

عنوان مقاله:

Simulation of Soot Filling and Pressure Drop of a Diesel Particulate Filter in Different Driving Cycles

محل انتشار:

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خلاصه مقاله:

Recent studies have shown that the particulate emissions, specifically particulate matters with a diameter of lower than 2.5 micrometers, are the main factor in polluting Tehran's weather. Among all other sources, the mobile sources have a share of more than 80 percent in generating this pollutant, and the share for the diesel cars is more than 50 percent of the overall particulate matters produced in Tehran. The main issue in the performance of the diesel particulate filter is regeneration, which means burning the soot and turning it into ash. The regeneration can be done either actively (with the help of an external force) or passively (spontaneously and without any external force). The filter in this study is actively regenerated, and the process of active regeneration will begin when the pressure drop across the filter reaches a specific point. The duration and the displacement that takes for the filter to reach this point is different in various driving conditions. In this paper, a diesel particulate filter mounted on a diesel passenger car was simulated by GT-Suite software in three driving cycles: Tehran, Europe (NEDC), and FTP75. The results show that the displacement required for the DPF to reach the pressure drop limit is different in these cycles, and it clarifies the effect of the driving conditions on the diesel particulate filter.

کلمات کلیدی:

Diesel Particulate Filter, Soot, Pressure Drop in DPF, Driving Cycle

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