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Fabrication and Analysis of Hybrid Spark Ignition Engine Using Browns and Koh Gas

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Abstract: ***In recent years, automotive companies have sought technological advantages to increase fuel economy to protect the environment while providing a comfortable driving experience for them. Customers with rising gasoline prices, the average India would like to spend as little fuel as possible on a car that you can do during your daily activities. Not only customers demand better gas mileage, but the government as a matter of fact; Prime Minister Narendra Modi has passed the Fuel Economy Reform Act stating that new cars will have a fuel consumption of 54.5 miles per person by 2025. Gallone In our diploma thesis we will try to tackle this problem through design and design. This gas uses the principle of electrolysis to divide water into its three molecules of KOH, hydrogen and oxygen in the form of gas. This gas is introduced into the combustion chamber of an engine to increase its output, burn less gas, reduce detonation and detonation in the internal combustion engine, and reduce exhaust emissions to the environment.***

Keywords: KOH system, I.C engine KOH alternative fuel, alternative fuel KOH

1. Introduction

With so much demand for more efficient engines and harmless emissions, my job is to design and develop a device that increases engine efficiency without compromising performance. This device is a KOH. This generator uses electricity (electrolysis) to produce hydroxyl + KOH in the form of gas from water. There are two different ways to get KOH gas working in the engine. The first and most ambitious system is to send it through the injectors while the fuel line is off. This is done only when the system is self-sufficient, but the car is unable to work only with KOH gas. If this is not achieved due to thermodynamic constraints, the KOH gas is introduced through the intake manifold into the combustion chamber of the engine. [3] I will try to make the system compact and economical so that it is attractive to customers. Building this system involves some challenges. We need to make sure that the amount of energy that is fed into the cell to divide the water molecules is less than the amount of energy that is generated by the system. To meet this challenge, we need to make it as efficient as possible. This includes the design of a creative design, where KOH gas with the least flow is passed through the cell. Other concerns include the implementation of very conductive wires and metals in our system. Taking these aspects into account, the KOH gas generation system will be a productive complement to any internal combustion engine. The KOH is also use as a catalyst in bio-diesel so it means that the harmful gas of exhaust is covert in to harmless gas.

2. Literature Review

Water electrolysis is one of the cleanest, simple and intense methods to make hydrogen. The research process, discovered by M. Faraday in 1820, will decompose water into its parts, oxygen and hydrogen, by current electricity. [1] The use of hydrolysis to produce hydrogen has been studied for a long time. Some notes indicate that hydrogen is used as an alternative fuel source in many different levels of fields, as well as commercial, military and industrial sectors since the end of the nineteenth century. Electrolysis is a field of study. [2]

The electrolysis process works in electric energy, which falls into improved electrolyte water. Hydroxyl is intended to produce a negative charge electrode (cathode), while KOH gas is produced with a positive electrode charge (anode).

3. Methodology

An option for the design is to use a Hydroxyl + KOH gas system which can improve fuel economy on any gasoline, Diesel, or LPG vehicle Concept Hydrogen Generator. There are research groups that make these systems using electricity from your vehicle's alternator in order to transform water into hydroxyl + KOH gas while you drive. This gas is then fed into the engine delivering a cleaner, more efficient combustion. This kind of system uses 12 volt batteries to power electrolysis. There are other methods of obtaining hydroxyl through water, such as chemical methods. These yield a high output of PURE H_2 + KOH. Back to top Profile Log in to check your private messages Log in to verify your private messages Log in Power needed. It is carried out with aerodynamic and chemical reactions with aluminum and water jets. Units Gram aluminum can reagents to produce 1.2 liters of hydrogen at normal atmospheric pressure. Dedicated to fuel economy. This concept is the poison not used by the industry, which is also a system energy system. Methods, electrolysis and chemical methods are compatible. The work is done and works on the motivation and problems with the problem, as well as during the installation.

