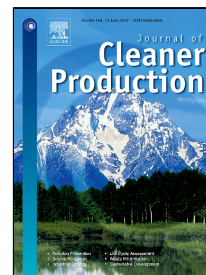


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Comparative Assessment of Ethanol and Isobutanol Addition in Gasoline on Engine Performance and Exhaust Emissions

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1 **COMPARATIVE ASSESSMENT OF ETHANOL AND ISOBUTANOL ADDITION IN**
2 **GASOLINE ON ENGINE PERFORMANCE AND EXHAUST EMISSIONS**

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12

13 **Abstract**

14 The depletion of fossil fuels is causing great concern and it is important to search for
15 alternatives. Ethanol and isobutanol are suitable for spark ignition engine due to their
16 favorable physicochemical properties that can be blended with pure gasoline to reduce
17 the dependency on petroleum fuels. Six types of fuel blends consisting of ethanol and
18 isobutanol were mixed with gasoline at different volume rates and were tested on a
19 four-cylinder spark ignition engine by varying the engine speeds and engine torques to
20 evaluate their engine performance and exhaust emissions characteristics. The results
21 indicate that the binary blend of E20 gives an increase in torque, brake power and
22 brake thermal efficiency, while the ternary blend of E10iB10 gives an increase in brake

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