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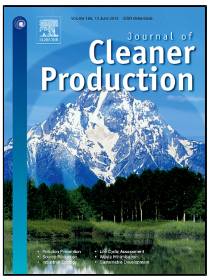

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COMPARATIVE ASSESSMENT OF ETHANOL AND ISOBUTANOL ADDITION IN GASOLINE ON ENGINE PERFORMANCE AND EXHAUST EMISSIONS

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Abstract

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