Effect of bioethanol on engine performance and exhaust emissions of a diesel fuel engine

Zulkifli Abdul Majid, author

Abstrak

Bioethanol is a renewable and oxygenated bio-based resource with the potential to reduce particulate emissions in direct fuel injection diesel engines. This study aims to further diminish the outflow of a Diesel Fuel Engine motor fueled by diesel-bioethanol by identifying the most suitable blend by applying various blends of diesel-bioethanol, namely E10, E20, E50, and E80 blends. The Diesel engine had been tested using solely diesel fuel and then with bioethanol blends for comparison purposes. The results show that bioethanol fuel can provide a lower torque for the Diesel engine, but a similar engine performance occurs in terms of Horse Power. However, the presence of bioethanol inside the blended fuels increases the emissions of Unburned Hydrocarbon, (HC), CO, CO2, and NOx compared to engines that use only Pure Diesel. E10 has been found as the most ideal blend from all the fuels tested. Further research is required to distinguish the E80 fuel blend, as it is unable to be tested on a 6-cylinder engine, since the standard running Diesel engine suitable for the E80 blend fuel is a single cylinder.