

## ABSTRACT

*Emissions generated by motor vehicles is one of the environmental pollution and it can interfere with the health, especially on 2-stroke engine that emissions are greater than 4-stroke engine. In this study, 2-stroke engine will be given the addition of HHO that is derived from the reactor with the process of electrolysis. Test method using the "idle" in the rpm wishing to be tested by using SNI 19-7118.3-2005. This is done so that the emissions generated on 2-stroke engine to be down. The addition of HHO done by forwarding the gas through the hose on bubbler and entry to a hose filter in the carburetor. The reactors are made given electrolytes as much as 400 ml and the addition of a catalyst such as KOH with different concentrations. Giving catalysts with different concentrations will affect the rate of flow of HHO. Prior to the addition of HHO, levels of HC generated at 6453 ppm at 6000 rpm and decreased by 31.66% when given the addition of HHO. This decrease also occurred in CO, where the levels of CO can fall to 1.75% from 2.56% before the addition of HHO. CO<sub>2</sub> levels increased with the HHO that is up to 4.22% from 2.23% before the addition of HHO. In this study, it was found that the use of HHO at a rate of 147 mLpm is the best. Besides an effect on emissions, the addition of HHO can also improve the efficiency of the engine. Efficiency rose by 5.13% on the condition of 6000 rpm.*

*Keywords: emissions of vehicles, electrolysis, HHO, efficiency*