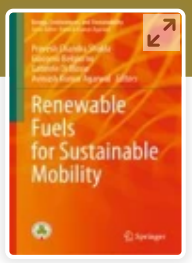

Renewable Fuels for Sustainable Mobility pp 201–220

A Bibliometric Review of Alcohol–Diesel Blend in CI Engines

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Abstract

A large number of diesel engine applications in the transportation and agriculture sector has become a major concern for environmental pollution. It is quite difficult to improve diesel engine performance and at the same time controlling its emissions effectively. There are various methods to achieve the same e.g., changes in engine design, fuel blending with additives, engine exhaust treatment, etc. The most practical technique for

controlling high emissions without degrading engine performance is to modify fuel with additives. Alcohols are the most promising additives which have been used by various researchers worldwide. In the current study, a bibliometric-based study and the role of various alcohol additives in improving combustion, performance, and fumes outflow qualities of CI engines were comprehensively reviewed. Due to higher oxygen levels in the combustion zone, it was found that combining diesel with alcohol reduces the emissions of CO_2, CO, HC, soot, and particle matter.

Keywords

Diesel-fuel engine

Compression ignition engine **Alcohol**

Emission **Performance**

Abbreviations

ACS: American Chemical Society

°C: Degree centigrade

BP: Brake power

EGR: Exhaust gas recirculation

BTE: Brake thermal efficiency

HC: Hydrocarbon

BSFC: Brake-specific fuel consumption

IP: Injection pressure

CI: Compression ignition

IT: Injection time

CN: Cetane number

NO_x: Oxides of nitrogen

CO_2: Carbon dioxide

PM: Particulate matter

CR: Compression ratio

RPM: Revolution per minutes

cSt: Centistokes

T&F: Taylor and Francis

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