The Production of Oxygen and Hydrogen Gases Through the Development of an On Board Electrolyzer to Improve the Mile per Gallon Efficiency of a Spark-Ignition Engine

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This research project focused on increasing the rate at which oxygen and hydrogen gases can be electrolyzed from water. As a base line, a small electrolyser built in 2016 was compared in oxygen and hydrogen gas production to an improved design at the same voltage. Then to explore the effects of higher voltage and amperage on electrolysis, data taken of oxygen and hydrogen gas production in the improved design electrolyser at 9 volts .5 amperes was compared to oxygen and hydrogen gas production of the same electrolyser at 12 volts 1000 amperes. As the title suggests, the application of this research was proven by measuring highway miles per gallon with and without induction of oxygen and hydrogen gases. The oxygen and hydrogen gases were supplied by use of an onboard electrolyser directly connected to the vehicles air intake, providing not only a vacuum to pull and direct the gases, but also a direct path to the air fuel mixture burnt in internal combustion. This Research project included an improved design of an electrolyser, several amperage tests to prove relation to oxyhydrogen gas production, a solution to anode and cathode overheating, corrosion, and oxidization. As well as a flame confirmation of hydrogen gas presence, vehicular instillation to test effects of oxygen and hydrogen gas in internal combustion, and a data comparison of vehicle highway mileage per gallon before and after oxygen and hydrogen gas induction. OBD-II scans were taken periodically during gas induction to determine if any detrimental effects resulted.

Awards Won:

Patent and Trademark Office Society: Second Award of $500