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Alternative Vaporized Gasoline Fuel

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Abstract - Global warming , climate change effects are majorly due to increasing concentrations of greenhouse gases (GHGs) such as vehicle, IC engine emitted CO2 in the atmosphere. is a global warming. Recently more than 60% effective causes of CO2 emission are human activities. Currently in India sustainable development step towards less usage of fossil fuel utilization is in prime importance. An economical and environment friendly fuel has been derived by using Petrol, Kerosene and Water in definite amount. The final gas product is the alternative carbon free gasoline (nearly octane) has pure blue flame. This fuel is total carbon free and providing very silent blue flame which indicates its purity. Possible flame temperature of gas is more than 2000˚C. Also its production cost is negligible and has no byproducts at the time of manufacturing. For the testing purpose and application as fuel, it has been tasted on a Bunsen's burner which showed a 4 hours regular burning for 250 ml of all Petrol, Kerosene and Water respectively with very negligible knockings, smoke and CO2. This carbon free alternative gasoline fuel can be used in different engines, vehicles, generators, boilers, kitchen gas burner, etc. This will be the best option for industrial boilers as the fuel with very high flame temperature with its high efficiency parameters. This can be stored safely in storing tanks for longer time.

Keywords - Blue silent flame, Eco-friendly fuel, IC engine, octane number, Petrol vapors, Water and Kerosene vapors.

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1. INTRODUCTION

Environmental impacts are the more concerned topics to develop new technology without carbon emissions. With emissions of CO2 and other hydrocarbons (ethane, propane, butane) to the atmosphere there are impact on a rise in temperature, this is because sun rays affect the atmosphere, but some of them are unable to go out and are reflected on earth. In direction with avoidance of the obvious consequences on climate change, the concentration of such greenhouse gases in the atmosphere must be stabilized. In India population growth and economies development, future demands now ensure that energy will be one of the defining issues of this century. The required sustainable material product unique set of (coupled) challenges also means that science and engineering have a unique opportunity to apply their understanding to provide sustainable energy solutions. The scope of consideration should be expanded to include the refinement in fuel extraction, power generation and environment friendly extracts from IC engine and/or vehicle, in addition to the actual operational phase in order to reduce emitted greenhouse gases on a global scale.

In this regards the owners of vehicles, IC engines, different industry has to face several challenges, in terms of reducing carbon dioxide emissions (Varga et al., 2010) it is because the combustion of large quantities of fossil fuels which increases the carbon dioxide content in the atmosphere causing an increase in global temperature of the Earth's surface known as greenhouse (Villaflor, 2008). Nowadays it is also environmental performance of the industry or company is important in a price differentiation strategy because it is an indicator of the efficiency of the transformation

processes used, from this point of view, pollution resulting from technological inability. Payri et. al. (2015) has reviewed the mid-terms requirements of the IC engine and commented on one hand, legislation is becoming more stringent in terms of pollutants and CO2, while on the other hand globalization, reduced time to market and the variability of fuel quality will change the global scenario. As available legislations and despite these threats, according to authors' opinion, IC engine will maintain a key role in the next decades, although significant technological evolution is expected for improving the engine efficiency.

The production of carbon free eco friendly fuel with negligible production cost is the alarming situation which will be continued as unchangeable in future. This is tried with effect of Hydro carbon utilization to produce alternative carbon free gasoline fuel. Target beneficiaries of this fuel will be researchers, academicians, thermal power plants, industries, different engines boilers etc. To tackle green house effects, global warming because of integrated carbon capture and subsequent sequestration is generally advanced as the most promising option in the short to medium term. In this paper we discuss basic production procedure of an alternative carbon free gasoline fuel, the sustainable fuel.

2. LITERATURE REVIEW

Many countries in the world emit vastly different amounts of heat-trapping gases into the atmosphere. The Fig. 2 and Fig. 3 both show data compiled by the International Energy Agency, which estimates carbon dioxide (CO_2) emissions from the combustion of coal, natural gas, oil, and other fuels, including industrial waste and non-renewable municipal waste in 2015. With comparison of these figures it can be conclude that there is considerable increase in the CO2 emission from India.

