

An overview of Higher alcohol and biodiesel as alternative fuels in engines

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Abstract:

Hydrocarbon based conventional fuels are considered as fast depleting and harmful to the environment as they release poisonous chemicals to the atmosphere. Higher Alcohols and Biodiesel are the most promising alternative fuels widely researched due to their availability, ease of production and environmental benefits. The use of alternative fuels such as alcohol and biodiesel in engines aims to reduce air pollution and energy costs. The most commonly used higher alcohol fuel are bio-ethanol, isopropanol, propanol, ethanol–methanol, butanol, n-butanol, tert-butanol and iso-butanol. The commonly used biodiesel are derived from the waste cooking oil, Pyrolysis oil, Palmoil, Jatropha oil, Karanja oil and Linn oil. The purpose of this review is to reveal engine performance and combustion characteristics using alternative fuels such as alcohol and biodiesel. Also summarized are the effects of alternative fuels on emission properties such as NO_x, CO and HC.

Keywords: Alcohol; Alternative fuel; Biodiesel; Combustion; Emissions; IC engines; Performance