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## **An experimental investigation of MPFI gasoline engine fuelled with ethanol and n-butanol**

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### **Abstract**

In today's world, energy security emerged as a decisive challenge among developing economies of the world, India is one such country. Importing the colossal amount of oil to fulfill daily oil demand, uncertainty in the fuel prices, and continuous degradation of air quality thwarts the nation's economy. To make it less severe, biofuels are observed to be promising alternatives that can overcome the issues of oil import and emission drawbacks. Biofuels seem to be an alternative to conventional fuels due to the advantage of having reduced emissions and better air quality. This paper presents an experimental investigation of biofuels Ethanol and n-Butanol in a Multipoint Fuel Injection (MPFI) Gasoline Engine. It involves the testing of different biofuel blends in a four-cylinder petrol engine to obtain the best biofuel proportion in terms of performance and emission. The analysis of the results shows that the use of biofuel blend in gasoline significantly improves the performance of an engine for ethanol blend of E5 and E10 and the n-butanol blend of B10. Further, there is a considerable decrease in emission parameters for the E5 and B10 blend of biofuel compared with all other tested blends.

### **Keywords:**

Biofuel, Butanol, Ethanol, Emission analysis, Gasoline engine, Multi-Point Fuel Injection

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