The gasoline fuel production and utilisation will be the suitable solution. More than 3.5 t of carbon dioxide (CO2) emission releases resulted from burning 1 t of carbon in fossil fuels. Such cumulative concentrations of CO2 now approach 1 Tt in the atmosphere (Mikkelsen et al. 2010). Nevertheless, it will remain difficult to wean our world away from fossil fuels. For all their obvious faults, they remain relatively inexpensive, widely available and readily adaptable to applications large and small, simple and complex. Figure 1, 2 is a representation of our current global energy scenario based on fossil fuels; here, their intrinsic chemical energy is transformed into heat, electricity or electricity or movement (transportation) by combustion processes (Marban & Valdes-Solis 2007). Figure 3 gives detail idea of current global energy scenario based on fossil fuels. Here, the distribution of current consumption of energy sources is noted. The figure shows the primary energy sources in our modern energy society, and their ultimate secondary energy outlets. (Marban & Valdes-Solis 2007.) The increasing interests are focused on the concept of recovered CO2 being used to synthesize fuels (Centi & Perathoner 2009; Olah et al. 2009; Mikkelsen et al. 2010). This approach, which also encompasses the synthesis of commodity chemicals from CO2, we term carbon capture and conversion (CCC). Also increasing number of excellent reviews on the important aspects of CCC (Song & Pan 2004; Song 2006; Sakakura et al. 2007; York et al. 2007; Centi & Perathoner 2009; Indrakanti et al. 2009; Olah et al. 2009; Mikkelsen et al. 2010).

Pearson et al. (2011) tried recycled CO2 utilisation in transport application to reduce CO2 effects on environment. In this they tried novel techniques for the separation of CO2 directly from the atmosphere are reviewed, and the challenges and advantages relative to flue-gas capture and pathways for the production of carbonaceous fuels from CO2 are compared. An integrated system is proposed where renewable energy is stored in the form of synthetic methane in the gas grid for supply to the power generation and heat sectors while methanol and drop-in hydrocarbon fuels are supplied to the transport sector. The use of atmospheric CO2 and water as feed stocks for renewable energy carriers raises the important prospect of alleviating a dependency on imported fossil energy with the associated large financial transfers. Their application in the transport sector yields a high-value end product. They can be supplied as drop-in existing reciprocating and turbine-powered combustion engines or, at lower energetic cost and using simpler chemical plant, in the form of low carbon- number alcohols which can be burned at high efficiency levels in optimized internal combustion engines.

Current global energy scenario based on fossil fuels is compared with graphical representation (Fig. 1-3). In general if compared the CO2 emission with respect to individual country contributions, CO2 emission from India is in slight increase in year 2019 with respect to 2015 (Fig. 1-2). In details the distribution of category wise CO2 emission extraction should be compared. Here, the globally accepted distribution of current consumption of energy sources is noted with Fig. 3. The figure shows the primary energy sources in our modern energy society, and their ultimate secondary energy outlets (Marban & Valdes-Solis 2007).

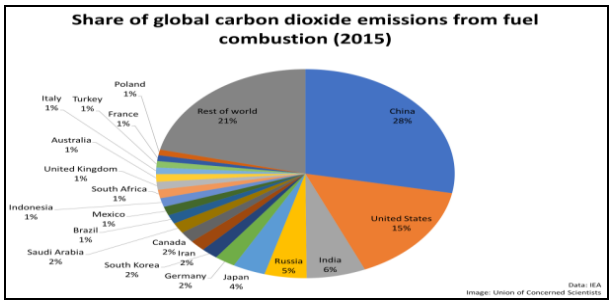

Figure 1. Global carbon dioxide emissions (2015)

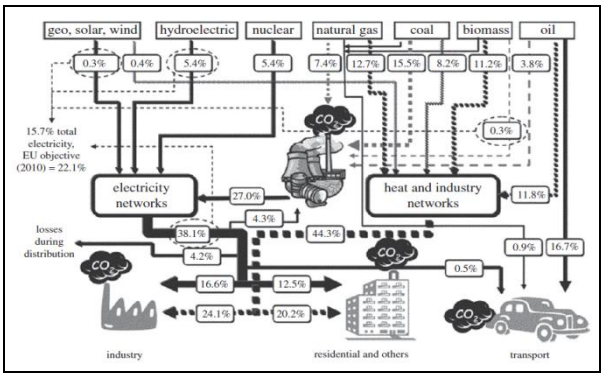

Figure 2. Global energy scenario based on fossil fuels (Marban & Valdes-Solis 2007.)

3. PROCEDURE OF GASOLINE PRODUCTION

The gasoline fuel production and utilisation will be the suitable solution against number of environmental, economical problems related to fuel and air pollutions relating global warming. The preferred and alternative embodiments of the present production of this fuel are described in following subsections.

Air entering agent: With inlet pipe (Fig. 1) air entering agent at required speed is produced and transferred in the first container filled with pure water. This air can be pure, impure or polluted or waste air. In this we can also use exit pipes of polluted gases.

Bubbles transfer: Air entering agent in water will create bubbles and will be transferred toward next container filled with oil Kerosene like properties (Fig. 1). This will induces hydrogen rating of Kerosene and further converts Kerosene like liquid into the fumes.

