speed which was equal to 57%. This shows that the value of exhaust emissions using a hydrogen reactor is better than without using a hydrogen reactor.

Keywords: *combustion, emissions, hydrogen, hydrogen reactors.*