

## The Review on Fuel Energizer

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**Abstract-** This paper is to represent best way to use of fuel energizer to combust fuel and produce optimum power. "FUEL ENERGIZER" helps to reduce fuel consumption up to 30%. When fuel flows through powerful magnetic field created by Magnetizer inter molecular forces is considerably reduced or depressed hence oil particles are finely divided. A permanent magnet mounted in path of fuel lines. Placing magnets in fuel line enhance fuel properties such as it aligns & orients, molecules, better atomization of fuel (Proper air fuel mixture) etc. Use of such fuel conditioners improves mileage & better emission of vehicle. The fuel energizer work for arranging the fuel molecules in proper manner as it burnt without loss of fuel in combustion chamber of engine. As there no loss of fuel in combustion chamber it produce optimal power and automatically mileage of vehicle get increased. In automobile sector the evolution of fuel energizer is revolutionary work for increasing mileage of vehicle.

**Index Terms-** *Diamagnetic*<sup>1</sup>, *Paramagnetic*<sup>2</sup>, *light-off*<sup>3</sup>, *temperature*<sup>4</sup>, *Emission*<sup>5</sup>, *Mileage*<sup>6</sup>, *Efficiency*<sup>7</sup>

### 1. INTRODUCTION

India is the sixth largest consumer of crude oil in the world and consumes nearly 2.7 barrels a day which cost about 144 million dollars it means the this amount of crude oil getting combust every day and among it nearly 25 – 30% of total fuel and its energy is getting wasted. We as a mechanical engineer can use that wasted energy and to use that energy we can implement a device that is fuel energizer in vehicle. The same is true of home heating units where improper combustion wasted fuel and cost, money in poor efficiency and repairs due to build-up. Unburned hydrocarbon and oxides of nitrogen react in the atmosphere and create smog. Smog is prime cause of eye and throat irritation, noxious smell, plat damage and decreased visibility. Oxides of nitrogen are also toxic. Generally fuels for internal combustion engine are compound of molecules. Each molecule consists of a number of atoms made up of number of nucleus and electrons that atoms are not arranged in proper manner or can be say that the flow turbulent and it molecules are arrange and the laminar flow is created due to that the fuel can be burnt properly. There is different method's to conditioned to fuel. We are explain that methods in this paper. Vehicle on road produces large amount of CO, HC and NOx etc. as a exhaust emission. Typically I.C. engine used in automobiles have a problem of pollutant emission, which mainly depends on combustion process occurs in I.C. engines [3].

### 2. LITERATURE SURVEY:

Piyush M Patel<sup>1</sup>, Gaurav P Rathod<sup>2</sup>, Tushar M Patel<sup>3</sup> present a paper on the performance and

emission of the engine when is mounted by a fuel energizer. What will be the changes in engine combustion chamber and what is effects on the exhaust .

The author show from experiment result that the brake thermal efficiency increases due to the reduction of fuel consumption at higher load and there is significant reduction in the exhaust emissions at all load condition. The experiments results show the magnetic effect on fuel consumption reduction was up to 8% at higher load condition. The CO emission gets reduce at higher load. The effect on NOx emissions reduces range up to 27%. The reduction of HC emissions was range up to 32%. The CO<sub>2</sub> emission reduction was up to 11% at average of all loads. [1]

Author Ajay Kumar Agarwal presented a paper on having stoichiometric fuel burning parameters through proper magnetic lines of forces the internal combustion engine is getting maximum energy per litre as well as with lowest possible level toxic emission. HC goes down, mileage goes up. This result in scientifically measurable emission reduction/combustion efficiency ratio and an average increase in mileage of 15% - 25%. Since the Fuel Energizer saves fuel by increasing combustion efficiency, less CO is being emitted; thereby, less fuel is being used.[2]

