COMPLEMENTARY EXPERIMENTAL TOOLS FOR UNDERSTANDING DIESEL PARTICULATE FILTER BEHAVIOR

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ABSTRACT

During the last 3 years, a set of unique laboratory techniques was developed at Cummins to investigate various aspects of diesel particulate filter (DPF) loading and regeneration processes. A novel rapid protocol for measuring particulate matter oxidation rates under various conditions has been developed using a micro-reactor system. Also, a unique system was designed, which allows us to load soot-filter cores in a diesel exhaust and subsequently study their regeneration and back-pressure behavior under well-controlled conditions in a pilot reactor. The results obtained with these techniques show good correlation with the on-engine testing.