



ChemTech

International Journal of ChemTech Research

CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.11 No.02, pp 427-435, 2018

Performance and Emission Characteristics of C.I Engine with Composition of Cobalt Aluminium Oxide as Additive to Diesel

Annamalai Asokan*, Channankaiah, Senthil Kumar Kandasamy

Department of Mechanical Engineering, Adhiyamaan College of Engineering-Hosur,
TamilNadu, India

Abstract : The objective is to integrate nanoparticles with fuels such as diesel, biodiesel, a plastic fuels, etc. to increase the fuel efficiency. The metal oxide nanoparticles will reduce the carbon monoxide emissions by donating oxygen atoms from their lattices to catalyze the combustion reactions and to aid complete combustion; due to this, there will be an increase in the calorific value of the blend (fuel + nanoparticles). The size of the particles to be 20 to 30nm for aluminum oxide and cobalt oxide nanoparticles respectively. These nanoparticles have been synthesized by using ultrasonicator. Different concentration blends- 250, 500, 750ppm were prepared by adding the required weight of metal oxides in 1 liter of diesel and sonicating for an hour. The blend properties- calorific value, viscosity, and flash point were determined. The engine was loaded with different brake power with each blend of the diesel-fuel additive. The significant improvement in brake thermal efficiency, brake specific fuel consumption, and exhaust gas temperature is observed.

Keywords : Aluminum Oxide, Cobalt Oxide, CI Engine, Performance, Emission.

Senthil Kumar Kandasamy *et al* / International Journal of ChemTech Research, 2018,11(02): 427-435.

DOI= <http://dx.doi.org/10.20902/IJCTR.2018.110250>