Shweta Jain<sup>1</sup>, Prof. Dr. Suhas Deshmukh<sup>2</sup> concluded from their paper that establishing correct fuel burning parameters through proper magnetic means (MFC) one can assume that an internal combustion engine is getting maximum energy per liter as well as environment with lowest possible level toxic

emission. MFC increases the internal energy of a fuel to cause specific changes at a molecular level which obtained easier combustion. The resultant fuel burn more completely, producing higher engine output, better fuel economy, more power & most importantly reduces the amount of HC, CO, NO<sub>x</sub> in the exhaust. & therefore control the emission at low cost. In short the summary of the conclusion includes: MFC increases 10-40% mileage of vehicle, Reduction in HC emission & other pollutants, Avoid clogging problems in Diesel Engine, Cost saving, Eco friendly, Provides 30% extra life for expensive catalytic converter, reduce maintenance of engine most importantly does not require any design modification & finally cost saving. [3]

### PARA & ORTHO STATE OF HYDROGEN

The principle has been Used, and the effect has been achieved by the action of the Magnetizer where a strong enough flux fields is developed to substantially change the hydrocarbon molecule from its para state to the higher energized ortho state.

- In the para H<sub>2</sub> molecule, which occupies the even rotation levels (quantum number), the spin state of one atom relative to another is in the opposite direction ("counterclockwise", "anti-parallel", "one up & one down"), rendering it diamagnetic.

- In the ortho molecule, which occupies the odd rotational levels, the spins are parallel ("clockwise", "coincident", "both up"), with the same orientation for the two atoms; therefore, is paramagnetic and a catalyst for many reactions. It has one positive charge (proton) and one negative charge (electron), i.e. it possesses a dipole moment. It can be either diamagnetic or paramagnetic (weaker or stronger response to the magnetic flux) depending on the relative orientation of its nucleus spins. The interesting fact is that the ortho-hydrogen is more reactive than its para-hydrogen counterpart. The spin effect of the fuel molecules can be ascertained optically, based on refraction of light rays passing through liquid fuel as had been demonstrated by scientists while using infrared cameras installed, e.g. in metallurgical ovens where the magnetizer's had been effectively working. Furthermore, the conversion of hydrogen into ortho H<sub>2</sub> has been found highly advantageous in many technologies, especially those where hydrogen is used. Hydrocarbons have

basically a "cage-like" structure as shown in figure

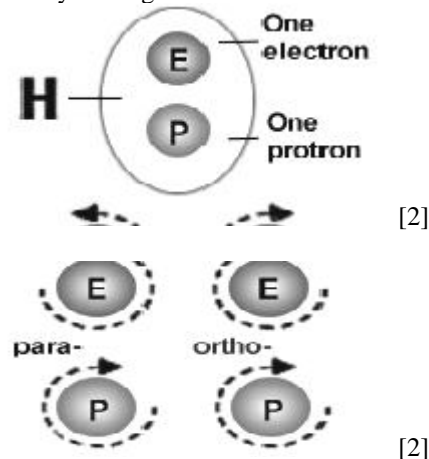


Fig. para and ortho state on hydrogen

### 3. FEATURES OF FUEL ENERGIZER

- Increase power production per litre.
- Higher starting torque.
- Reduce knocking.
- Decrease toxic exhaust.
- No fuel losses.
- Smooth running and long term maintenance of engine.
- Increase life of engine. Upto 30% increases life of catalytic converter of exhaust system.
- Upto 40% reduction in carbon monoxide emission.

### APPLICATIONS

- Fuel energizer used in buses, trucks bikes, cars.
- Can be use in home appliances.
- Used as water magnetizer
- Used in refrigeration system.

### CONCLUSION

To getting maximum power generation from per liter of fuel we need to arrange molecules of the fuel and we could get optimum power with no losses of fuel, due to that the emission of hydrocarbons, carbon monoxide, and nitrogen oxide is being lesser and due to that the pollution is reduced.

The efficient burning of fuel reduces the co<sub>2</sub> emissions and renders the engine environmentally safe and user friendly. Also the magnetizers support a non invasive

installation. By using magnetic means we can be assured that the internal combustion engine produce maximum energy with less toxic gases.

[8] Z. Hu and M. Ladommatos, "In-cylinder catalysts- a novel approach to reduce hydrocarbon emissions from spark ignition engines", SAE-UK, paper 952419, pp.1-8, 1995.

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