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Gasoline Ethanol Blends on Perfomance and Emission in Gasoline Engine

S. Vanangamudi, S. Prabhakar, C. Thamotharan and R. Anbazhagan

Department of Automobile Engineering,
BIST, Bharath University, Selaiyur, Chennai, Tamilnadu, India

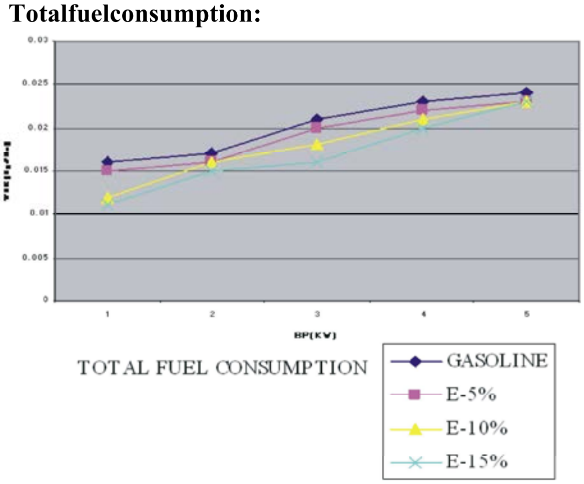
Abstract: The research is about gasoline and ethanol blend. The emissions from gasoline engine are seriously threaten the environment and are considered one of the major sources of air pollution. Different methods are investigated to reduce the emissions. One such method is blending ethanol in gasoline, most of the emissions are formed due to incomplete combustion of fuel due to lack of oxygen in combustion, gasoline has no oxygen content, as Oxygen for combustion is derived from the intake air, additional oxygen is supplied through ethanol blended in gasoline as ethanol.

Key words: The research is about gasoline and ethanol blend, is blending ethanol in gasoline, combustion is derived from the intake air, contain oxygen in molecular.

INTRODUCTION

Gasoline engine provide the major power source for transportation and contribute to the prosperity of the world wide economy. The emissions from gasoline engines also seriously threaten the environment and are considered one of major sources of air pollution. The pollutants emitted from gasoline engines are confirmed to cause the ecological environmental problems such as the ozone layer destruction, enhancement of the green house effect and acid rain. Emissions from gasoline engine impact on human beings [1].

Totalfuelconsumption:



CONCLUSION

- Combustion duration increases for ethanol and gasoline blends.
- Fuel consumption increases for the ethanol and gasoline blends.

Future Work:

- Introducing ethanol injection either in manifold or directly into cylinder.
- Introducing E-85.
- Introducing flexible fuel vehicle system.

Literature Survey: Gasoline does not have any oxygen content in molecular structure by blending ethanol in gasoline additional oxygen is supplied and there by reduces emissions. As ethanol having higher octane number it reduces knocking in engine [2-9].

- Abdel-Rahman and Osman, increase of ethanol content increases the octane number, but decreases the heating value. The 10% addition of ethanol had the most obvious effect on increasing the octane number.
- Bata *et al*., different blend rates of ethanol-gasoline fuels in engines can reduce the CO and HC emissions

Corresponding Author: S. Vanangamudi, Department of Automobile Engineering, BIST, Bharath University, Selaiyur, Chennai, Tamilnadu, India.

to some degree. The reduction of CO emission is apparently caused by the wide flammability and oxygenated characteristic of ethanol [10-15].

- Alexandrian and schwalm, the stiochiometric air-fuel ratio has great influence on the CO emission. Using ethanol-gasoline blended fuel instead of gasoline alone, especially under fuel-rich conditions, can lower CO and NOX emissions [16]-[25].
- Alvydas Pikunas, Saugirdas Pukalskas & Juozas Grabys, when ethanol is added the heating value of the blended fuel decreases, while the octane number of the blended fuel increases. When ethanol-gasoline blended fuel is used, the engine power and specific fuel consumption of the engine slightly increase, CO & HC emission decreases and CO2 emission increases because of the improved combustion [26-27].
- Bjorn Rehnlund, Atrax energi AB, blends up to 15% ethanol will not have any significant negative effects on the wear of the engine or vehicle performance. The emissions of benzene, toluene, ethyl benzene and xylene are slightly decreased with ethanol blends and for acetaldehyde and formaldehyde emissions there is slightly increase [28].
- Dr. Ranjit (Ron) Shau, the emissions of CO & HC are reduced in the presence of ethanol due to the presence of the oxygen atom in the fuel. Many of the toxics show expected to decreases, such as aldehydes in presence of ethanol, the aldehydes act as an ozone precursor and increase the smog- forming potential [29].
- James Bolluyt, ethanol having higher octane number and when blended with gasoline the octane number of the blend increase there by reducing the knocking of the engine. CO and HC emissions decreases in gasoline-ethanol blend.10% ethanol cuts the amount of CO by 25%. A slight increase in C02, which causes global warming [30].
- Gary z. whitten, Ph.D, with ethanol blending in gasoline reduces PM, CO, Toxics and ozone formation with combustion chamber deposits there is an increase in CO, NOX and HC.

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