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A Study on the Effect of Manages In the Internal Combustion Engine as the Future Fuel

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ABSTRACT: "Petroleum fuels are rough & tough; it's time to say enough is enough. Be sure your car can go alcoholic, unlike the man, they run without panic".The twin crisis of environmental degradation and fossil fuel depletion has become more important than ever before. The only solution to this ever growing problem is to switch over to a more environment friendly fuels –The Alternative Fuels. In the developing countries especially in India, the increasing crude oil price has to be considered. Also the drawbacks of fossil fuel and its impact on the environment also has to be taken into account .Hence the virtual replacement of fossil fuels,the alternative fuels are expected to be cost-effective ,eco-friendly and better in all aspects. Alternative fuels can, and will provide a long lasting solution .One of the alternative fuels that has bright prospects is Magnegas .It is a clean burning fuel that is interchangeable with natural gas. It has the lowest gas emission when compared to fossil fuels and zero pollution.

KEY WORDS:I.C Engine, Alternative Fuel, Magnesgas, Hydrogen, Natural gas.

I. INTRODUCTION

Automobile takes lot of attention as a main source of transportation & thus fuel for automobile also important from technical point of view.Now a day, most of the automobile use fossil fuel as oil. Automobile engine produces hazardous substances like hydrocarbons, carbon monoxide, carbon dioxide, nitrogen oxide which causes air pollution, acid rain & the buildup of green house effect in atmosphere. Hydrogen as alternative fuel can resolve some of these problems but there are so many difficulties also involved in use of hydrogen as a fuel.To solve such problems, we propose the upgrading of hydrogen in a new automobile fuel called Magnegas, which is essentially a magnetically upgraded form of hydrogen into new cluster called magnecules.

Magnegas is produce as a byproduct in the recycling of liquid waste or from processing of carbon rich liquids. Its production is cheaper than other fuels. Its exhaust has no toxic substances, a positive balance of oxygen & less CO2 as compared to gasoline exhaust. Thus Magnegas may be the permissible alternative for the present conventional fuels. The technology to generate Magnegas is called plasma arc and it is based on flowing the liquid waste through a submerged electric arc between coal electrodes.the liquid waste could be sewage,effluents,by-products,molasses,sludge,animalmanure,used motor oil,used anti-freeze and waste water etc. The arc decomposes the liquid molecules into atoms and forms plasma around the tips of the electrodes at about 10,000°F.The plasma arc flow moves the plasma away from the electrodes and controls the formation of Magnegas that bubbles to the surface for collection. In this way liquid waste can be entirely eliminated from the planet and converted into Magnegas. A large amount of usable heat, liquid fertilizer or irrigation water and carbonaceous precipitates collected in a strainer for periodical removal and use for the production of the coal electrodes. Magnegas is a hydrogen-based fuel that has a combination of hydrogen, carbon monoxide and inert trace gases. The revolutionary plasma arc flow recycler creates this natural gas substitute which can power cars, cooking oils and industrial equipment. The machine uses an electrical process to decompose liquid waste molecules into atoms and the atoms are then recombined into magnegas.

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Magnegas exhaust has been certified to surpass all U.S.Environmental protection agency requirements without a catalytic converter and it is the only power that produces oxygen when it burns, making it dramatically cleaner than gasoline, diesel and natural gas. It can be made at a third of the cost of gasoline.

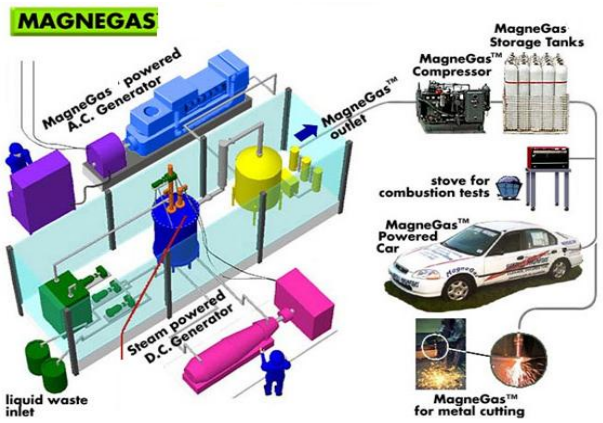

Fig 1-Magnegas Demo station

II. MAGNEGAS COMPOSITION

Magnegas is composed of gases such as hydrogen, carbonmonoxide, carbondioxide, water vapour and other trace gases in varying amounts as given in Table I. The technology is based on specially designed reactors, commercially referred to as plasma arc flow recyclers. Thesereactors are capable of recycling water-based liquid waste such as city, farm or ship sewage and sludge, used anti-freeze,etc. or oil based liquid wastes such as automotive oils, cooking oils etc. as well as crude oil into magnegas

TABLE 1

S.No.	Component	Percentage
1	Hydrogen	55%-65%
2	Carbon Monoxide	30%-35%
3	Carbon dioxide	1%-2%
4	Water vapour	2%
5	Trace gases	0.5%-1%

III. PLASMA ARC FLOW RECYCLERS

The plasma arc flow process consists of flowing a liquid through an electric arc at a specific rate, pressure and temperature.Rather complex new laws of hadronic mechanics then permit the achievement of new clean energies and fuel via a judicial control of flow,pressure and temperature per each liquid considered as well as additives and a variety of peripheral process.