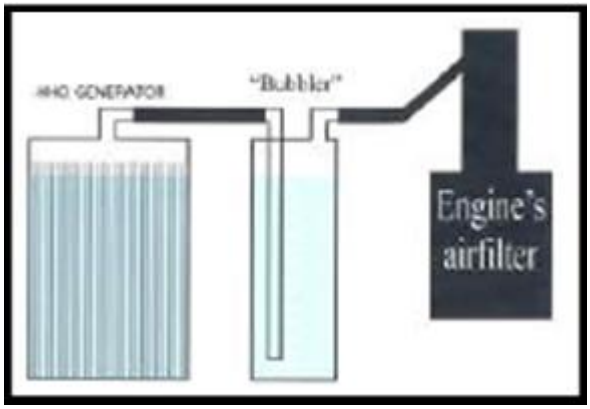

Figure 1: KOH System

The mainly KOH gas generation by using this equation:

$$\mathbf{KOH + H_2O = H_2 + KOOH}$$

Where,
KOH- Potassium hydroxide
H_2O – Water
H_2 – hydrogen
KOOH – Potassium dioxidanide

Table 1: Properties of KOH [5]

Batches	Specific Gravity	Cloud Point Test	Test	PH
Methanol KOH	0.880 g/cm³	9ºC	1 ½ mL no converted oil	8
Methanol NaOH	0.885 g/cm³	8ºC	1/3 mL	7 to 8
Methanol KOH (Washed)	0.880 g/cm³	9ºC	1/6 mL	6 to 7
Ethanol KOH	0.875 g/m³	12ºC	0 droplets	8 to 9
Ethanol NaOH	0.875 g/cm³	11ºC	> 1/8 mL	8 to 9
WVO	0.905 g/cm³	7ºC	N/a	5 to 6

3.1 Major Components

The main component of an on-demand hydrogen system is the Hydroxyl + KOH gas system. The electrolysis in such a system separates the chemically bound compounds in the water. By adding an electrolyte to the water, the electrolysis process can be improved. An electrolyte is a substance that contains free ions that behave like an electrically conductive medium. The catalyst would be the correct term because of the function it performs to accelerate the production of KOH gas. Another independent control component is the Amp-Meter, a tool used to measure the current flowing through a wire or other conductive material. It is a very important tool for this project because the amount of ampere sent to the cell determines the amount of KOH gas produced. We also need to add an EFIE to the ECU of the car to make sure that the mixture of air, gas and KOH gas is well balanced, as well as using a PWM (Pulse Width Modulator) to set the frequency of the current in order by the amount to reduce amperes needed for water depletion.

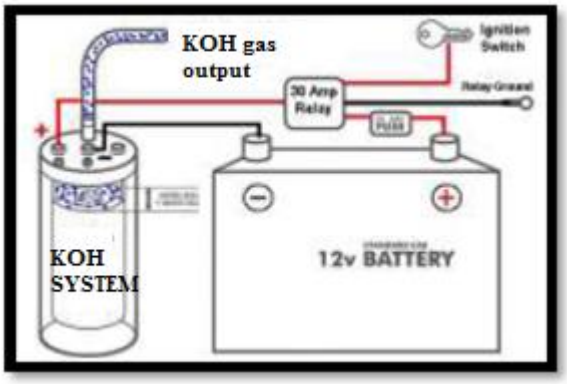

Figure 2: KOH Diagram

The final major component of our design is a vessel that's big and sturdy enough in which to conduct electrolysis in. It has to be able to maintain high enough pressure of KOH gas to the able to send it through hoses and into the engine's combustion chamber. Furthermore, some machining is need for the vessel. Holes are drilled on the bottom of the vessel to allow for screws, which are welded to the each of the tubes to come out from it. This is done to connect the cables running the current to the screws sticking out of the vessel.

4. Prototype System Description

The negative design wants to have a negative cell system. The negative is to be connected to the negative pole of the battery that drives the car. In addition, the battery does not like the same battery of the car. The alternator wants to charge a second battery whose sole purpose is to perform the electrolysis process. This is done to avoid unloading the car. Figure 1 shows a diagram for the secondary battery.

