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# Effects of fusel oil water content reduction on fuel properties, performance and emissions of SI engine fueled with gasoline -fusel oil blends



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## ABSTRACT

This study sets out to determine the effects of water reduction on the properties characteristic of fusel oil-gasoline blends, also to study the effects of this reduction on the performance and emissions of an SI engine. The experiments were performed on a SI engine under 4500 rpm speed, different open throttle valve position (% of WOT) as engine loads. As a result of the reduced water content from 13.5% to 6.5%, the heating value and carbon content improved by 13% and 7.9% respectively. While the oxygen content reduced by 14%. The brake power was slightly increased than that of gasoline for most fusel oil-gasoline blends. Furthermore, it was observed that the fusel oil after water extraction (FAWE10 and FAWE20), the fusel oil had slightly higher power compared to the fusel oil before water extraction (FBWE10 and FBWE20). Moreover, brake-specific fuel consumption (BSFC) and brake thermal efficiency (BTE) improved by reducing the water content. The engine emissions were also slightly increased with the reduction of water content.

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