The plasma arc recyclers are divided into three types:

A. Total Recyclers

These are intended for complete elimination of unwanted liquid waste via their recirculation through a submerged electric arc.The waste is converted into magnegas, usable heat and a small carbon residue called Hy-coal because it is impregnated with hydrogen, thus having very clean combustion.

B. Linear Recyclers

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These are intended for sterilization of bio-contaminated liquid waste via its single passage through one or more electric arcs.This results in the production of Magnegas, plus 95% of the original liquid in the form of clean filtered and sterilized water excellent for irrigation and Hy-Coal.A reverse osmosis is optional for the release of potable quality water

C. Total-linear recyclers:

These are used for the processing of dense farm manure and ship or city sludge via their treatment in total mode until the entire liquid is sterilised and its solid content is carbonised.The liquid is then processed in the linear mode for the removal of carbonised solids and completes other processes as may be required by local environmental authorities. This process results in Magnegas, heat, Hy-Coal and clean filtered and sterilised water excellent as an organic liquid fertiliser.

IV. PLASMA ARC FLOW TOTAL RECYCLERS

Plasma arc flow total recyclers were developed for the complete of unwantedliquid waste such as automotive anti-freeze and oil waste, cooking oil waste, industrial, agricultural and marine liquid waste, etc. as well as for the processing of crude oil into the clean burning magnegas. A submerged electric between carbonaceous electrodes decomposes the molecules of the liquid feedstocks into their atoms, ionizes the latter and forms a plasma at about 10000°F of mostly ionized H, C, O and other atoms.The plasma arc flow moves the plasma away from the arc and controls the subsequent chemical reactions.By continuously recirculating the liquid through the arc, plasma arc flow recyclers completely eliminates the liquid waste and transgforms it into the following:

1. Clean burning Magnegas that bubbles to the surface where it is collected and then subjected to various purification processes
2. Carbonaceous solids that precipitate at the bottom of the recyclers where they are periodically removed and used for the production of electrodes
3. The large amount of heat originating from the highly energetic reactions for the formation of Magnegas.This heat is acquired by the liquid feed stoick and can be used via a heat exchanger for heating up buildings, partial self-generation of electricity of the arc via a steam turbine desalting sea water via evaporation and other application. Total recyclers are environmentally very friendly because they eliminate unwanted liquid waste:they produce a combustible gas with free exhaust:all their operations are internal and release nothing in the environment and they cause no noise pollution since therir sole noise is that of ordinary pumps.Also, the use of ordinary coal for the production of electrodes enhances the energy content of Magnegas and has other advantages.The great affinity of oxygen and carbon prevents other elements such as sulphur from participating in the synthesis of the gas and precipitate as solids.Therefore, plasma arc flow recyclers also contrifubute a new method for the gasification of coal into a clean biurning fuel

V. PLASMA ARC FLOW LINEAR RECYCLERS

They have been conceived and developed for the recycling of bio-contaminated waters such as city, agricultural sewage.While total recyclers can use liquids of density provided that they can be pumped through the arc,linear recyclers can only process waste withupto 10% contaminants, thus requiring a simple dilution in the event of bigger concentration.Linear recyclers expose contaminated liquids to the 10000°F of the electric arc and its very intense ultraviolet light.All these factors eliminate any bacteriological activity while producing magnegas.Also,while passing through the electric arc, substances in suspension are turned into a carbonaceous form while substances in the solution as well as the temperature of the liquid remain essentially unaffected due to the speed of the flow. After passing through the electric arc, the liquid feed stock is passed through a centrifuge or other means for the removal of solids processed into the carbonaceous form and finally through a filtration system .In this way linear recycler can process water upto 10% bio-contaminants by producing:

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Table-2 Comparison of Different Fuels

Element	Magnegas (gm/mi)	Natural Gas	Gasoline	EPA standards (gm/mi)
Hydrocarbons	0.026	0.260gm/mi2460%	0.234gm/mi960%	0.41
Carbon monoxide	0.262	5.494gm/mi2096%	1.9gm/mi750%	3.40
Nitrogen oxides	0.281	0.732gm/mi260%	0.247gm/mi80%	1
Carbon dioxide	235	646.503gm/mi275%	458gm/mi196%	No EPA standards
oxygen	9%-12%	0.5gm/mi0.04%	0.5gm/mi0.04%	No EPA standards

1. Clean burning Magnegas for the total recyclers
2. Carbonaceous materials that are used for the total recyclers
3. Filtered water which is as transparent as tap warter yet contains the original substances in the solution, being excellent for irrigation Linear recyclers are environmentally very friendly because they release no contaminants of any type, have no air pollution and produce no odour. As such they are preferable over existing methods of sewage treatment, besides being cost effective and producing clean burning gaseous fuels.