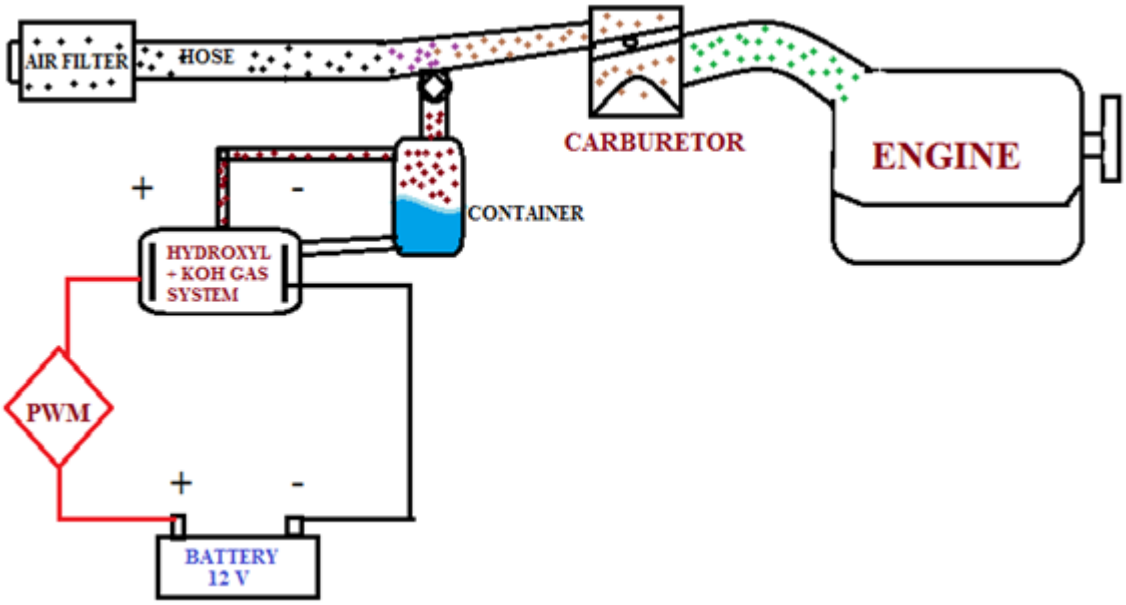

Figure 3: Circuit of working KOH + hydroxyl system

In starting connect battery positive terminal to PWM (Pulse with modulator) and then that PWM positive terminal connect with the KOH generation system and the battery negative terminal is directly joint with KOH generation system negative terminal. Then the KOH system is connecting with one gas container which connects with water hoses. After this that container is connect with the air filter hose. The KOH + hydroxyl gas is mix with the petrol in carburetor then it's gone in to engine inlet manifold. As shown in figure.

4.1 Ethical Considerations:

It is an engineer's responsibility to always make decisions based on ethical principles. A mechanical engineer that designs an engine with low gas millage and damaging gas emissions is an example of non-ethical behavior. One can agree, especially nowadays, that is going green is a big ethical duty for all engineers. As a senior engineering student, we find the opportunity to address this issue in our thesis, "Conducting a Greener and More Effective. My goal is to prove the effectiveness of KOH gas system, since there is a lot of disagreement about it online. We are hopeful that it will work and we will promote their effectiveness to try to do all the damage.

5. Conclusion

There is a lot of skepticism about KOH + hydroxyl system for vehicles found online. My paper gives valid evidence that, in fact, they do work. It was determined that in order to supplement fuel consumption with hydroxyl + KOH gas completely, many modifications need to be made to the fuel system of the car, that were out of our reach. Even if these were accomplished, the amount of energy needed for the car to run as well as to power the generator is not enough without the energy coming from the fuel. The hydroxyl cell produced oxygen, hydrogen and KOH from water through electrolysis. Minimization the cost was done by using wildly available materials. Once Plan A was not successful, Plan B was implemented. From the results of the experiment it can be concluded that having an KOH system such as this one, will improve gas mileage and mainly the KOH is as catalyst we can reduce the harmful gas in to harmless gas e.g. NO_X , CO_2 , HC.

Since the introduction of the Hydroxyl + KOH system, less carbon dioxide has been released into the atmosphere and less gas used. Therefore, it will reduce greenhouse gases. Therefore less impact on global warming in the long run. In addition, because implementing a Hydroxyl + KOH system offers more fuel efficiency, it will save money for people who will use our product. It's hard to say if the system will continue to be so efficient in the long run because we could not take the alternator's wear or battery productivity into account. However, these factors can be taken into account during regular examinations.

The process to design and manufacture was a little tedious, as we needed to do research on the different types of electrolysis and KOH system. Many times we encountered people claiming that such generators are not efficient and that, in fact, they are a myth and don't work. This was kind of discouraging sometimes. But we kept working through with the intention of showing proof of their effectiveness. We were very pleased when we acquired the results showing an improvement in gas mileage. As engineers, we felt accomplished to know that such device can help alleviate some of society's biggest issues.

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