Final gasoline fuel production: The transferred kerosene fumes are further bubbled through oil, petrol like properties (Eqn. 1-4). This increases both hydrogen and carbon rating of petrol and further converts it into fumes containing mainly butane. These final fumes are the required product with propane and Octane fuel (Fig. 1).

The reactions in the combustion process are

- Gas + Oxygen = Carbon dioxide + Water +Heat (1)

Butane

- $2C_4H_{10(g)} + 13\ O_2 \rightarrow 8\ CO_{2(g)} + 10\ H_2O_{(g)} + Heat$ (2)

Propane

- $2C_3H_{8(g)} + 10\ O_2 \rightarrow 6CO_{2(g)} + 8H_2O_{(g)} + Heat$ (3)

Octane

- $2C_8H_{18} + 2S\ O_2 \rightarrow 16CO_2 + 18\ H_2O + Heat$ (4)

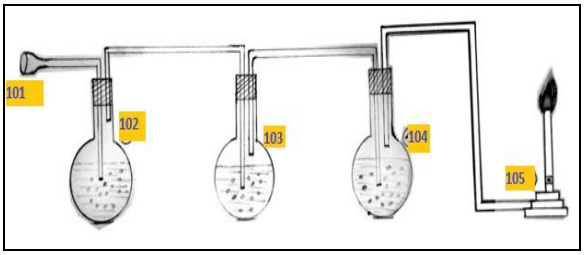

Figure 4. Gasoline fuel

4. RESULT AND DISCUSSION

Comparison of CO2 emission with utilization of gasoline fuel with r to different middle class owned two wheeler vehicles in Pune, Maharashtra, India. Production cost of gasoline fuel is also negligible as compared to current usage of fuel, petrol so not compared in detail. In the result comparison in detail actual Pollution Under Control (PUC) certificates for different two wheelers run on petrol and finally on our newly introduced gasoline fuel. Maximum permissible levels of PUC certificates are Carbon Mono-oxide = 3.5% and Hydrocarbon = 4500 ppm. With gasoline fuel the carbon mono-oxide and hydrocarbon extracts are checked and compared (Fig 5 and Fig 6). The vaporized gasoline fuel has good octa compared wine number. It is around 100 as the fuel mainly contains octane gas and it is economical and environment friendly fuel as it is using waste gases, any type of polluted air, less quantity of petrol and kerosene. This fuel has suitability as highly efficient fuel for IC engines, boilers, pumps, generators, burners. This fuel also has a capability to consume polluted air with negligible CO2 extracts.

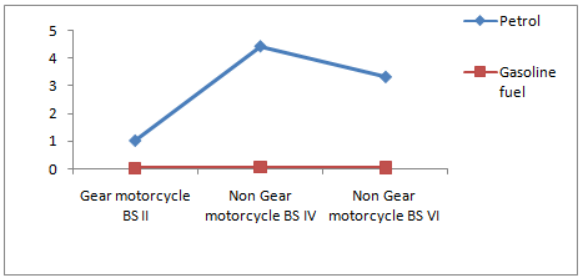

Figure 5. PUC result comparison for Carbon Mono-oxide (%)

5. CONCLUSION

- The fuel has good octa compared wine number around 100 as the fuel mainly contains octane gas and it is economical and environment friendly fuel.
- This is highly efficient fuel for IC engine's, boilers , pumps , generators, burners with a capability to consume polluted air
- The pollution free fuel is also consuming polluted air, CO_2, which intern reduces greenhouse effect, pollution and CO_2 amount in air.

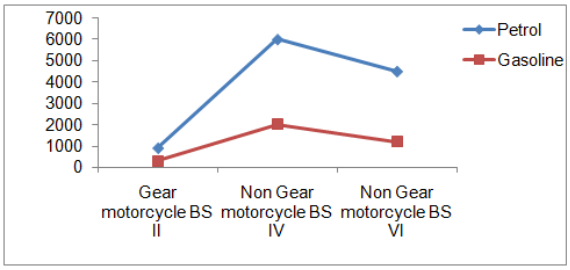

Figure 6. PUC result comparison for Hydrocarbon (PPM)

- Production cost of this fuel is less and can be easily transported.
- Handling of this gas is non-dangerous and it can be compressed and stored for longer times in storage tanks.
- The fuel gives more mileage and the suitability of gasoline fuel for conventional engines enables the continued provision of globally compatible, affordable vehicles.
- The CO2 emission of internal combustion engines from gasoline fuel and petrol is compared. The comparison is based on CO2 emission of two wheelers of mid-class owners with an inertia test weight of 125 kg. This study shows that the optimized gasoline fuel achieves the least CO2 emissions with best energy efficiency.

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