CATALYZED DIESEL PARTICULATE TRAP: TECHNOLOGY ASSESSMENT

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As 2007 emission regulations are likely to require the use of diesel particulate filters, an evaluation aimed at assessing state-of-the-art technology was performed. The study included two commercially available filter systems. The engine chosen for this study was a low horsepower configuration aimed at transit transportation. The test matrix was designed to include filter loading at one steady-state engine operating condition and two loading levels and two different regeneration strategies. The regeneration conditions simulated a perceived best case and worst-case scenario. These conditions are likely to be seen in the field, particularly in the transient duty applications. Measurements including filtration efficiency, regeneration efficiency, ash accumulation and engine back-pressure were recorded for each of the tests, and the data were compared for the two technologies and various operating conditions.

In summary, both technologies offered high filtration efficiencies (>95 percent) with balance point temperatures of 350-370°C. Engine back-pressures were similar for both technologies and exceeded the maximum recommended levels. Regeneration efficiencies were generally low, especially with increased accumulated (filtered) particulate matter in the filter. Finally, estimated ash accumulation compared favorably with measurements.