VI. EFFICIENCY AND OPERATING COST OF RECYCLERS

Total recyclers have a very high efficiency which implies low operating costs and the production of magnegas is cost effective over that of other fuels of course when produced in large volumes. One reason of high efficiency is due the fact that certain recyclers are conceived and constructed to burn carbon via the electric arc rather than a flame.In fact in the plasma surrounding the tip of the electrode, there is carbon in the presence of oxygen and an electric discharge ,thus implying chemical reaction when burning coal on a stove, such as the formation of CO.The scientific efficiency is the ratio between the total energy out and the total energy in and that ratio is always smaller than 1 evidently due to the principle of conservation of energy.However, operating cost cannot include the energy contained in the oil waste because oil waste bring an income for their recycling rather than costing money.

VII. MEASUREMENT OF MAGNEGAS EXHAUST

An exhaust gas analysis was carried out in vehicle driven by Magnegas as source of power and was compared with that of natural gas and gasoline. A summary of the measurement is provided in the Table 2.

Note the dramatic quality of magnegas when compared to the exhaust of natural gas and gasoline in the same vehicle and the current EPA requirements. In fact magnegas exhaust contains about one-fifteenth of the EPA requirement.AlsoMagnegas exhaust has about 50% less green gases than gasoline exhaust and Magnegas exhaust contains breathable oxygen.Therefore Magnegas is the only fuel whose exhaust can sustain life.The following can be concluded from the above analysis:
1. Cars running on Magnegas can operate without a catalytic current while surpassing current EPA requirements
2. The presence of CO in Magnegas exhaust corresponds to the presence of un-burnt gasoline in the exhaust of a gasoline fuelled car because CO is fuel for magnegas while it is a combustion by-product of gasoline.
3. Magnegas is produced at 10000°F at which no hydrocarbon can survive. Therefore the detected traces of hydrocarbons originated from the seepage of oils through the piston rings and other sources rather than from magnegas.
4. In volume percentage,when burning in open air Magnegas exhaust is composed of about 50% water vapour, about 12% to 14% breathable oxygen,about 4% to 6% carbon dioxide, no hydrocarbon and no carbon monoxide while all the remaining exhaust components are inert atmospheric gases

VIII. USE OF MAGNEGAS AS AN AUTOMOTIVE FUEL

Magnegas can be produced in any desired quantity and any desired location while being cleaner, safer and cheaper than

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gasoline.

1. It is renewable.
2. Magnegas burns cleaner than gasoline ,bio-diesel , ethanol and natural gas
3. Magnegas costs lesser than Fossil fuels.
4. It has been proved to be very reliable and can run for 24 hours a day.
5. It is non-explosive and hence it is very safe.

IX. CONCLUSION

1. The quality of MagneGas exhaust is dramatically better than that of natural gas and gasoline. MagneGas exhaust is much lower than EPA requirements; has about 50% less green gases (CO2) than gasoline exhaust; and contains 9% to 12% oxygen. Based on these measurements,it is postulated that MagneGas fuel can be used as an additive to fossil fuels to improve their exhaust characteristics.
2. MagneGas does not contain (heavy) HC since it is created at 7,000º F. Therefore, the measured HC is expected to be due to combustion of oil, either originating from MagneGascompression pumps- contaminating the gas, or from engine oil.
3. Carbon monoxide is fuel for MagneGas, while being a combustion product for gasoline and natural gas. Therefore, any presence of CO in the exhaust is evidence of insufficient combustion.
4. Nitrogen oxides are not due, in general, to the fuel, whether MagneGas or other fuel but to the temperature of the engine, thus being an indication of the quality of its cooling system. Therefore, for each given fuel, including MagneGas, NOx's can be decreased by improving the cooling system and other means.
5. Also indicate considerable research efforts under way to further reduce the CO2 content via suitable cartridges of disposable chemical sponges placed in the exhaust system. Additional research is under way via liquefied MagneGas obtained via catalytic or conventional liquefaction, which is expected to have anomalous energy content with respect to other liquid fuels, and an expected, consequential decrease of pollutants.
6. The currently environmentally unacceptable coal is turned by magne gas into a fuel that can meet the strongest environmental requirements .It also adds up to environmental and industrial benefits .Hence when produced in sufficient volume, magne gas is indeed competitive with respect to natural gas and gasoline.

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