ABSTRACT

The national importance is given to energy conservation and the environment has broadened the segment of the technical community to have intense interest in diesel engine exhaust emission control.

Emission from diesel exhaust particularly particulate matter affects the human health. The particulate matter causes eye irritation, reduction in visibility, damage to our throat, respiratory system and carcinogenic effects.

To control particulate matter considerable research is currently aimed at engine hardware modification, wide scale use of electronic engine management system and exhaust gas after treatment.

Nowadays exhaust gas after treatment is gaining importance in controlling the particulate emission.

Of various exhaust gas, after treatment devices ceramic filters coated with oxidation catalyst are often a cost effective and gives an efficient solution to the particulate emission problem.

In this work the experimental investigation on particulate emission control using uncoated ceramic filter and bimetal coated ceramic filters for different brake power were done.

The metal taken for coating was Chromium-Copper, Chromium-Calcium, Chromium-Barium, Chromium-Ferrous, Copper-Chromium, Copper-Calcium, Copper-Barium and Copper-Ferrous combinations.
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Filter absorbs the particulate at the active sites and uses oxygen found in the exhaust for oxidation at temperature above 500°C and this temperature not easily achieved during normal engine operating condition. The Oxidation temperature of particulate is reduced to 250°C by coating bimetal catalyst over ceramic filter. Chromium-Copper and Copper-Chromium bimetal coated ceramic filter reduce particulate emission than the uncoated ceramic filter.

It has been experimentally found that Chromium-Copper and Copper-Chromium bimetal coated on ceramic filters offers the maximum particulate reduction, smoke reduction and high trapping efficiency when compared to other bimetal coated ceramic filters.

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